

Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 240-166720-1 Client Project/Site: Ford LTP - Off Site

For:

ARCADIS U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Attn: Kristoffer Hinskey

Patrick O'Meara

Authorized for release by: 5/27/2022 6:47:01 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-166720-1

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Definitions/Glossary

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Qualifiers

GC/MS VOA

Qualifier **Qualifier Description**

Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

Percent Recovery %R **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) **DER**

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 MLMinimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

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**

Relative Error Ratio (Radiochemistry) **RER**

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

Too Numerous To Count **TNTC**

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Case Narrative

Client: ARCADIS U.S., Inc.

Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Job ID: 240-166720-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-166720-1

Comments

No additional comments.

Receipt

The samples were received on 5/17/2022 @ 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.6° C and 2.1° C.

GC/MS VOA

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

VOA Prep

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

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Method Summary

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-166720-1

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

Protocol References:

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

Laboratory References:

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

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Sample Summary

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

Job ID: 240-166720-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-166720-1	TRIP BLANK_103	Water	05/13/22 00:00	05/17/22 09:30
240-166720-2	MW-112S 051322	Water	05/13/22 12:30	05/17/22 09:30

Detection Summary

Client: ARCADIS U.S., Inc.

Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_103 Lab Sample ID: 240-166720-1

No Detections.

No Detections.

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Client Sample Results

Client: ARCADIS U.S., Inc.

Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_103

Date Collected: 05/13/22 00:00 Date Received: 05/17/22 09:30 Lab Sample ID: 240-166720-1

Matrix: Water

Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 20:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 20:40	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 20:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 20:40	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 20:40	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 20:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					05/24/22 20:40	1
4-Bromofluorobenzene (Surr)	85		56 - 136					05/24/22 20:40	1
Toluene-d8 (Surr)	97		78 - 122					05/24/22 20:40	1
Dibromofluoromethane (Surr)	102		73 - 120					05/24/22 20:40	1

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-112S_051322

Date Collected: 05/13/22 12:30 Date Received: 05/17/22 09:30 Lab Sample ID: 240-166720-2

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			05/23/22 22:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 120					05/23/22 22:15	1
Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 22:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 22:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 22:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 22:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 22:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 22:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					05/24/22 22:45	1
4-Bromofluorobenzene (Surr)	84		56 ₋ 136					05/24/22 22:45	1
Toluene-d8 (Surr)	97		78 - 122					05/24/22 22:45	1
Dibromofluoromethane (Surr)	99		73 - 120					05/24/22 22:45	1

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Surrogate Summary

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

Lab Sample ID Client Sample ID Client Sample ID (62-137) (56-136) (78-122) (73-120) 240-166662-F-4 MS Matrix Spike 96 97 99 103
240-166662-F-4 MS Matrix Spike 96 97 99 103
1
240-166662-I-4 MSD Matrix Spike Duplicate 96 101 99 106
240-166720-1 TRIP BLANK_103 98 85 97 102
240-166720-2 MW-112S_051322 98 84 97 99
LCS 240-527705/4 Lab Control Sample 94 99 98 102
MB 240-527705/6 Method Blank 98 88 95 100

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)	
240-166720-2	MW-112S_051322	101	
240-166722-B-2 MS	Matrix Spike	102	
240-166722-B-2 MSD	Matrix Spike Duplicate	99	
LCS 240-527589/3	Lab Control Sample	101	
MB 240-527589/6	Method Blank	102	

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

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: MB 240-527705/6

Matrix: Water

Analysis Batch: 527705

Client Sampl	e ID:	Meth	nod Blank	
F	rep	Type	: Total/NA	

MB MB Result Qualifier RL **MDL** Unit Prepared Dil Fac Analyte D Analyzed 0.49 ug/L 1,1-Dichloroethene 1.0 U 1.0 05/24/22 13:33 cis-1,2-Dichloroethene 1.0 U 1.0 0.46 ug/L 05/24/22 13:33 1.0 U 0.44 ug/L Tetrachloroethene 1.0 05/24/22 13:33 trans-1,2-Dichloroethene 1.0 U 1.0 0.51 ug/L 05/24/22 13:33 Trichloroethene 10 U 1.0 0.44 ug/L 05/24/22 13:33 Vinyl chloride 1.0 U 1.0 0.45 ug/L 05/24/22 13:33

		MB	MB				
	Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	1,2-Dichloroethane-d4 (Surr)	98		62 - 137		05/24/22 13:33	1
	4-Bromofluorobenzene (Surr)	88		56 - 136		05/24/22 13:33	1
۱	Toluene-d8 (Surr)	95		78 - 122		05/24/22 13:33	1
L	Dibromofluoromethane (Surr)	100		73 - 120		05/24/22 13:33	1

