PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Generated 3/29/2023 6:38:32 AM

JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-182077-1

Eurofins Canton 180 S. Van Buren Avenue Barberton OH 44203

Eurofins Canton

Job Notes

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Authorization

Generated 3/29/2023 6:38:32 AM

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

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Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-182077-1

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Definitions/Glossary

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

Qualifiers

GC/MS VOA

Qualifier **Qualifier Description**

Indicates the analyte was analyzed for but not detected.

Glossary

DL, RA, RE, IN

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)					

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

Decision Level Concentration (Radiochemistry) DLC 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

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

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive **Quality Control**

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

TNTC Too Numerous To Count

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Case Narrative

Client: ARCADIS U.S., Inc.

Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

Job ID: 240-182077-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182077-1

Receipt

The samples were received on 3/17/2023 8:00 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 3.6°C

GC/MS VOA

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 U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-182077-1

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

Protocol References:

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

Laboratory References:

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

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Sample Summary

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-182077-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182077-1	TRIP BLANK_111	Water	03/14/23 00:00	03/17/23 08:00
240-182077-2	MW-102S_031423	Water	03/14/23 11:15	03/17/23 08:00

Detection Summary

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-182077-1

Client Sample ID: TRIP BLANK_111 Lab Sample ID: 240-182077-1

No Detections.

No Detections.

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_111

Lab Sample ID: 240-182077-1 Date Collected: 03/14/23 00:00 Matrix: Water

Date Received: 03/17/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/23/23 18:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/23/23 18:07	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/23/23 18:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/23/23 18:07	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/23/23 18:07	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/23/23 18:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137			_		03/23/23 18:07	1
4-Bromofluorobenzene (Surr)	89		56 ₋ 136					03/23/23 18:07	1
Toluene-d8 (Surr)	96		78 - 122					03/23/23 18:07	1
Dibromofluoromethane (Surr)	93		73 - 120					03/23/23 18:07	1

Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-102S_031423

Date Collected: 03/14/23 11:15

Matrix: Water

Lab Sample ID: 240-182077-2

Date Received: 03/17/23 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			03/20/23 17:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		66 - 120					03/20/23 17:27	1
Method: SW846 8260D - Volat		_		MDI	11-:4	ь	Dwamawad	Amalumad	Dil Faa
Method: SW846 8260D - Volat Analyte		ounds by G	C/MS	MDL	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
		Qualifier		MDL 0.49		<u>D</u> .	Prepared	Analyzed 03/23/23 22:18	Dil Fac
Analyte	Result	Qualifier U	RL		ug/L	<u> </u>	Prepared	·	Dil Fac 1
Analyte 1,1-Dichloroethene	1.0	Qualifier U U		0.49	ug/L ug/L	<u> </u>	Prepared	03/23/23 22:18	Dil Fac 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result 1.0 1.0	Qualifier U U U	1.0 1.0	0.49 0.46	ug/L ug/L ug/L	<u>D</u> .	Prepared	03/23/23 22:18	Dil Fac 1 1 1 1

Vinyl chloride	1.0 U	1.0	0.45 ug/L		03/23/23 22:18	1
Surrogate	%Recovery Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96	62 - 137			03/23/23 22:18	1
4-Bromofluorobenzene (Surr)	87	56 ₋ 136			03/23/23 22:18	1
Toluene-d8 (Surr)	93	78 - 122			03/23/23 22:18	1
Dibromofluoromethane (Surr)	93	73 - 120			03/23/23 22:18	1

Surrogate Summary

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

				Percent Sur	rrogate Rec
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-182077-1	TRIP BLANK_111	95	89	96	93
240-182077-2	MW-102S_031423	96	87	93	93
240-182089-E-2 MS	Matrix Spike	90	98	97	89
240-182089-F-2 MSD	Matrix Spike Duplicate	87	99	94	88
LCS 240-566543/4	Lab Control Sample	88	100	98	91
MB 240-566543/7	Method Blank	94	89	95	90

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)	
240-182077-2	MW-102S_031423	86	
240-182162-C-5 MSD	Matrix Spike Duplicate	95	
240-182162-F-5 MS	Matrix Spike	82	
LCS 240-566034/4	Lab Control Sample	86	
MB 240-566034/6	Method Blank	83	
Surrogate Legend			

