ANALYTICAL REPORT

PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 12/1/2023 5:13:01 AM

JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-195971-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

Eurofins Cleveland

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

Generated 12/1/2023 5:13:01 AM

Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396 Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-195971-1

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Definitions/Glossary

Client: ARCADIS US Inc Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

Qualifiers

GC/MS VOA

U Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

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

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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Case Narrative

Client: ARCADIS US Inc

Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

Job ID: 240-195971-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-195971-1

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 11/25/2023 10:00 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 time was 2.7°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-596013 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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

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Method Summary

Client: ARCADIS US Inc Job ID: 240-195971-1

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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Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-195971-1	TRIP BLANK_108	Water	11/21/23 00:00	11/25/23 10:00
240-195971-2	MW-178S_112123	Water	11/21/23 11:25	11/25/23 10:00

Job ID: 240-195971-1

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Detection Summary

Client: ARCADIS US Inc Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_108 Lab Sample ID: 240-195971-1

No Detections.

Client Sample ID: MW-178S_112123 Lab Sample ID: 240-195971-2

No Detections.

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Client Sample Results

Client: ARCADIS US Inc Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_108

Lab Sample ID: 240-195971-1 Date Collected: 11/21/23 00:00

Matrix: Water

Date Received: 11/25/23 10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/23 14:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/23 14:44	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 14:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/23 14:44	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 14:44	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/23 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137			_		11/29/23 14:44	1
4-Bromofluorobenzene (Surr)	98		56 ₋ 136					11/29/23 14:44	1
Toluene-d8 (Surr)	103		78 - 122					11/29/23 14:44	1
Dibromofluoromethane (Surr)	100		73 - 120					11/29/23 14:44	1

Client Sample Results

Client: ARCADIS US Inc Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

Date Received: 11/25/23 10:00

Client Sample ID: MW-178S_112123

Lab Sample ID: 240-195971-2 Date Collected: 11/21/23 11:25

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/29/23 20:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		66 - 120			-		11/29/23 20:20	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/23 16:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/23 16:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 16:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/23 16:00	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 16:00	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/23 16:00	1
Surrogate	%Recovery	Qualifier	Limits			_	Prepared	Analyzed	Dil Fac
4.0 D'able or all and all (0 and	400		00 407					44 /00 /00 40 00	

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		11/29/23 16:00	1
4-Bromofluorobenzene (Surr)	102		56 - 136		11/29/23 16:00	1
Toluene-d8 (Surr)	107		78 - 122		11/29/23 16:00	1
Dibromofluoromethane (Surr)	101		73 - 120		11/29/23 16:00	1

Surrogate Summary

Client: ARCADIS US Inc

Project/Site: Ford LTP - Off Site

Job ID: 240-195971-1

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

Matrix: Water Prep Type: Total/NA

				Percent Sui	rrogate Reco
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-195971-1	TRIP BLANK_108	100	98	103	100
240-195971-2	MW-178S_112123	100	102	107	101
240-195972-D-4 MS	Matrix Spike	94	101	105	96
240-195972-E-4 MSD	Matrix Spike Duplicate	93	103	105	96
LCS 240-596013/5	Lab Control Sample	89	98	106	98
MB 240-596013/9	Method Blank	95	98	101	99
0					

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)
		DCA	
Lab Sample ID	Client Sample ID	(66-120)	
240-195971-2	MW-178S_112123	109	
240-195972-I-4 MS	Matrix Spike	105	
240-195972-M-4 MSD	Matrix Spike Duplicate	104	
LCS 240-596116/4	Lab Control Sample	104	
MB 240-596116/6	Method Blank	106	
Surrogate Legend			

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

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Job ID: 240-195971-1

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

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

Lab Sample ID: MB 240-596013/9

Matrix: Water

Analysis Batch: 596013

Client Sam	ple ID:	Method	Blank
	Pron	Type: To	tal/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/23 11:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/23 11:23	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 11:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/23 11:23	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 11:23	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/23 11:23	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		11/29/23 11:23	1
4-Bromofluorobenzene (Surr)	98		56 - 136		11/29/23 11:23	1
Toluene-d8 (Surr)	101		78 - 122		11/29/23 11:23	1
Dibromofluoromethane (Surr)	99		73 - 120		11/29/23 11:23	1