Lab Sample ID: LCS 240-527705/4

Matrix: Water

Analysis Batch: 527705

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

LCS LCS Spike %Rec Analyte Added Result Qualifier Limits Unit D %Rec 1,1-Dichloroethene 25.0 26.2 ug/L 105 63 - 134 25.0 cis-1,2-Dichloroethene 26.3 105 77 - 123 ug/L Tetrachloroethene 25.0 25.7 103 76 - 123 ug/L trans-1,2-Dichloroethene 75 - 124 25.0 26.5 ug/L 106 Trichloroethene 25.0 26.0 ug/L 104 70 - 122 Vinyl chloride 87 12.5 10.9 ug/L 60 - 144

LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 62 - 137 4-Bromofluorobenzene (Surr) 99 56 - 136 Toluene-d8 (Surr) 78 - 122 98 73 - 120 Dibromofluoromethane (Surr) 102

Lab Sample ID: 240-166662-F-4 MS

Matrix: Water

Analysis Batch: 527705

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	29.1		ug/L		117	56 - 135	
cis-1,2-Dichloroethene	1.0	U	25.0	25.8		ug/L		103	66 - 128	
Tetrachloroethene	1.0	U	25.0	25.5		ug/L		102	62 - 131	
trans-1,2-Dichloroethene	1.0	U	25.0	26.9		ug/L		108	56 - 136	
Trichloroethene	1.0	U	25.0	25.0		ug/L		100	61 - 124	
Vinyl chloride	0.84	J	25.0	20.8		ug/L		80	43 - 157	

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	99		78 - 122

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

Job ID: 240-166720-1

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

Lab Sample ID: 240-166662-F-4 MS

Matrix: Water

Analysis Batch: 527705

MS MS

%Recovery Qualifier Limits Surrogate Dibromofluoromethane (Surr) 103 73 - 120

Lab Sample ID: 240-166662-I-4 MSD

Matrix: Water

Analysis Batch: 527705

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Sample Sample Spike MSD MSD %Rec **RPD** Result Qualifier Added Limits RPD Limit Analyte Result Qualifier Unit %Rec 1.0 U 1,1-Dichloroethene 25.0 28.0 ug/L 112 56 - 135 4 26 ug/L cis-1,2-Dichloroethene 1.0 U 25.0 25.7 103 66 - 128 O 14 Tetrachloroethene 1.0 U 25.0 25.9 ug/L 103 62 - 13120 trans-1.2-Dichloroethene 1.0 U 25.0 26.4 106 15 ug/L 56 - 136Trichloroethene 1.0 U 25.0 25.0 ug/L 100 61 - 124 0 15 Vinyl chloride 0.84 J 25.0 23.2 ug/L 43 - 157 24

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	106		73 - 120

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

Lab Sample ID: MB 240-527589/6

Matrix: Water

Analysis Batch: 527589

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Type: Total/NA

MB MB **Analyte** Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 2.0 05/23/22 21:00 1,4-Dioxane 2.0 U 0.86 ug/L

MB MB

%Recovery Qualifier Limits Surrogate Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 102 66 - 120 05/23/22 21:00

Lab Sample ID: LCS 240-527589/3

Matrix: Water

Analysis Batch: 527589

Spike LCS LCS %Rec Added Result Qualifier Limits Analyte Unit D %Rec 1,4-Dioxane 10.0 9.54 ug/L 95 80 - 122

LCS LCS

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 66 - 120 101

Lab Sample ID: 24

Matrix: Water

Analysis Batch: 5

240-166/22-B-2 MS	Client Sample ID: Matrix Spike
	Prep Type: Total/NA
527589	

Sample Sample Spike MS MS %Rec Result Qualifier Added Result Qualifier Limits Analyte Unit %Rec 1,4-Dioxane 2.0 U 10.0 9.87 ug/L 99 51 - 153

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QC Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

1,2-Dichloroethane-d4 (Surr)

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

	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		66 - 120								
Lab Sample ID: 240-166 Matrix: Water Analysis Batch: 527589	722-B-2 MSD					Client	Samp	le ID: N	latrix Spil Prep Ty		
	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	9.81		ug/L		98	51 - 153	1	16
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								

66 - 120

5/27/2022

QC Association Summary

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-166720-1

GC/MS VOA

Analysis Batch: 527589

Lab Sample ID 240-166720-2	Client Sample ID MW-112S_051322	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
MB 240-527589/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-527589/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-166722-B-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-166722-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 527705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166720-1	TRIP BLANK_103	Total/NA	Water	8260D	_ <u> </u>
240-166720-2	MW-112S_051322	Total/NA	Water	8260D	
MB 240-527705/6	Method Blank	Total/NA	Water	8260D	
LCS 240-527705/4	Lab Control Sample	Total/NA	Water	8260D	
240-166662-F-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-166662-I-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

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Lab Chronicle

Client: ARCADIS U.S., Inc.

Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_103 Lab Sample ID: 240-166720-1

Date Collected: 05/13/22 00:00 Matrix: Water

Date Received: 05/17/22 09:30

Batch Batch Dilution Batch Prepared **Prep Type** Method **Factor** Number or Analyzed Analyst Type Run Lab TAL CAN Total/NA Analysis 8260D 527705 05/24/22 20:40 SAM

Date Collected: 05/13/22 12:30 Matrix: Water

Date Received: 05/17/22 09:30

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	527705	05/24/22 22:45	SAM	TAL CAN
Total/NA	Analysis	8260D SIM		1	527589	05/23/22 22:15	CS	TAL CAN

Laboratory References:

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

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

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	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	05-24-22
Oregon	NELAP	4062	05-24-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-22-16	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

MICHIGAN	Chai	Chain of Custody Record		<u>TestAmerica</u>
Cilent Contact	1	NPDES RCRA Other		
Company Name: Arcadis	Client Project Manager: Kris Hinckey	Site Contact: Christina Weaver	l sh Contact: Mike DelMonico	TestAmerica Laboratories, Inc.
Address: 28550 Cabot Drive, Suite 500	2.1.1.1	000000		
City/State/Zap: Novi, MI, 48377	l elephone: 203-532-7478	1 elephone: 248-944-2529	l elephone: 330-966-9783	1 of 1
Phone: 248-994-2240	Email: Kristoffer. Hinskey@arcadis.com	Analysis Turnaround Time	Analyses	only
Froject Number: 30080642.402.04	Sampler Name: Leccuchi Control of Shipment/Carrier:		C	Walk-in client Lab sampling
PO# 30080642,402,04	Shipping/Tracking No:	aple (Y /	CE 8260	Joh/SDG No:
Sample Identification	Sample Date Sample Time Adacous Solid Orbits	L'1-DCE 876 Composite Comp	cis-1,2-DCE Trans-1,2-D PCE 8260D Vinyl Chlorid Vinyl Chlorid	Sample Specific Notes / Special Instructions:
TRIP BLANK_ (0.3	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	× 5 2	× × × ×	1 Trip Blank
1 MW-1125-051322	X 121 21 21 X	× 2	× × × × × ×	3 VOAs for 8260D
Possible Hazard Identification Non-Hazard Special Instructions/C Requirements & Comments: Sample Address: 34035 VMPOS WORTH Submit all results through cadens at itomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested. Relinquished by: Cacaaa	Unik	40-166720 Chain of Received by: Received by: Received by: Received by:	of Sa are retained to	me: (//3/22 / /
Relinquished by:	Company 5/16/72 SIBIN 5/16/11	1250 Received in Naboratory by:	Company	5/16/72 1200 Date/Tine: 5-17-33 0530
1 (1903) Table (19				

		11120
Eurofins TestAmerica Canton Sample Receipt Form/Narrative	Login #:	166.0
Canton Facility Nient According Site Name Ford LTP	Cooler ur	packed by:
THE COLUMN TO TH	77	WE .
Cooler Received on 5-17-22 Opened on 5-17-22	6	VIIC
FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier		
Receipt After-hours: Drop-off Date/Time Storage Location		
TestAmerica Cooler # TA 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		
COOLANT: Wet Ice Blue Ice Dry Ice Water None 1. Cooler temperature upon receipt See Multiple Cooler I	Form	
IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler	Temp.	°C
IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp °C Corrected Cooler		°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity ea Q	^	
	es No NA	Tests that are not checked for pH by
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	es (Vo	Receiving:
-Were tamper/custody seals intact and uncompromised?	es No NA	
3. Shippers' packing slip attached to the cooler(s)?	No No	VOAs Oil and Grease
are among higher arranged as a second and a second arranged as a second arranged arranged as a second arranged arranged as a second arranged arrang	es No	TOC
7	No No	
	es No	
	es) No es) No	
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (Y)N), # of containers (Y)N), and	sample type of	grab/comp(Y)N)?
10. Were correct bottle(s) used for the test(s) indicated?	es)No	,
	No	
	es (No)	
If yes, Questions 13-17 have been checked at the originating laboratory.	_	
13. Were all preserved sample(s) at the correct pH upon receipt?	es No NA p	H Strip Lot# <u>HC157842</u>
	No Se	
	No NA	
	es No	
17. Was a LL rig of the rig ulp blank present:	23 (140)	
Contacted PM Date by via Verbal	Voice Mail Oth	ner
Concerning		
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page	Samples pro	cessed by:
	10	
19. SAMPLE CONDITION		
Sample(s) were received after the recommended hole	ding time had e	cpired.
Sample(s) were receive	d in a broken co	ontainer.
Sample(s) were received with bubble >6 mm	in diameter. (N	otify PM)
20. SAMPLE PRESERVATION	-	
Sample(s) were fi	irther preserved	in the laboratory.
Sample(s) were full Time preserved: Preservative(s) added/Lot number(s):	p. 000. 100	
VOA Sample Preservation - Date/Time VOAs Frozen:	-1	

