

# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 240-162656-1 Client Project/Site: Ford LTP - Off Site

For:

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

Attn: Kristoffer Hinskey

Mode Del Your

Authorized for release by: 2/26/2022 1:04:06 PM

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

Michael.DelMonico@Eurofinset.com

·····LINKS ······

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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: 240-162656-1

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#### **Definitions/Glossary**

Client: ARCADIS U.S., Inc.

Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Qualifiers
GC/MS VOA

Qualifier Qualifier Description

U Indicates the analyte was analyzed for but not detected.

**Glossary** 

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

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

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

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

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

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

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

NC Not Calculated

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

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

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

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

TNTC Too Numerous To Count

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**Eurofins Canton** 

#### **Case Narrative**

Client: ARCADIS U.S., Inc.

Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Job ID: 240-162656-1

**Laboratory: Eurofins Canton** 

Narrative

Job Narrative 240-162656-1

#### **Comments**

No additional comments.

#### Receipt

The samples were received on 2/12/2022 10:20 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 was 1.8° C.

#### **GC/MS VOA**

Method 8260B SIM: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW-214S 021022 (240-162656-2). Elevated reporting limits (RLs) are provided.

Method 8260B SIM: The matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-518020 were not spiked during prep due to analyst error.

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: 240-162656-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	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: 240-162656-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-162656-1	TRIP BLANK_14	Water	02/10/22 00:00	02/12/22 10:20
240-162656-2	MW-214S 021022	Water	02/10/22 14:25	02/12/22 10:20

# **Detection Summary**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_14 Lab Sample ID: 240-162656-1

No Detections.

No Detections.

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# **Client Sample Results**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_14

Date Collected: 02/10/22 00:00 Date Received: 02/12/22 10:20 Lab Sample ID: 240-162656-1

**Matrix: Water** 

Method: 8260B - Volatile O Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0		1.0	0.49		<u>-</u> .		02/14/22 14:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	Ü			02/14/22 14:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/14/22 14:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/14/22 14:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/14/22 14:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/14/22 14:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		62 - 137					02/14/22 14:26	1
4-Bromofluorobenzene (Surr)	112		56 - 136					02/14/22 14:26	1
Toluene-d8 (Surr)	91		78 - 122					02/14/22 14:26	1
Dibromofluoromethane (Surr)	86		73 - 120					02/14/22 14:26	1

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# **Client Sample Results**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-214S\_021022

Date Collected: 02/10/22 14:25 Date Received: 02/12/22 10:20 Lab Sample ID: 240-162656-2

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			02/14/22 21:59	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		66 - 120					02/14/22 21:59	2
Method: 8260B - Volatile O Analyte	•	unds (GC/I Qualifier	MS) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 8260B - Volatile O	rganic Compo	unds (GC/I	MS)						
Analyte	Result	Qualifier	RL			<u>D</u> .	Prepared		Dil Fac
Analyte 1,1-Dichloroethene	Result 1.0	Qualifier U	RL 1.0	0.49	ug/L	<u>D</u>	Prepared	02/14/22 20:06	Dil Fac
Analyte	Result	Qualifier U U	RL	0.49 0.46		<u> </u>	Prepared		Dil Fac 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result 1.0 1.0	Qualifier U U U	1.0 1.0	0.49 0.46 0.44	ug/L ug/L	<u>D</u> .	Prepared	02/14/22 20:06 02/14/22 20:06	Dil Fac 1 1 1 1
Analyte  1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene	Result 1.0 1.0 1.0	Qualifier U U U U	RL 1.0 1.0 1.0	0.49 0.46 0.44 0.51	ug/L ug/L ug/L	<u>D</u> .	Prepared	02/14/22 20:06 02/14/22 20:06 02/14/22 20:06	Dil Fac 1 1 1 1 1 1 1 1

%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
75	62 - 137		02/14/22 20:06	1
107	56 - 136		02/14/22 20:06	1
89	78 - 122		02/14/22 20:06	1
86	73 - 120		02/14/22 20:06	1
	75 107 89	75 62 - 137 107 56 - 136 89 78 - 122	75 62 - 137 107 56 - 136 89 78 - 122	75     62 - 137     02/14/22 20:06       107     56 - 136     02/14/22 20:06       89     78 - 122     02/14/22 20:06