Lab Sample ID: LCS 240-596013/5

Matrix: Water

Analysis Batch: 596013

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	Spike	LCS	LCS			%Rec	
Analyte	Added	Result	Qualifier Ur	it D	%Rec	Limits	
1,1-Dichloroethene	20.0	22.0	ug	/L	110	63 - 134	
cis-1,2-Dichloroethene	20.0	19.0	ug	/L	95	77 - 123	
Tetrachloroethene	20.0	20.8	ug	/L	104	76 - 123	
trans-1,2-Dichloroethene	20.0	20.6	ug	/L	103	75 - 124	
Trichloroethene	20.0	18.3	ug	/L	92	70 - 122	
Vinyl chloride	20.0	23.8	ug	/L	119	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		62 - 137
4-Bromofluorobenzene (Surr)	98		56 ₋ 136
Toluene-d8 (Surr)	106		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: 240-195972-D-4 MS

Matrix: Water

Analysis Batch: 596013

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

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	1.0	U	20.0	20.4		ug/L		102	56 - 135	
cis-1,2-Dichloroethene	1.0	U	20.0	18.0		ug/L		90	66 - 128	
Tetrachloroethene	1.0	U	20.0	18.8		ug/L		94	62 _ 131	
trans-1,2-Dichloroethene	1.0	U	20.0	19.8		ug/L		99	56 - 136	
Trichloroethene	1.0	U	20.0	17.7		ug/L		89	61 - 124	
Vinyl chloride	1.0	U	20.0	22.5		ug/L		112	43 - 157	

MS MS

Surrogate	%Recovery Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94	62 - 137
4-Bromofluorobenzene (Surr)	101	56 - 136
Toluene-d8 (Surr)	105	78 - 122

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Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Job ID: 240-195971-1

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

Lab Sample ID: 240-195972-D-4 MS

Matrix: Water

Analysis Batch: 596013

Client Sample ID: Matrix Spike

Prep Type: Total/NA

MS MS

Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 96 73 - 120

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

Lab Sample ID: 240-195972-E-4 MSD **Matrix: Water**

Analysis Batch: 596013

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	1.0	U	20.0	20.3		ug/L		101	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	20.0	18.1		ug/L		91	66 - 128	0	14
Tetrachloroethene	1.0	U	20.0	19.3		ug/L		97	62 - 131	3	20
trans-1,2-Dichloroethene	1.0	U	20.0	19.5		ug/L		98	56 - 136	1	15
Trichloroethene	1.0	U	20.0	17.6		ug/L		88	61 - 124	0	15
Vinyl chloride	1.0	U	20.0	21.9		ug/L		110	43 - 157	3	24

MSD MSD Qualifier Surrogate %Recovery Limits 1,2-Dichloroethane-d4 (Surr) 93 62 - 137 103 4-Bromofluorobenzene (Surr) 56 - 136 Toluene-d8 (Surr) 105 78 - 122 Dibromofluoromethane (Surr) 96 73 - 120

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

Lab Sample ID: MB 240-596116/6

Matrix: Water

Analysis Batch: 596116

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

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike

MR MR Dil Fac Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 11/29/23 19:46

MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 106 66 - 120 11/29/23 19:46

Lab Sample ID: LCS 240-596116/4

Matrix: Water			Prep Type: Total/NA
Analysis Batch: 596116			
	Spike	LCS LCS	%Rec

Analyte Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 10.0 9.93 ug/L 80 - 122

LCS LCS %Recovery Qualifier Surrogate

Limits 1,2-Dichloroethane-d4 (Surr) 66 - 120 104

Lab Sample ID: 240-195972-I-4 MS

Matrix: Water

Analysis Batch: 596116										
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	10.1		ug/L		101	51 - 153	

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Prep Type: Total/NA

QC Sample Results

Client: ARCADIS US Inc Job ID: 240-195971-1 Project/Site: Ford LTP - Off Site

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

%Recovery Qualifier

104

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		66 - 120

Lab Sam	ple ID:	240-1959	72-M-4 MSD

Matrix: Water

Surrogate

Analysis Batch: 596116

1,2-Dichloroethane-d4 (Surr)