Login #: 166720 **Eurofins - Canton Sample Receipt Multiple Cooler Form Cooler Description** IR Gun # Observed Corrected Coolant (Circle) (Circle) (Circle) Temp °C Temp °C Wellce) Blue ice Dry Ice IR-13 IR-15 2. Client Box Water None R-13 IR-15 0.6 TA Client 0.6 Box Other None Wel Ice Blue Ice Dry ice IR-13 IR-15 Client Box Other None Water
 Wet Ice
 Blue Ice
 Dry Ice

 Water
 None

Water
None IR-13 IR-15 TA Client Box Other IR-13 IR-15 TA Client Box Other

IA Client	Box Other		Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	1R-13 1R-15	Wet ice Sive ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wef ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Slue ice 'Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	1R-13 IR-15	Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wef Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Stue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-13 IR-15	Wet ice Sive ice Dry ice Water None
TA Client	Box Other	IR-13 IR-15	Wet Ice Blue Ice Dry Ice Water None
			See Temperature Excursion Form

ANALYTICAL REPORT

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

Laboratory Job ID: 240-166722-1 Client Project/Site: Ford LTP - Off Site

For:

ARCADIS U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Attn: Kristoffer Hinskey

Hatrick O'Meara

Authorized for release by: 5/27/2022 6:49:26 PM

Patrick O'Meara, Manager of Project Management (330)966-5725

Patrick.O'Meara@et.eurofinsus.com

Designee for

Michael DelMonico, Project Manager I (330)497-9396

Michael.DelMonico@et.eurofinsus.com

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-166722-1

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Definitions/Glossary

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Qualifiers

GC/MS VOA

Qualifier **Qualifier Description**

Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

Percent Recovery %R **CFL** Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) **DER**

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 MLMinimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

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**

Relative Error Ratio (Radiochemistry) **RER**

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

Too Numerous To Count **TNTC**

Case Narrative

Client: ARCADIS U.S., Inc.

Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Job ID: 240-166722-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-166722-1

Comments

No additional comments.

Receipt

The samples were received on 5/17/2022 @ 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.6° C and 2.1° C.

GC/MS VOA

Method 8260D SIM: The following samples was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The samples were analyzed outside the 7-day holding time specified for unpreserved samples but within the 14-day holding time specified for preserved samples: (240-166722-B-2 MS) and (240-166722-B-2 MSD).

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

VOA Prep

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

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Method Summary

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-166722-1

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

Protocol References:

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

Laboratory References:

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

Sample Summary

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

Job ID: 240-166722-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-166722-1	TRIP BLANK_93	Water	05/13/22 00:00	05/17/22 09:30
240-166722-2	MW-217S_051322	Water	05/13/22 14:20	05/17/22 09:30

Detection Summary

Client: ARCADIS U.S., Inc.

Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_93 Lab Sample ID: 240-166722-1

No Detections.

No Detections.

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_93

Date Collected: 05/13/22 00:00 Date Received: 05/17/22 09:30 Lab Sample ID: 240-166722-1

Matrix: Water

Method: 8260D - Volatile On Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 21:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 21:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 21:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 21:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 21:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 21:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137					05/24/22 21:05	1
4-Bromofluorobenzene (Surr)	85		56 - 136					05/24/22 21:05	1
Toluene-d8 (Surr)	95		78 - 122					05/24/22 21:05	1
Dibromofluoromethane (Surr)	101		73 - 120					05/24/22 21:05	1

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-217S_051322

Date Collected: 05/13/22 14:20 Date Received: 05/17/22 09:30

Dibromofluoromethane (Surr)

Lab Sample ID: 240-166722-2

05/24/22 23:10

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			05/23/22 22:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		66 - 120					05/23/22 22:40	1
Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 23:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 23:10	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 23:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 23:10	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 23:10	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 23:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137					05/24/22 23:10	1
4-Bromofluorobenzene (Surr)	87		56 ₋ 136					05/24/22 23:10	1
Toluene-d8 (Surr)	97		78 - 122					05/24/22 23:10	1

73 - 120

Surrogate Summary

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

			Pe	ercent Surre	ogate Reco
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-166662-F-4 MS	Matrix Spike	96	97	99	103
240-166662-I-4 MSD	Matrix Spike Duplicate	96	101	99	106
240-166722-1	TRIP BLANK_93	96	85	95	101
240-166722-2	MW-217S_051322	103	87	97	105
LCS 240-527705/4	Lab Control Sample	94	99	98	102
MB 240-527705/6	Method Blank	98	88	95	100

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	
Client Sample ID	(66-120)	
MW-217S_051322	99	
MW-217S_051322	102	
MW-217S_051322	99	
Lab Control Sample	101	
Method Blank	102	
	MW-217S_051322 MW-217S_051322 MW-217S_051322 Lab Control Sample	Client Sample ID (66-120) MW-217S_051322 99 MW-217S_051322 102 MW-217S_051322 99 Lab Control Sample 101

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

Client: ARCADIS U.S., Inc.

Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: MB 240-527705/6

Matrix: Water

Analysis Batch: 527705

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			05/24/22 13:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 13:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 13:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 13:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 13:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 13:33	1

-		MB MB				
	Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
	1,2-Dichloroethane-d4 (Surr)	98	62 - 137		05/24/22 13:33	1
	4-Bromofluorobenzene (Surr)	88	56 - 136		05/24/22 13:33	1
	Toluene-d8 (Surr)	95	78 - 122		05/24/22 13:33	1
	Dibromofluoromethane (Surr)	100	73 - 120		05/24/22 13:33	1
	1,2-Dichloroethane-d4 (Surr) 4-Bromofluorobenzene (Surr) Toluene-d8 (Surr)	98 88 95	62 - 137 56 - 136 78 - 122	Prepared	05/24/22 13:33 05/24/22 13:33 05/24/22 13:33	<u>Di</u>

Lab Sample ID: LCS 240-527705/4

Matrix: Water

Analysis Batch: 527705

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

LCS LCS %Rec Spike Analyte Added Result Qualifier Unit D %Rec Limits 1,1-Dichloroethene 25.0 26.2 ug/L 105 63 - 134 cis-1,2-Dichloroethene 25.0 26.3 ug/L 105 77 - 123 ug/L Tetrachloroethene 25.0 25.7 103 76 - 123 trans-1,2-Dichloroethene 25.0 26.5 ug/L 106 75 - 124 Trichloroethene 25.0 26.0 ug/L 104 70 - 122 Vinyl chloride 87 12.5 10.9 ug/L 60 - 144

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-166662-F-4 MS

Matrix: Water

Analysis Batch: 527705

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	29.1		ug/L		117	56 - 135	
cis-1,2-Dichloroethene	1.0	U	25.0	25.8		ug/L		103	66 - 128	
Tetrachloroethene	1.0	U	25.0	25.5		ug/L		102	62 - 131	
trans-1,2-Dichloroethene	1.0	U	25.0	26.9		ug/L		108	56 - 136	
Trichloroethene	1.0	U	25.0	25.0		ug/L		100	61 - 124	
Vinyl chloride	0.84	J	25.0	20.8		ug/L		80	43 - 157	

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	99		78 - 122

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Job ID: 240-166722-1

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: 240-166662-F-4 MS **Client Sample ID: Matrix Spike Prep Type: Total/NA**

Matrix: Water

Analysis Batch: 527705

MS MS

%Recovery Qualifier Limits Surrogate Dibromofluoromethane (Surr) 103 73 - 120

Lab Sample ID: 240-166662-I-4 MSD

Matrix: Water

Analysis Batch: 527705

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Sample Sample Spike MSD MSD %Rec **RPD** Result Qualifier Added Limits RPD Limit **Analyte** Result Qualifier Unit D %Rec 1.0 U 1,1-Dichloroethene 25.0 28.0 ug/L 112 56 - 135 4 26 cis-1,2-Dichloroethene 1.0 U 25.0 25.7 ug/L 103 66 - 128 O 14 Tetrachloroethene 1.0 U 25.0 25.9 ug/L 103 62 - 13120 trans-1.2-Dichloroethene 1.0 U 25.0 26.4 106 56 - 136 15 ug/L Trichloroethene 1.0 U 25.0 25.0 ug/L 100 61 - 124 0 15 Vinyl chloride 0.84 J 25.0 23.2 ug/L 43 - 157 24

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	106		73 - 120

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

MB MB

Matrix: Water

Analysis Batch: 527589

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 2.0 1,4-Dioxane 2.0 U 0.86 ug/L 05/23/22 21:00

MB MB %Recovery Qualifier Limits Surrogate

Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 102 66 - 120 05/23/22 21:00

Lab Sample ID: LCS 240-527589/3

Lab Sample ID: MB 240-527589/6

Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA **Analysis Batch: 527589** Spike LCS LCS %Rec

Added Result Qualifier Limits Analyte Unit D %Rec 1,4-Dioxane 10.0 9.54 ug/L 95 80 - 122