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#### **Surrogate Summary**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Method: 8260B - Volatile Organic Compounds (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)
240-162656-1	TRIP BLANK_14	75	112	91	86
240-162656-2	MW-214S_021022	75	107	89	86
240-162665-H-3 MSD	Matrix Spike Duplicate	74	113	87	87
240-162665-K-3 MS	Matrix Spike	77	115	88	88
LCS 240-517986/5	Lab Control Sample	72	118	89	88
MB 240-517986/8	Method Blank	73	108	87	85

Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Method: 8260B 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)	
240-162656-2	MW-214S_021022	83	
LCS 240-518020/4	Lab Control Sample	84	
MB 240-518020/5	Method Blank	84	

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Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

#### Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-517986/8

**Matrix: Water** 

Analysis Batch: 517986

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

MB MB Prepared Result Qualifier RL **MDL** Unit Analyzed Dil Fac Analyte 0.49 ug/L 1,1-Dichloroethene 1.0 U 1.0 02/14/22 12:55 cis-1,2-Dichloroethene 1.0 U 1.0 0.46 ug/L 02/14/22 12:55 1.0 U 0.44 ug/L Tetrachloroethene 1.0 02/14/22 12:55 trans-1,2-Dichloroethene 1.0 0.51 ug/L 02/14/22 12:55 1.0 U Trichloroethene 1.0 U 1.0 0.44 ug/L 02/14/22 12:55 Vinyl chloride 1.0 U 1.0 0.45 ug/L 02/14/22 12:55

MB MB Surrogate %Recovery Qualifier Limits Prepared Dil Fac Analyzed 62 - 137 1,2-Dichloroethane-d4 (Surr) 73 02/14/22 12:55 4-Bromofluorobenzene (Surr) 108 56 - 136 02/14/22 12:55 87 78 - 122 Toluene-d8 (Surr) 02/14/22 12:55 Dibromofluoromethane (Surr) 85 73 - 120 02/14/22 12:55

Lab Sample ID: LCS 240-517986/5

**Matrix: Water** 

Analysis Batch: 517986

**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	20.0	20.9		ug/L		105	63 - 134	
cis-1,2-Dichloroethene	20.0	20.1		ug/L		101	77 - 123	
Tetrachloroethene	20.0	19.3		ug/L		97	76 - 123	
trans-1,2-Dichloroethene	20.0	20.4		ug/L		102	75 - 124	
Trichloroethene	20.0	20.4		ug/L		102	70 - 122	
Vinyl chloride	20.0	19.7		ug/L		98	60 - 144	

LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 72 62 - 137 4-Bromofluorobenzene (Surr) 118 56 - 136 Toluene-d8 (Surr) 89 78 - 122 73 - 120 Dibromofluoromethane (Surr) 88

Lab Sample ID: 240-162665-H-3 MSD

**Matrix: Water** 

Analysis Batch: 517986

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

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	1.0	U	20.0	19.9		ug/L		100	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	20.0	19.2		ug/L		96	66 - 128	4	14
Tetrachloroethene	1.0	U	20.0	18.3		ug/L		92	62 - 131	4	20
trans-1,2-Dichloroethene	1.0	U	20.0	20.3		ug/L		101	56 - 136	5	15
Trichloroethene	1.0	U	20.0	20.4		ug/L		102	61 - 124	1	15
Vinyl chloride	1.0	U	20.0	20.6		ug/L		103	43 - 157	3	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	74		62 - 137
4-Bromofluorobenzene (Surr)	113		56 - 136
Toluene-d8 (Surr)	87		78 - 122

**Eurofins Canton** 

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: 240-162665-H-3 MSD

**Matrix: Water** 

Analysis Batch: 517986

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

MSD MSD

Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 87 73 - 120

Lab Sample ID: 240-162665-K-3 MS

**Matrix: Water** 

**Analysis Batch: 517986** 

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

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	1.0	U	20.0	20.1		ug/L		101	56 - 135	
cis-1,2-Dichloroethene	1.0	U	20.0	20.0		ug/L		100	66 - 128	
Tetrachloroethene	1.0	U	20.0	19.1		ug/L		96	62 - 131	
trans-1,2-Dichloroethene	1.0	U	20.0	21.4		ug/L		107	56 - 136	
Trichloroethene	1.0	U	20.0	20.1		ug/L		101	61 - 124	
Vinyl chloride	1.0	U	20.0	21.3		ug/L		106	43 - 157	

