PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Generated 8/19/2023 10:33:24 AM

JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-189657-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

Eurofins Cleveland

Job Notes

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Authorization

Generated 8/19/2023 10:33:24 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: 240-189657-1

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Definitions/Glossary

Client: ARCADIS US Inc Job ID: 240-189657-1

Project/Site: Ford LTP - Off Site

Qualifiers

GC/MS VOA

Qualifier **Qualifier Description** F2

MS/MSD RPD exceeds control limits

U Indicates the analyte was analyzed for but not detected.

Glossary

Cioccai	
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 Minimum Level (Dioxin) ML 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: 240-189657-1

Project/Site: Ford LTP - Off Site

Job ID: 240-189657-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-189657-1

Receipt

The samples were received on 8/5/2023 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 0.3°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 US Inc Job ID: 240-189657-1 Project/Site: Ford LTP - Off Site

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

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

Sample Summary

Project/Site: Ford LTP - Off Site

Client: ARCADIS US Inc

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-189657-1	TRIP BLANK_15	Water	08/03/23 00:00	08/05/23 08:00
240-189657-2	MW-172S 080323	Water	08/03/23 10:17	08/05/23 08:00

Job ID: 240-189657-1

Detection Summary

Client: ARCADIS US Inc Job ID: 240-189657-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_15 Lab Sample ID: 240-189657-1

No Detections.

Client Sample ID: MW-172S_080323 Lab Sample ID: 240-189657-2

No Detections.

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Client Sample Results

Client: ARCADIS US Inc Job ID: 240-189657-1

Project/Site: Ford LTP - Off Site

Date Received: 08/05/23 08:00

Client Sample ID: TRIP BLANK_15

Lab Sample ID: 240-189657-1 Date Collected: 08/03/23 00:00

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/15/23 18:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/15/23 18:19	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 18:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/15/23 18:19	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 18:19	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/15/23 18:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137					08/15/23 18:19	1
4-Bromofluorobenzene (Surr)	92		56 ₋ 136					08/15/23 18:19	1
Toluene-d8 (Surr)	95		78 - 122					08/15/23 18:19	1
Dibromofluoromethane (Surr)	112		73 - 120					08/15/23 18:19	1

Client Sample Results

Client: ARCADIS US Inc Job ID: 240-189657-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-172S_080323

Date Collected: 08/03/23 10:17 Date Received: 08/05/23 08:00

Vinyl chloride

Surrogate

Toluene-d8 (Surr)

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Lab Sample ID: 240-189657-2

08/15/23 18:42

Analyzed 08/15/23 18:42

08/15/23 18:42

08/15/23 18:42

08/15/23 18:42

Prepared

Matrix: Water

Method: SW846 8260D SIM - \	Volatile Organic C	ompounds	(GC/MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/08/23 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		66 - 120					08/08/23 18:53	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/15/23 18:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/15/23 18:42	
Tetrachloroethene									1
4 0 D' 11 U	1.0	U	1.0	0.44	ug/L			08/15/23 18:42	1 1
trans-1,2-Dichloroethene	1.0		1.0	0.44				08/15/23 18:42 08/15/23 18:42	1 1 1

1.0

Limits

62 - 137

56 - 136

78 - 122

73 - 120

0.45 ug/L

1.0 U

%Recovery Qualifier

106

92

94

108

14

Dil Fac

Job ID: 240-189657-1

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

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

Matrix: Water Prep Type: Total/NA

				Percent Sui	rrogate Recov
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-189657-1	TRIP BLANK_15	109	92	95	112
240-189657-2	MW-172S_080323	106	92	94	108
240-189694-B-19 MS	Matrix Spike	96	95	98	99
240-189694-B-19 MSD	Matrix Spike Duplicate	99	100	97	102
LCS 240-583915/4	Lab Control Sample	107	96	98	102
MB 240-583915/7	Method Blank	109	92	93	109
Surrogato Logand					

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	
_ab Sample ID	Client Sample ID	(66-120)	
240-189540-G-3 MS	Matrix Spike	95	
240-189540-G-3 MSD	Matrix Spike Duplicate	88	
240-189657-2	MW-172S_080323	91	
_CS 240-583238/5	Lab Control Sample	89	
MB 240-583238/7	Method Blank	87	
Surrogate Legend			

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	(10-150)	
MRL 240-583238/6	Lab Control Sample	87	
Surrogate Legend			
DCA = 1,2-Dichloroeth	ane-d4 (Surr)		

Job ID: 240-189657-1

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

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

Lab Sample ID: MB 240-583915/7

Matrix: Water

Analysis Batch: 583915

Client Sample ID: Method Blank

Prep Type: Total/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			08/15/23 15:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/15/23 15:36	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 15:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/15/23 15:36	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 15:36	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/15/23 15:36	1