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

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Job ID: 240-182077-1

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

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

Lab Sample ID: MB 240-566543/7

Matrix: Water

Trichloroethene

Vinyl chloride

Analyte

Analysis Batch: 566543

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

MB MB Dil Fac Result Qualifier RLMDL Unit D Prepared Analyzed 1,1-Dichloroethene 1.0 U 1.0 0.49 ug/L 03/23/23 17:18 cis-1,2-Dichloroethene 1.0 U 1.0 0.46 ug/L 03/23/23 17:18 Tetrachloroethene 1.0 U 1.0 0.44 ug/L 03/23/23 17:18 trans-1,2-Dichloroethene 1.0 U 1.0 0.51 ug/L 03/23/23 17:18 1.0 U 1.0 0.44 ug/L 03/23/23 17:18 1.0 U 1.0 0.45 ug/L 03/23/23 17:18

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		03/23/23 17:18	1
4-Bromofluorobenzene (Surr)	89		56 - 136		03/23/23 17:18	1
Toluene-d8 (Surr)	95		78 - 122		03/23/23 17:18	1
Dibromofluoromethane (Surr)	90		73 - 120		03/23/23 17:18	1

Lab Sample ID: LCS 240-566543/4

Matrix: Water

Analysis Batch: 566543

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	24.8		ug/L		99	63 - 134	
cis-1,2-Dichloroethene	25.0	23.9		ug/L		96	77 - 123	
Tetrachloroethene	25.0	26.8		ug/L		107	76 - 123	
trans-1,2-Dichloroethene	25.0	23.8		ug/L		95	75 - 124	
Trichloroethene	25.0	24.3		ug/L		97	70 - 122	
Vinyl chloride	12.5	9.62		ug/L		77	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		62 - 137
4-Bromofluorobenzene (Surr)	100		56 ₋ 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	91		73 - 120

Lab Sample ID: 240-182089-E-2 MS

Matrix: Water

Analysis Batch: 566543

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	25.0	22.0		ug/L		88	56 - 135	
cis-1,2-Dichloroethene	1.0	U	25.0	22.2		ug/L		89	66 - 128	
Tetrachloroethene	1.0	U	25.0	22.9		ug/L		92	62 - 131	
trans-1,2-Dichloroethene	1.0	U	25.0	21.9		ug/L		88	56 - 136	
Trichloroethene	1.0	U	25.0	21.4		ug/L		86	61 - 124	
Vinyl chloride	1.0	U	12.5	8.79		ug/L		70	43 - 157	

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

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Limits

73 - 120

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-182077-1

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

Lab Sample ID: 240-182089-E-2 MS

Matrix: Water

Analysis Batch: 566543

Client Sample ID: Matrix Spike

Prep Type: Total/NA

MS MS Surrogate %Recovery Qualifier Dibromofluoromethane (Surr) 89

Lab Sample ID: 240-182089-F-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Analysis Batch: 566543

Prep Type: Total/NA

	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	25.0	22.4		ug/L		90	56 - 135	2	26
cis-1,2-Dichloroethene	1.0	U	25.0	22.1		ug/L		89	66 - 128	0	14
Tetrachloroethene	1.0	U	25.0	23.2		ug/L		93	62 - 131	1	20
trans-1,2-Dichloroethene	1.0	U	25.0	21.9		ug/L		88	56 - 136	0	15
Trichloroethene	1.0	U	25.0	22.3		ug/L		89	61 - 124	4	15
Vinyl chloride	1.0	U	12.5	9.02		ug/L		72	43 - 157	3	24

MSD MSD

MR MR

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	88		73 - 120

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

Lab Sample ID: MB 240-566034/6

Matrix: Water

Analysis Batch: 566034

Client Sample ID: Method Blank

Prep Type: Total/NA

Dil Fac Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 03/20/23 13:24

MB MB Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 83 66 - 120 03/20/23 13:24

Lab Sample ID: LCS 240-566034/4

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Batch: 566034

Matrix: Water

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 10.0 11.9 ug/L 119 80 - 122