LCS LCS

%Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 101 66 - 120

Client Sample ID: MW-217S 051322 Lab Sample ID: 240-166722-2 MS Prep Type: Total/NA

Matrix: Water

Analysis Batch: 527589

Analysis Baton: 027000	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	9.87		ug/L		99	51 - 153	

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QC Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

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

	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		66 - 120								
Lab Sample ID: 240-1667 Matrix: Water Analysis Batch: 527589	22-2 MSD						Client	Sample	ID: MW-2 Prep Ty	_	
	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	9.81		ug/L		98	51 - 153	1	16
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	99		66 - 120								

QC Association Summary

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-166722-1

GC/MS VOA

Analysis Batch: 527589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166722-2	MW-217S_051322	Total/NA	Water	8260D SIM	
MB 240-527589/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-527589/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-166722-2 MS	MW-217S_051322	Total/NA	Water	8260D SIM	
240-166722-2 MSD	MW-217S_051322	Total/NA	Water	8260D SIM	

Analysis Batch: 527705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166722-1	TRIP BLANK_93	Total/NA	Water	8260D	_ <u> </u>
240-166722-2	MW-217S_051322	Total/NA	Water	8260D	
MB 240-527705/6	Method Blank	Total/NA	Water	8260D	
LCS 240-527705/4	Lab Control Sample	Total/NA	Water	8260D	
240-166662-F-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-166662-I-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

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Lab Chronicle

Client: ARCADIS U.S., Inc.

Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_93 Lab Sample ID: 240-166722-1

Date Collected: 05/13/22 00:00 Matrix: Water

Date Received: 05/17/22 09:30

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	527705	05/24/22 21:05	SAM	TAL CAN

Date Collected: 05/13/22 14:20 Matrix: Water

Date Received: 05/17/22 09:30

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	527705	05/24/22 23:10	SAM	TAL CAN
Total/NA	Analysis	8260D SIM		1	527589	05/23/22 22:40	CS	TAL CAN

Laboratory References:

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

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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1 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	06-30-22
Georgia	State	4062	02-23-22 *
Illinois	NELAP	200004	07-31-22
lowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	05-24-22
Oregon	NELAP	4062	05-24-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-22-16	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

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March 1969 Cheb Drive, site 500 Cheb 1960 Cheb	Company Name: Arcadis				TestAmerica Laboratories, Inc.
Chickent	Address: 28550 Cabot Drive, Suite 500		Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
TAT (clinaria triange) Tat (clinaria trian	Civ/State/Zip: Novi. MI 48377		phone: 248-994-2329	Telephone: 330-966-9783	
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VOA Sample Preservation - Date/Time VOAs Frozen:

Login#: 166722

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

DATA VERIFICATION REPORT



May 30, 2022

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

CADENA project ID: E203631

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

Project number: 30080642.402.04

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

Laboratory submittal: 166720-1 Sample date: 2022-05-13

Report received by CADENA: 2022-05-27

Initial Data Verification completed by CADENA: 2022-05-30

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: 166720-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLANK_103 2401667201 5/13/2022				MW-112S_051322 2401667202 5/13/2022			
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>0D</u>									
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	
	cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		ND	1.0	ug/l	
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	
	Vinyl chloride	75-01-4	ND	1.0	ug/l		ND	1.0	ug/l	
OSW-826	<u>ODSIM</u>									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	

DATA VERIFICATION REPORT



May 30, 2022

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

CADENA project ID: E203631

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

Project number: 30080642.402.04

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

Laboratory submittal: 166722-1 Sample date: 2022-05-13

Report received by CADENA: 2022-05-27

Initial Data Verification completed by CADENA: 2022-05-30

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 SIM MS/MSD preservation issue did not result in qualification of data.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, 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 - Barberton

Laboratory Submittal: 166722-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLANK_93 2401667221 5/13/2022				MW-217S_051322 2401667222 5/13/2022			
				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 # 240-166720-1

CADENA Verification Report: 2022-05-30

Analyses Performed By: TestAmerica

North Canton, Ohio

Report # 45809R Review Level: Tier III Project: 30080642.402.01

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-166720-1 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		Analysis		
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM	
TRIP BLANK_103	240-166720-1	Water	05/13/2022		Х		
MW-112S_051322	240-166720-2	Water	05/13/2022		X	X	

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed	Repo	orted	Performance Acceptable		Not
		No	Yes	No	Yes	Required
1. Sa	ample receipt condition		Х		Х	
2. Re	equested analyses and sample results		Х		Х	
3. Ma	aster tracking list		Х		Х	
4. Me	ethods of analysis		Х		Х	
5. Re	eporting limits		Х		Х	
6. Sa	ample collection date		Х		Х	
7. Lal	boratory sample received date		Х		Х	
8. Sa	ample preservation verification (as applicable)		Х		Х	
9. Sa	ample preparation/extraction/analysis dates		Х		Х	
10. Ful	illy executed Chain-of-Custody (COC) form		Х		Х	
	arrative summary of Quality Assurance or sample oblems provided		Х		Х	
12. Da	ata Package Completeness and Compliance		Х		Х	

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

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

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

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

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

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

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

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

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

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

3.2 Continuing Calibration

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

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

4. Internal Standard Performance

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

All internal standard responses were within control limits.