MB MB %Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 62 - 137 08/15/23 15:36 109 4-Bromofluorobenzene (Surr) 92 56 - 136 08/15/23 15:36 08/15/23 15:36 Toluene-d8 (Surr) 93 78 - 122 Dibromofluoromethane (Surr) 109 73 - 120 08/15/23 15:36

Lab Sample ID: LCS 240-583915/4

Matrix: Water

Analysis Batch: 583915

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	29.0		ug/L		116	63 - 134	
cis-1,2-Dichloroethene	25.0	25.5		ug/L		102	77 - 123	
Tetrachloroethene	25.0	27.0		ug/L		108	76 - 123	
trans-1,2-Dichloroethene	25.0	27.4		ug/L		110	75 - 124	
Trichloroethene	25.0	28.1		ug/L		112	70 - 122	
Vinyl chloride	12.5	12.1		ug/L		97	60 - 144	

LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 107 62 - 137 4-Bromofluorobenzene (Surr) 56 - 136 96 78 - 122 Toluene-d8 (Surr) 98 73 - 120 Dibromofluoromethane (Surr) 102

Matrix: Water

Analysis Batch: 583915

Lab Sample ID: 240-189694-B-19 MS 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	250	U	6250	5230		ug/L		84	56 - 135
cis-1,2-Dichloroethene	250	U	6250	5970		ug/L		96	66 - 128
Tetrachloroethene	250	U	6250	5360		ug/L		86	62 - 131
trans-1,2-Dichloroethene	250	U F2	6250	5010		ug/L		80	56 - 136
Trichloroethene	3600		6250	9080		ug/L		87	61 - 124
Vinyl chloride	250	U	3130	2820		ug/L		90	43 - 157

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	95		56 - 136
Toluene-d8 (Surr)	98		78 - 122

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8/19/2023

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Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Job ID: 240-189657-1

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

Lab Sample ID: 240-189694-B-19 MS

Lab Sample ID: 240-189694-B-19 MSD

Matrix: Water

Matrix: Water

Analysis Batch: 583915

Client Sample ID: Matrix Spike

Prep Type: Total/NA

MS MS Surrogate %Recovery Qualifier

Limits Dibromofluoromethane (Surr) 99 73 - 120

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analysis Batch: 583915

MSD MSD %Rec RPD Sample Sample Spike Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit 1,1-Dichloroethene 250 U 6250 5830 ug/L 93 56 - 135 26 cis-1,2-Dichloroethene 250 U 6250 6310 101 66 - 128 ug/L 6 14 Tetrachloroethene 250 U 6250 5510 ug/L 88 62 - 131 3 20 trans-1.2-Dichloroethene 250 UF2 6250 5970 F2 ug/L 96 56 - 136 18 15 Trichloroethene 3600 6250 9540 ug/L 95 61 - 124 5 15 Vinyl chloride 250 U 3130 2870 ug/L 43 - 157 2 24

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

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

Lab Sample ID: MB 240-583238/7

Matrix: Water

Analysis Batch: 583238

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

Client Sample ID: Lab Control Sample

Limits

Client Sample ID: Lab Control Sample

Analyte Result Qualifier RL MDL Unit Analyzed Dil Fac Prepared 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 08/08/23 13:43

MB MB

MR MR

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 87 66 - 120 08/08/23 13:43

Lab Sample ID: LCS 240-583238/5

Analyte

1,4-Dioxane

Matrix: Water			•	Prep Type: Total/NA
Analysis Batch: 583238				
	Spike	LCS LCS	d	%Rec

Result Qualifier

9.49

Unit

ug/L

D

%Rec

95

Added

10.0

LCS LCS

%Recovery Qualifier Surrogate Limits 66 - 120 1,2-Dichloroethane-d4 (Surr) 89

Lab Sample ID: MRL 240-583238/6

Matrix: Water

Analysis Batch: 583238								
	Spike	MRL	MRL				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	0.00200	0.00273		ng/uL		136	10 - 150	

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Prep Type: Total/NA

QC Sample Results

Client: ARCADIS US Inc Job ID: 240-189657-1

Project/Site: Ford LTP - Off Site

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

	MRL	MRL	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		10 - 150

Lab Sample ID: 240-189540-G-3 MS

Matrix: Water

Analysis Batch: 583238

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	9.51		ug/L		95	51 - 153	

MS MS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 95 66 - 120

Lab Sample ID: 240-189540-G-3 MSD

Matrix: Water

Analysis Batch: 583238

	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	9.52		ug/L		95	51 - 153	0	16
	Men	Med									