	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	9.79		ug/L		98	51 - 153	3	16
	MSD	MSD									

Limits

66 - 120

Prep Type: Total/NA

Client Sample ID: Matrix Spike Duplicate

QC Association Summary

Client: ARCADIS US Inc Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

GC/MS VOA

Analysis Batch: 596013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
240-195971-1	TRIP BLANK_108	Total/NA	Water	8260D	
240-195971-2	MW-178S_112123	Total/NA	Water	8260D	
MB 240-596013/9	Method Blank	Total/NA	Water	8260D	
LCS 240-596013/5	Lab Control Sample	Total/NA	Water	8260D	
240-195972-D-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-195972-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 596116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-195971-2	MW-178S_112123	Total/NA	Water	8260D SIM	
MB 240-596116/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-596116/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-195972-I-4 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-195972-M-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

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Lab Chronicle

Client: ARCADIS US Inc Job ID: 240-195971-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_108

Lab Sample ID: 240-195971-1 Date Collected: 11/21/23 00:00

Matrix: Water

Date Received: 11/25/23 10:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	596013	AJS	EET CLE	11/29/23 14:44

Client Sample ID: MW-178S_112123 Lab Sample ID: 240-195971-2

Date Collected: 11/21/23 11:25 Matrix: Water

Date Received: 11/25/23 10:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	596013	AJS	EET CLE	11/29/23 16:00
Total/NA	Analysis	8260D SIM		1	596116	TJL2	EET CLE	11/29/23 20:20

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS US Inc Job ID: 240-195971-1 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.

Eurofins Cleveland

The State 200 The State 20	Client Contact	Regulatory program: DW	NPDES RCRA	Other	3	2
The plane Shi Interference The plane	Company Name: Arcadis		-			TestAmerica Lab
Telephone 246-994-2340	ess: 28550 Cabot Drive, Suite 500	Cheft Project Manager: Kris Hinskey	Site Contact: Christina Weaver	Lab Contact: Mike DelMo	nico	COC No:
State Company Compan	State/Zip: Novi, MI, 48377	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396		,
Suppling Tracking Name of Suppling Name o	: 248-994-2240	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Ana	lyses	For lab use only
	ct Name: Ford LTP Off-Site		TAT if different from below 3 weeks			Walk-in citent
Company Comp	ct Number: 30167538,402,04	Method of Shipment/Carrier:	2 weeks 1 week	Э	WI	Lab sampling
Simple thentification Simple Time Simp	90167538.402.04	Shipping/Tracking No:		(5r±b= 000 000 82601		Job/SD/G No.
Sample Identification Sample Date Sample Date Sample Time Library		Matrix	5) CCE E 85 Se00 Se00		***
1465 12123 Walter 125 16 6 6 6 6 7 7 7 7 7	Sample Identification	Sample Time Aqueous Sediment	HVO3 NaOH NaOH Unpres Ofber:	Compesite 1,1-DCE 82 Dis-1,2-DCE Trans-1,2-C PCE 8260D		Sample Speci Special Insti
1785		1		× × × × ×	×	1 Trip Blan
and desidentication and de	W-1785_112123			× × × × × × × × × × × × × × × × × × ×		3 VOAs for 8.
The following requested. Company: Compa						
and identification and i Flammable Skin Irritant Poison B Unknown Sample Bisposal (A fee may be assessed if samples are retained longer than 1 month) and Flammable Skin Irritant Poison B Unknown Sample Bisposal (A fee may be assessed if samples are retained longer than 1 month) and Flammable Skin Irritant Poison B Unknown Sample Bisposal (A fee may be assessed if samples are retained longer than 1 month) and Return to Client Date/Time Company:						
and Identification and Identific						
and Identification and Identific						
and Identification below It is through Cadena at join Institute to Disposal Identification and Identificatio			240-195971	Chain of Custody		
and Identification Identified Indianable are retained longer than I month) Identified Id						
Ses. 1 (SC & OSTO, POST) Tring requested. Company: C	- I - I		Sample Disposal (A fee may be asse	ssed if samples are retained longer thai	n 1 month)	
utts through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Titor requested. Company: Compa	2	Roshin Ook	Return to Client 🔽 Dispa	sal By Lab Archive For	Months	
Company: Compan	in Autress. It all results through Cadena at jtomalia@cad. IV Reporting requested.	3				
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	uished by: K. Mannel	Date/Time:	Received in Laboratory	1	12	Date/Time:

Barberton Facility	ampie Receipt Form/Nari	rative	Login	#:
Client Accadis		e Name Ford	TP	Cooler unpacked by:
Cooler Received on		ened on 11-2		true
	UPS FAS Waypoint C			Other
Receipt After-hours: Dro			torage Location	One
		t Cooler Box		
Packing material used		Plastic Bag No		
	Wet Ice Blue Ice Dry			·
1. Cooler temperature up			ee Multiple Cooler Fo	
IR GUN# 2	(CF_ +0.2 ℃) 0	bserved Cooler Temp	o. <u>2.8</u> ℃(Corrected Cooler Temp. 2.7°C
2. Were tamper/custody	seals on the outside of the co	oler(s)? If Yes Quar	ntity Ye) No
	ne outside of the cooler(s) sig			No NA Tests that are not
-Were tamper/custod	ly seals on the bottle(s) or bo	ttle kits (LLHg/MeH		checked for pH by Receiving:
	ly seals intact and uncompro-	mised?	~	s) No NA
3. Shippers' packing slip a				s) No VOAs
4. Did custody papers acc				No Oil and Grease TOC
	s relinquished & signed in the			NO
	who collected the samples of			No
	good condition (Unbroken)?			No No
	ID/Date/Time) be reconciled the COC specify preservative			mple type of grab/comp(Y/N)?
	sed for the test(s) indicated?			No
` ,	ived to perform indicated and			No
	mples and all listed on the C			R
	have been checked at the or		100	
• • •	ole(s) at the correct pH upon		Yes	No (A) pH Strip Lot# HC316719
14. Were VOAs on the CO		•) _{No}
15. Were air bubbles >6 mr	n in any VOA vials?	Larger than this	Yes	₩ NA
16. Was a VOA trip blank p	present in the cooler(s)? Trip	Blank Lot #	(led (e)	No
17. Was a LL Hg or Me Hg	trip blank present?		Yes	(A)
Contacted PM	Date	by	via Verbal Ve	oice Mail Other
O-man militar				
Concerning				
18. CHAIN OF CUSTODY	Y & SAMPLE DISCREPA	NCIES 🗀 additio	nal next page	Samples processed by:
			•	
19. SAMPLE CONDITION	V			,
Sample(s)	were re	eceived after the reco	mmended holdin	ng time had expired.
Sample(s)			_ were received i	in a broken container.
Sample(s)		were received with	bubble >6 mm in	diameter. (Notify PM)
0. SAMPLE PRESERVA	ΓΙΟΝ			
Sample(s)		1 /\	were furth	ner preserved in the laboratory.
ime preserved:	Preservative(s) added/Lot	number(s):		
OA Sample Preservation - 1	Date/Time VOAs Frozen:			

DATA VERIFICATION REPORT



December 01, 2023

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

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30167538.402.04 off-site

Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 195971-1 Sample date: 2023-11-21

Report received by CADENA: 2023-12-01

Initial Data Verification completed by CADENA: 2023-12-01

Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch CCV response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

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 http://clms.cadenaco.com/index.cfm.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI $48108\ 517\text{-}819\text{-}0356$

CADENA Valid Qualifiers

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

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 195971-1

		Sample Name:	TRIP BLA	ANK_108	3		MW-178	BS_1121	23	
		Lab Sample ID:	2401959	9711			2401959	9712		
		Sample Date:	11/21/2	023			11/21/2	023		
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>OD</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	
OSW-826	<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 # 240-195971-1

CADENA Verification Report: 2023-12-01

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 52178R Review Level: Tier III Project: 30167538.402.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-195971-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Parent Sample	Ana	lysis
Sample 10	Labib	Wallix	Collection Date	Farent Sample	VOC	VOC SIM
TRIP BLANK_108	240-195971-1	Water	11/21/2023		Х	
MW-178S_112123	240-195971-2	Water	11/21/2023		Х	X

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted	Performance Acceptable		Not Required
	No	Yes	No	Yes	Required
Sample receipt condition		Х		Х	
Requested analyses and sample results		X		Х	
Master tracking list		X		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		Х		Х	
6. Sample collection date		Х		X	
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		Х		Х	
Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
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. 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, with the exception of the compounds presented in the following table.