5. Field Duplicate Analysis

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

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

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: 8260B/8260B-SIM	Rep	orted	Perfo Acce	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		X	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	X				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		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: Bhagyashree Fulzele

SIGNATURE: Brutzele

DATE: June 14, 2022

PEER REVIEW: Andrew Korycinski

DATE: June 14, 2022

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

MICHIGAN

Chain of Custody Record

TestAmerica Laboratory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763 Other Regulatory program: NPDES RCRA 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: 269-832-7478 Telephone: 248-994-2329 Telephone: 330-966-9783 City/State/Zip: Novi, MI, 48377 COCs Analysis Turnaround Time Email: Kristoffer.Hinskey@arcadis.com Analyses For lab use only Phone: 248-994-2240 TAT if different from below Walk-in client Leacadia Jay Method of Shipment/Carrier: Project Name: Ford LTP Off-Site 3 weeks ≥ 2 weeks Lab sampling Project Number: 30080642.402.04 ☐ I week SIM Composite=C / Grab=G Filtered Sample (Y / N) 2 days 8260D PO # 30080642.402.04 Shipping/Tracking No: 1 day Job/SDG No: 1,1-DCE 8260D Matrix Containers & Preservatives Sample Specific Notes / **Special Instructions:** Sample Identification Sample Date Sample Time TRIP BLANK_ 103 X X 1 Trip Blank MW-1125-051327 3 VOAs for 8260D 05/13/22 3 VOAs for 8260D SIM Page 으 Possible Hazard Identification Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Skin Irritant Non-Hazard Flammable Poison B Unknown Return to Client Disposal By Lab Special Instructions/QC Requirements & Comments: Sample Address: 34035 WADS WORTH
Submit all results through Cadena at itomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested. Relinquished by: Arcadis Date Time: / 5/16/72 Relinquished by: ARCADIS Relinquished by 5/16/12 1250 ©2008, TestAmerica Laboratories, Inc., Afficials reserved.
TestAmerica & Deson ** are trademarks of TestAmerica Laboratories, Inc.









Client Sample Results

Client: ARCADIS U.S., Inc.

Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_103

Date Collected: 05/13/22 00:00 Date Received: 05/17/22 09:30 Lab Sample ID: 240-166720-1

Matrix: Water

Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 20:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 20:40	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 20:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 20:40	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 20:40	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 20:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					05/24/22 20:40	1
4-Bromofluorobenzene (Surr)	85		56 ₋ 136					05/24/22 20:40	1
Toluene-d8 (Surr)	97		78 - 122					05/24/22 20:40	1
Dibromofluoromethane (Surr)	102		73 - 120					05/24/22 20:40	1

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166720-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-112S_051322

Date Collected: 05/13/22 12:30 Date Received: 05/17/22 09:30

Dibromofluoromethane (Surr)

Lab Sample ID: 240-166720-2

05/24/22 22:45

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			05/23/22 22:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 120					05/23/22 22:15	1
Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 22:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 22:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 22:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 22:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 22:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 22:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		62 - 137					05/24/22 22:45	1
4-Bromofluorobenzene (Surr)	84		56 ₋ 136					05/24/22 22:45	1
Toluene-d8 (Surr)	97		78 - 122					05/24/22 22:45	1

73 - 120

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Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-166722-1

CADENA Verification Report: 2022-05-30

Analyses Performed By:

TestAmerica North Canton, Ohio

Report # 45810R Review Level: Tier III Project: 30080642.402.01

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-166722-1 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		Analysis			
Sample ID	Lab ID Matrix		Date	Parent Sample	voc	VOC SIM		
TRIP BLANK_93	240-166722-1	Water	05/13/2022		Х			
MW-217S_051322	240-166722-2	Water	05/13/2022		X	X		

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted		mance ptable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		X		X	
2. Requested analyses and sample results		Х		Х	
Master tracking list		Х		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		Х		Х	
6. Sample collection date		Х		X	
7. Laboratory sample received date		Х		X	
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 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

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

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

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

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

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

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

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-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).

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3.2 Continuing Calibration

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

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

4. Internal Standard Performance

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

All internal standard responses were within control limits.