LCS LCS

%Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 66 - 120 86

Lab Sample ID: 240-182162-C-5 MSD

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Matrix: Water

Analysis Batch: 566034

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	11.5		ug/L		115	51 - 153	3	16

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QC Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

1,2-Dichloroethane-d4 (Surr)

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

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	MSD	MSD								
Surrogate	%Recovery	Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	95		66 - 120							
Lab Sample ID: 240-182162	2-F-5 MS							Client	Sample ID: Ma	•
Analysis Batch: 566034										
-	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	11.1		ug/L		111	51 - 153	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							

66 - 120

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QC Association Summary

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

GC/MS VOA

Analysis Batch: 566034

Lab Sample ID 240-182077-2	Client Sample ID MW-102S_031423	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
MB 240-566034/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-566034/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-182162-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	
240-182162-F-5 MS	Matrix Spike	Total/NA	Water	8260D SIM	

Analysis Batch: 566543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182077-1	TRIP BLANK_111	Total/NA	Water	8260D	<u> </u>
240-182077-2	MW-102S_031423	Total/NA	Water	8260D	
MB 240-566543/7	Method Blank	Total/NA	Water	8260D	
LCS 240-566543/4	Lab Control Sample	Total/NA	Water	8260D	
240-182089-E-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-182089-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

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Lab Chronicle

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_111

Lab Sample ID: 240-182077-1 Date Collected: 03/14/23 00:00

Matrix: Water

Date Received: 03/17/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	566543	BAJ	EET CAN	03/23/23 18:07

Client Sample ID: MW-102S_031423 Lab Sample ID: 240-182077-2

Date Collected: 03/14/23 11:15 Matrix: Water

Date Received: 03/17/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	566543	BAJ	EET CAN	03/23/23 22:18
Total/NA	Analysis	8260D SIM		1	566034	BAJ	EET CAN	03/20/23 17:27

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1 Project/Site: Ford LTP - Off Site

Laboratory: Eurofins Canton

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	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-28-24
Illinois	NELAP	200004	07-31-23
lowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

 $^{^{\}star}\,\text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$

190 1	tAmerica Laboratory location; Brighton	Chain of Custody Record - 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763	-229-2763	TestAmerica
Client Contact		NPDES RCRA Other	A.	
Company Name: Areadis	Clinat Bariots Managem Vais Hingham			TestAmerica Laboratories, Inc.
Address: 28550 Cabot Drive, Suite 500		te Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
City/State/Zio-Nori MI 49277	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396	
City States (24) 110011 40011	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	For lab use only
Phone: 248-994-2240		TAT it different from below		Walk-in client
Project Name: Ford LTP Off-Site	Mrs Szan, Mar	3 weeks		יים וויים וו
Project Number: 30167538.402.04) 	l week	1	Lab sampling
PO # 30167538.402.04	Shipping/Tracking No:		80928	Job/SDG No:
	Matrix		B DCE	
Sample Identification	Sample Date Sample Time Air Aducous Sediment Cother:	Composite Elitered Si NaOH NaOH HIGO	7,1-DCE 8 cis-1,2-DC Trans-1,2- TCE 8260I TCE 8260I Vinyl Chlor	Sample Specific Notes / Special Instructions:
TRIP BLANK_ (0)	1	7 2	××××××	1 Trip Blank
2 Clubs 2 C. S. C. L.				3 VOAs for 8260B
0 2 1 2	2 2 3 1 5 2 1	2	3 4 2 3	3 VOAs for 8260B SIM
			SOOT CH	Chain of Custody
			240-1620	
Possible Hazard Identification Non-Hazard Flammable Skin Irritant	itant Poison B Unknown	Sample Disposal (A fee may be assessed if samples are retained longer than I Return to Client Disposal By Lab Archive For	Samples are retained longer than 1 month) Lab Archive For Months	
Special Instructions/OC Requirements & Compents: Sample Address: KOSOTIKON Submit all results through Cadena at fromalla@cadenaco.com. Cadena #E203631 Level IV Reporting requested.				
Relinquished by: My Mark	Company: Date Tine 123 16	(Received by:	Company: Company	Date Time 12 11, O.X
Relinquished by: AMM. Cont.	Date Time:	Received by:	Company	3 5
Relinquished by:	Date/Time:	Received in Laborator, by	RL Company	Day 1.7.3 X'8
	ar all	The same of the sa		
ing day a managan " are arabanana a farabanana Lacratores. Pro,				