Sample ID	Initial / Continuing	Compound	Criteria
TRIP BLANK_108 MW-178S_112123	Continuing Calibration Verification %D	Vinyl chloride	+29.9%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.05	Non-detect	R
	RRF <0.05	Detect	J
Initial and Continuing	RRF <0.01 ¹	Non-detect	R
Calibration	RRF <0.01	Detect	J
	DDE : 0.05 or DDE : 0.041	Non-detect	No Astica
	RRF >0.05 or RRF >0.01 ¹	Detect	No Action

Initial/Continuing	Criteria	Sample Result	Qualification
	%RSD > 20% or a correlation coefficient <0.99	Non-detect	UJ
Initial Calibration	%KSD > 20% of a correlation coefficient <0.99	Detect	J
milial Calibration	0/ DCD - 000/	Non-detect	R
	%RSD > 90%	Detect	J
	0/D 200/ (increase in consistivity)	Non-detect	UJ
	%D >20% (increase in sensitivity)	Detect	J
Continuin a Colibration	0/D 200/ (decrees in consistivity)	Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
	0/D = 000/ (ingresses/degreess in consistivity)	Non-detect	R
	%D > 90% (increase/decrease in sensitivity)	Detect	J

Note:

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.

¹RRF of 0.01 only applies to compounds which are typically poor responding compounds

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		Х	
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		X		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		X	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	Х				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Bindu Sree M B

SIGNATURE: BAShims

DATE: December 18, 2023

PEER REVIEW: Andrew Korycinski

DATE: December 20, 2023

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

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Address: 2000 Cabot Drive, Suite 500	Telephone: 24	8-004-2240				-	Telephone: 248-994-2240					_												
City/State/Zip: Novi, MI, 48377	Telephone. 24	0-774-2240				110	epno	ne: 24	48-99	94-224	Ю				- (Telephone: 330-497-9396								
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Client Sample Results

Client: ARCADIS US Inc Job ID: 240-195971-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_108 Lab Sample ID: 240-195971-1

Date Collected: 11/21/23 00:00 **Matrix: Water**

Date	Received:	11/25/23	10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/23 14:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/23 14:44	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 14:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/23 14:44	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 14:44	1
Vinyl chloride	1.0	Ø'∩1	1.0	0.45	ug/L			11/29/23 14:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					11/29/23 14:44	1
4-Bromofluorobenzene (Surr)	98		56 - 136					11/29/23 14:44	1
Toluene-d8 (Surr)	103		78 - 122					11/29/23 14:44	1
Dibromofluoromethane (Surr)	100		73 - 120					11/29/23 14:44	1

Client Sample ID: MW-178S_112123

Date Collected: 11/21/23 11:25

Date Received: 11/25/23 10:00

Method: SW846 8260D SIN	I - Volatile Org	anic Comp	ounds (GC/N	(IS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/29/23 20:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1 2-Dichloroethane-d4 (Surr)	109		66 - 120			-		11/29/23 20:20	1

Method: SW846 8260D - Vo	latile 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			11/29/23 16:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/23 16:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 16:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/23 16:00	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/23 16:00	1
Vinyl chloride	1.0	M NN	1.0	0.45	ug/L			11/29/23 16:00	1
		`							

Surrogate	%Recovery Qua	alifier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100	62 - 137		11/29/23 16:00	1
4-Bromofluorobenzene (Surr)	102	56 ₋ 136		11/29/23 16:00	1
Toluene-d8 (Surr)	107	78 - 122		11/29/23 16:00	1
Dibromofluoromethane (Surr)	101	73 - 120		11/29/23 16:00	1

Lab Sample ID: 240-195971-2

Matrix: Water