Limits Surrogate %Recovery Qualifier 1,2-Dichloroethane-d4 (Surr) 88 66 - 120

Client Sample ID: Matrix Spike

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Type: Total/NA

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QC Association Summary

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

Job ID: 240-189657-1

GC/MS VOA

Analysis Batch: 583238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189657-2	MW-172S_080323	Total/NA	Water	8260D SIM	
MB 240-583238/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-583238/5	Lab Control Sample	Total/NA	Water	8260D SIM	
MRL 240-583238/6	Lab Control Sample	Total/NA	Water	8260D SIM	
240-189540-G-3 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-189540-G-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 583915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189657-1	TRIP BLANK_15	Total/NA	Water	8260D	
240-189657-2	MW-172S_080323	Total/NA	Water	8260D	
MB 240-583915/7	Method Blank	Total/NA	Water	8260D	
LCS 240-583915/4	Lab Control Sample	Total/NA	Water	8260D	
240-189694-B-19 MS	Matrix Spike	Total/NA	Water	8260D	
240-189694-B-19 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

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Lab Chronicle

Client: ARCADIS US Inc Job ID: 240-189657-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_15

Lab Sample ID: 240-189657-1 Date Collected: 08/03/23 00:00

Matrix: Water

Date Received: 08/05/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D			583915	LEE	EET CLE	08/15/23 18:19

Client Sample ID: MW-172S_080323 Lab Sample ID: 240-189657-2

Date Collected: 08/03/23 10:17 Matrix: Water

Date Received: 08/05/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	583915	LEE	EET CLE	08/15/23 18:42
Total/NA	Analysis	8260D SIM		1	583238	MRL	EET CLE	08/08/23 18:53

Laboratory References:

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

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Accreditation/Certification Summary

Client: ARCADIS US Inc Job ID: 240-189657-1 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
owa	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	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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

Eurofins Cleveland

5.01 4:0

Company Name: Arcadis Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 Telephone: 248-994-2240	Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com Sampler Name: McQQM	Site Contact: Christina Weaver Telephone: 248-994-2240	-	Lab Conts	Lab Contact: Mike DelMonico	elMonico		TestAmerica Laboratories, Inc.
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	ffer. hinskey@arcadis.com re: OM			neichnein	Telephone: 330-497-9396	9396		1 of 1
		Analysis Turnaround Time				Analyses		For lab use only
	ipnænt/Carrier: cking No:	10 day 2 weeks						Walk-in client
	cking No:	1 week	9=0	a		C	WIS	
						85 60 1	G092	Job/SDG No:
	Matrix	Containers & Preservatives	_		Q 0	_	8 ans	
Sample Identification Sample Date	Sample Time Aducous Sediment Solid	Elifered Other: Others Nach Nach HCI HCI HZSO4	Composi	Cis-1,2-D	LCE 856	Vinyl Chi	sxoiG-4,t	Sample Specific Notes / Special Instructions:
TRIP BLANK_ \S	1	Z	×	×	×	×		1 Trip Blank
100 200 200 200 200 200 200 200 200 200	7	2	7	>	>	7	>	3 VOAs for 8260D
				+			,	IIC DOOSO IO SHOW C
				240	189657	Chain	240-189657 Chain of Custody	
Possible Hazard Identification Change of Chin Invited December 1	d mon	ee may be	sed if samp	les are rets	sined longe	r than I m	onth)	
s/QC Requirements & Comments:	1	Return to thient	Disposal By Lab		Archive For		Months	
Sample Address: Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.	084							
" Lee Might the		(1850)	Storage	200	37	Gompany.	15	Date/Time:
ammer Seu	Company Coches 18/4/23	1210 Received by			3	Company		1 10
0 0	Date/Time	Received in horatory by:	ä	1	3	Company A SC	1,0	Time:

Eurofins - Cleveland Sample Receipt Form/Narrative Login # : 189	
Barberton Facility	657
	unpacked by:
Chem M. 2001.	Ц
Cooler Received on 8-5-23 Opened on 8-5-23 Mo	
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other	
Receipt After-hours: Drop-off Date/Time Storage Location Eurofins Cooler # C Foam Box Client Cooler Box Other	
Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Wet Ice Blue Ice Dry Ice Water None 1. Cooler temperature upon receipt See Multiple Cooler Form IR GUN # 22 (CFO.) °C) Observed Cooler Temp. O.4 °C Corrected C 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No	
-Were the seals on the outside of the cooler(s) signed & dated? -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? -Were tamper/custody seals intact and uncompromised? 3. Shippers' packing slip attached to the cooler(s)? 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottle sarrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservative (Y/N), # of containers (Y/N), and sample type 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? 15. Were all preserved sample(s) at the correct pH upon receipt? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #OO413011 17. Was a LL Hg or Me Hg trip blank present? 18. Were lamper/custody seals intact and uncompromised? 19. No 19. No 19. No 19. No 19. No 19. No 10. Were air bubbles >6 mm in any VOA vials? 10. Larger than this. 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share sample(s) at the correct pH upon receipt? 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #OO413011 17. Was a LL Hg or Me Hg trip blank present? 18. No 19. N	checked for pH by Receiving: VOAs Oil and Grease TOC
Contacted PM Date by via Verbal Voice Mail	Other
Concerning	
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	processed by:
19. SAMPLE CONDITION	1
Sample(s) were received after the recommended holding time had sample(s) were received in a broker	a container
Sample(s) were received in a broker Sample(s) were received with bubble >6 mm in diameter.	
20. SAMPLE PRESERVATION	
and a statutate tibes Vit	
	and the state of the second second
Sample(s) were further preservative were further preservative Preservative(s) added/Lot number(s):	ed in the laboratory.

DATA VERIFICATION REPORT



August 19, 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: 189657-1 Sample date: 2023-08-03

Report received by CADENA: 2023-08-19

Initial Data Verification completed by CADENA: 2023-08-19

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 MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

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: 189657-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401896 8/3/202	5571			MW-172 2401896 8/3/202	5572	23	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC OSW-8260	חר									
<u>03W-8200</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-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 # 240-189657-1

CADENA Verification Report: 2023-08-19

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 51041R Review Level: Tier III Project: 30167538.402.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-189657-1 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	Analysis		
Sample ID	Labib	IVIALITA	Collection Date	Farent Sample	VOC	VOC SIM	
TRIP BLANK_15	240-189657-1	Water	08/03/2023		Х		
MW-172S_080323	240-189657-2	Water	08/03/2023		Х	X	

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted	Perfor Accep	mance otable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		Χ		X	
2. Requested analyses and sample results		Χ		X	
Master tracking list		Χ		X	
4. Methods of analysis		Χ		X	
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	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	<u>'</u>				'
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: Bindu Sree M B

SIGNATURE: BAShims

DATE: September 11, 2023

PEER REVIEW: Andrew Korycinski

DATE: September 13, 2023

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

MICHIGAN 190

Chain of Custody Record

0.4/0.3

<u>TestAmerica</u>

Color Project Managers (Arth Hunder)	To	estAmerica Labora	tory location:	Brig	hton	1044	8 Citati	on Dri	ive, S	uite 2	200 / 6	Bright	on, MI	18116	/ 810	0-229-	2763							HE LEADER IN ENVIRONMENTAL TESTO
Color Project Manager Rets Himskey Not Contained Wester Telephones 286-994-2240 Teleph		Regulat	ory program:	:	I	DV	V		NPD	ES		R	CRA	Г	Oth	er						The control of the supervision of		
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Client Sample Results

Client: ARCADIS US Inc Job ID: 240-189657-1

Client Sample ID: TRIP BLANK_15

Project/Site: Ford LTP - Off Site

Lab Sample ID: 240-189657-1

Date Collected: 08/03/23 00:00 **Matrix: Water** Date Received: 08/05/23 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			08/15/23 18:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/15/23 18:19	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 18:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/15/23 18:19	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 18:19	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/15/23 18:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137					08/15/23 18:19	1
4-Bromofluorobenzene (Surr)	92		56 ₋ 136					08/15/23 18:19	1
Toluene-d8 (Surr)	95		78 - 122					08/15/23 18:19	1
Dibromofluoromethane (Surr)	112		73 - 120					08/15/23 18:19	

Client Sample ID: MW-172S_080323 Lab Sample ID: 240-189657-2

Date Collected: 08/03/23 10:17 Date Received: 08/05/23 08:00

Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)

Welliou. SW040 0200D SIN	i - voiatile Orga	arne comp	ourius (GC/N	13)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/08/23 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		66 - 120			-		08/08/23 18:53	1

Method: SW846 8260D - Vola	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			08/15/23 18:42	1			
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/15/23 18:42	1			
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 18:42	1			
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/15/23 18:42	1			
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/15/23 18:42	1			
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/15/23 18:42	1			

Surrogate	%Recovery Qualifie	er Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106	62 - 137		08/15/23 18:42	1
4-Bromofluorobenzene (Surr)	92	56 ₋ 136		08/15/23 18:42	1
Toluene-d8 (Surr)	94	78 - 122		08/15/23 18:42	1
Dibromofluoromethane (Surr)	108	73 - 120		08/15/23 18:42	1

Matrix: Water