Barberton Facility		Logui # .	182077
Client Arcadi)	Site Name		Cooler unpacked by:
Cooler Received on 3-17-23	Opened on 3	17-23	Marshy
FedEx: 1st Grd Exp UPS FAS Clip			her
Receipt After-hours: Drop-off Date/Time_	g. chun biop on	Storage Location	
Eurofins Cooler # POID Foam Bo	x Client Cooler	Box Other	
IR GUN # IR-16 (CF -0.1°C) Obser	ved Cooler Temp. ved Cooler Temp. ved Cooler Temp. e of the cooler(s)? If Y	er None See Multiple Cooler For Corrected Cooler C Corrected Cooler C Corrected Cooler C Corrected Cooler	Temp. 5.6 °C Temp. °C Temp. °C Tomp. °C Temp. °C Temp. °C
-Were tamper/custody seals on the both -Were tamper/custody seals intact and 3. Shippers' packing slip attached to the cood 4. Did custody papers accompany the samp 5. Were the custody papers relinquished & 6. Was/were the person(s) who collected the 7. Did all bottles arrive in good condition (18. Could all bottle labels (ID/Date/Time) be 9. For each sample, does the COC specify person 10. Were correct bottle(s) used for the test(s) 11. Sufficient quantity received to perform in 12. Are these work share samples and all list and 13. Were all preserved sample(s) at the correct 13. Were all preserved sample(s) at the correct 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA viriable 16. Was a VOA trip blank present in the coci 17. Was a LL Hg or Me Hg trip blank present	tle(s) or bottle kits (LL uncompromised? bler(s)? le(s)? signed in the appropriate samples clearly ident Unbroken)? reconciled with the Coreservatives (N), # or indicated? adicated analyses? ed on the COC? ed at the originating later pH upon receipt? als? Larger bler(s)? Trip Blank Loo	te place? ified on the COC? of containers (YN), and so ye horatory. Ye than this.	Receiving: No NA S No S No S No No No No S No No No S ample type of grab/comp(N)?
Contacted PM Date	by	via Verbal V	Voice Mail Other
Concerning			
18. CHAIN OF CUSTODY & SAMPLE I	DISCREPANCIES	additional next page	Samples processed by:
19. SAMPLE CONDITION Sample(s) Sample(s) Sample(s) Mw.16355_03142		er the recommended hold were received ived with bubble >6 mm	d in a broken container.
20. SAMPLE PRESERVATION			
Sample(s) Preservative	(s) added/Lot number(s	were fu	rther preserved in the laboratory.
VOA Sample Preservation - Date/Time VOA	As Frozen:		

WI-NC-099

DATA VERIFICATION REPORT



March 29, 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 - Barberton

Laboratory submittal: 182077-1 Sample date: 2023-03-14

Report received by CADENA: 2023-03-29

Initial Data Verification completed by CADENA: 2023-03-29

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

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

There were no significant QC anomalies or exceptions to report.

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

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

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 182077-1

	Sample Name: Lab Sample ID: Sample Date:	TRIP BLANK_111 2401820771 3/14/2023				MW-102S_031423 2401820772 3/14/2023				
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC OSW-8260	DD.									
	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-8260	<u>DDSIM</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 # 240-182077-1

CADENA Verification Report: 2023-03-29

Analyses Performed By: Eurofins North Canton, Ohio

Report # 49183R Review Level: Tier III Project: 30167538.601.01

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-182077-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

			Sample Collection		Ana	lysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM
TRIP BLANK_111	240-182077-1	Water	03/14/23		Х	
MW-102S_031423	240-182077-2	Water	03/14/23		X	X

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted		mance ptable	Not Required	
	No	Yes	No	Yes	Required	
Sample receipt condition		Х		Х		
2. Requested analyses and sample results		X		X		
Master tracking list		Х		Х		
4. Methods of analysis		Х		Х		
5. Reporting limits		Х		Х		
6. Sample collection date		Х		Х		
7. Laboratory sample received date		Х		Х		
8. Sample preservation verification (as applicable)		Х		Х		
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 continuing calibrations were within the specified control limits.