5. Field Duplicate Analysis

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

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

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

SIGNATURE: Brutzele

DATE: June 14, 2022

PEER REVIEW: Andrew Korycinski

DATE: June 14, 2022

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

MICHIGAN 0.6/0.6

Chain of Custody Record

<u>TestAmerica</u>

ompany Name: Arcadis		ory program:					NPDES		RCRA	1	Oth										TestAmerica Laboratories	
ddress: 28550 Cabot Drive, Suite 500	Client Project N	Telephone: 269-832-7478 Email: Kristoffer.Hinskey@arcadis.com Sampler Name:					Contact	: Chri:	tina Weaver				Lab C	ab Contact: Mike DelMonico							COC No:	
	Telephone: 269						.69-832-7478 Telephone: 248-994-2329 Telep							Telephone: 330-966-9783								
ity/State/Zip: Novi, MI, 48377	Email: Kristoff						Analysis Turnaround Time						Analyses								1 of 1 COCs For lab use only	
hone: 248-994-2240													Analyses									
roject Name: Ford LTP Off-Site							if differen		low 3 weeks	-											Walk-in client	
roject Number: 30080642.402.04	Method of Shin	Lea Cadia Jay Method of Shipment/Carrier:				10	day		weeks week									_			Lab sampling	
				,					2 days	Z	9			99			8	SIR			Unit-	
O # 30080642.402.04	Shipping/Track	ing No:							day	mple (Y / N)	C/Grab=G	٥	260	E 826			826(260C			Job/SDG No:	
				Matri	x		Contain	ers & P	reservatives	I gung		8260	CE 8	OG-	9	9	oride	ne 8				
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Solid Other:	H2SO4	HN03	NaOH	Unpres Other:	Unpres Other: Filtered S	Composite	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1.4-Dioxane 8260D SIM			Sample Specific Notes Special Instructions:	
TRIP BLANK_ 93				X			1				G					X	X	_			1 Trip Blank	
M. 1 217 C 201272		1420	\vdash	X	_		6			_	\vdash		-	-	-		5.7	1/		_	3 VOAs for 8260D	
MW-2175-051322	05/13/22	1920	\vdash	4	-		6			N	6	X	X	X	X	\times	X	X			3 VOAs for 8260D S	
	1160126510	1 1813 R. B.				1		\Box		+	Н											
	240-16	6722 Chain	of Cu	ustody																		
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Possible Hazard Identification Non-Hazard Flammable Skin Irr	ritant Poiso	n B	Unkn	own		Sa	mple D	isposal	(A fee may b	e asses Dispo	sed if	sampl	es are				han 1					
pecial Instructions/QC Requirements & Comments: ample Address: 34935 WAOSV ubmit all results through Cadena at jtomalia@cadena avel IV Reporting requested.			Olikii			-	Ken	an to c	nem v	Dispo	sai by	Lab		AI	chive I	FOF		Me	enths			
clinquished by	Company:	-<	I	Date/Time:			. 15	Rece	ved by:	ا ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ		Lac	3 0	_	(Comp	nany:	_	1.6		Date/Time:	
clinquished by:	Company:	CACIS		05/16 5/16	177	12	20	Rece	Jour C	2010		ועופ	0	1		Comp	any:	4	adis		Date/Time: 120 5/16/22 120	
elinquished by:	Company		1	Date/Time:	7 ,	250	/	Rede	ived in Labora	atory b	y:		•		-	Conu	pany:	15	NC		Date/Time: 5-17-22 093	









Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_93

Date Collected: 05/13/22 00:00 Date Received: 05/17/22 09:30 Lab Sample ID: 240-166722-1

Matrix: Water

Method: 8260D - Volatile On Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 21:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 21:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 21:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 21:05	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 21:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 21:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137					05/24/22 21:05	1
4-Bromofluorobenzene (Surr)	85		56 - 136					05/24/22 21:05	1
Toluene-d8 (Surr)	95		78 - 122					05/24/22 21:05	1
Dibromofluoromethane (Surr)	101		73 - 120					05/24/22 21:05	1

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Client Sample Results

Client: ARCADIS U.S., Inc. Job ID: 240-166722-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-217S_051322

Date Collected: 05/13/22 14:20 Date Received: 05/17/22 09:30

Dibromofluoromethane (Surr)

Lab Sample ID: 240-166722-2

05/24/22 23:10

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			05/23/22 22:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		66 - 120					05/23/22 22:40	1
Method: 8260D - Volatile O	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/24/22 23:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/24/22 23:10	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 23:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/24/22 23:10	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/24/22 23:10	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/22 23:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137					05/24/22 23:10	1
4-Bromofluorobenzene (Surr)	87		56 ₋ 136					05/24/22 23:10	1
Toluene-d8 (Surr)	97		78 - 122					05/24/22 23:10	1

73 - 120

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