4. Internal Standard Performance

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

All internal standard responses were within control limits.

5. Field Duplicate Analysis

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

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

6. Compound Identification

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

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

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

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	8260D/8260D-SIM				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		Х		Х		
Continuing calibration RRFs		Х		Х		
Continuing calibration %Ds		Х		Х		
Instrument tune and performance check		Х		Х		
lon abundance criteria for each instrument used		Х		Х		
Field Duplicate RPD	Х				Х	
Internal standard		Х		Х		
Compound identification and quantitation						
A. Reconstructed ion chromatograms		Х		Х		
B. Quantitation Reports		Х		Х		
C. RT of sample compounds within the established RT windows		Х		Х		
D. Transcription/calculation errors present		Х		X		
E. Reporting limits adjusted to reflect sample dilutions		Х		Х		

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE:

DATE: March 30, 2023

PEER REVIEW: Andrew Korycinski

DATE: March 30, 2023

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



Chain of Custody Record



TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763 Client Contact Regulatory program: □ DW NPDES ☐ RCRA Other Company Name: Arcadis TestAmerica Laboratories, Inc. Client Project Manager: Kris Hinskey Site Contact: Christina Weaver Lab Contact: Mike DelMonico Address: 28550 Cabot Drive, Suite 500 Telephone: 248-994-2240 Telephone: 248-994-2240 Telephone: 330-497-9396 City/State/Zip: Novi, MI, 48377 1 of 1 COCs Analysis Turnaround Time Email: kristoffer.hinskey@arcadis.com Analyses For lab use only Phone: 248-994-2240 TAT if different from below Sampler Name: Walk-in client Project Name: Ford LTP Off-Site 3 weeks ✓ 2 weeks Lab sampling Project Number: 30167538.402.04 1 week 1,4-Dioxane 8260B SIM Composite=C / Grab=G Trans-1,2-DCE 8260B 2 days Vinyl Chloride 8260B PO # 30167538.402.04 Shipping/Tracking No: □ 1 day Job/SDG No: Containers & Preservatives TCE 8260B Sample Specific Notes / NaOH Solid НСІ Special Instructions: Sample Identification Sample Date | Sample Time TRIP BLANK_ G X X X 1 Trip Blank 3 VOAs for 8260B MW-1025_131423 3114/23 3 VOAs for 8260B SIM 240-182077 Chain of Custody Possible Hazard Identification Sample Disposal (A fee may be assessed if samples are retained longer than I month) ▼ Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal By Lab Submit all results through Cadena at itomalia@cadenaco.com, Cadena #E203631 evel IV Reporting requested. Relinquished by: Date/Timey 23 16.08 Relinquished

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-182077-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_111 Lab Sample ID: 240-182077-1 Date Collected: 03/14/23 00:00 **Matrix: Water**

Date Received: 03/17/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/23/23 18:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/23/23 18:07	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/23/23 18:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/23/23 18:07	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/23/23 18:07	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/23/23 18:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137					03/23/23 18:07	1
4-Bromofluorobenzene (Surr)	89		56 - 136					03/23/23 18:07	1
Toluene-d8 (Surr)	96		78 - 122					03/23/23 18:07	1
Dibromofluoromethane (Surr)	93		73 - 120					03/23/23 18:07	

Client Sample ID: MW-102S_031423

Date Collected: 03/14/23 11:15

Method: SW846 8260D SIM Analyte	_	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/20/23 17:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		66 - 120			-		03/20/23 17:27	1
Method: SW846 8260D - Vo	latile Organic	Compoun	ds by GC/MS						
Analyte	_	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/23/23 22:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/23/23 22:18	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/23/23 22:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/23/23 22:18	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/23/23 22:18	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/23/23 22:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137			-		03/23/23 22:18	1
4-Bromofluorobenzene (Surr)	87		56 - 136					03/23/23 22:18	1
Toluene-d8 (Surr)	93		78 - 122					03/23/23 22:18	1
Dibromofluoromethane (Surr)	93		73 - 120					03/23/23 22:18	1

Lab Sample ID: 240-182077-2

Matrix: Water