MS MS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	77		62 - 137
4-Bromofluorobenzene (Surr)	115		56 - 136
Toluene-d8 (Surr)	88		78 - 122
Dibromofluoromethane (Surr)	88		73 - 120

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

Lab Sample ID: MB 240-518020/5

**Matrix: Water** 

**Analysis Batch: 518020** 

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

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

MB MB **MDL** Unit Analyte Result Qualifier RL Prepared Analyzed Dil Fac 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 02/14/22 17:23

MB MB

%Recovery Qualifier Surrogate Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 66 - 120 02/14/22 17:23 84

Lab Sample ID: LCS 240-518020/4

**Matrix: Water** 

Analysis Batch: 518020

Alialysis Datcii. 510020								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	10.0	9.61		ug/L		96	80 - 122	

LCS LCS

Surrogate %Recovery Qualifier Limits 66 - 120 1,2-Dichloroethane-d4 (Surr) 84

# **QC Association Summary**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1 Project/Site: Ford LTP - Off Site

#### **GC/MS VOA**

#### Analysis Batch: 517986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-162656-1	TRIP BLANK_14	Total/NA	Water	8260B	
240-162656-2	MW-214S_021022	Total/NA	Water	8260B	
MB 240-517986/8	Method Blank	Total/NA	Water	8260B	
LCS 240-517986/5	Lab Control Sample	Total/NA	Water	8260B	
240-162665-H-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-162665-K-3 MS	Matrix Spike	Total/NA	Water	8260B	

#### **Analysis Batch: 518020**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-162656-2	MW-214S_021022	Total/NA	Water	8260B SIM	
MB 240-518020/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-518020/4	Lab Control Sample	Total/NA	Water	8260B SIM	

#### **Lab Chronicle**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_14

Lab Sample ID: 240-162656-1 Date Collected: 02/10/22 00:00

**Matrix: Water** 

Date Received: 02/12/22 10:20

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	517986	02/14/22 14:26	LEE	TAL CAN

Client Sample ID: MW-214S\_021022

Lab Sample ID: 240-162656-2 Date Collected: 02/10/22 14:25

**Matrix: Water** 

Date Received: 02/12/22 10:20

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	517986	02/14/22 20:06	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		2	518020	02/14/22 21:59	CS	TAL CAN

**Laboratory References:** 

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

# **Accreditation/Certification Summary**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1 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	02-23-22
Connecticut	State	PH-0590	12-31-21 *
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
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	11-06-22
New York	NELAP	10975	03-31-22
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-21-14	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

Construction   Cons	Client Contact	Regulatory program: DW NPDES RCRA Other	NPDES RCRA Other		
Telephone: 7M-444-5131	Company Name: Arcadis				TestAmerica Laboratories,
Tricklown	Address: 28550 Cabot Drive, Suite 500	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
	COLUMN TO THE TOTAL TOTA	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396	
The fulfaction for the following the second of the following the second of the following the followi	CHY/SHRIC/ZJP: NOVI, MI, 483 / /	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	
10 day   2 works   2 wor	rance: 248-994-2240 Project Name: Ford LTP Off-Site		TAT if different from below		Walk-in client
1 days	Project Number: 30080642,402.04	Mrthod of Shipment/Carrier:	2 weeks		Lab sampling
Nath	PO # 30080642,402,04	Shipping/Tracking No:	N/A) 4	8560B 8260B	Job/SDG No:
Note		Matrix	ıdaı	iqe g	
X   X   X   X   X   X   X   X   X   X	Sample Identification	Sample Time Aqueous Sediment	Elifered Sa Other: Cubics NaOH NaOH HCI	cis-1,2-DC Trans-1,2-I	Sample Specific Notes Special Instructions:
3 VOAS for 822  X X X X X X X X X X X X X X X X X X	TRIP BLANK_ / H	)		× × ×	1 Trip Blank
Sample Disposal (A fee may be assessed if samples are retained longer than I month)  C.T.  Distortine:  Disto	Mus-Mus Group	1777	/٧	;	3 VOAs for 8260B
C.T.,  Date/Time:		2		X	3 VOAs for 8260B S
C.T.  Dave Time:					
C.T.  Date/Time:  Date/Date/Date/Date/Date/Date/Date/Date/					
C.T.  Date Time:				240-162656 Chain of Custody	
C.T.  Date/Time:  Date/Date/Date/Date/Date/Date/Date/Date/					
C.T.  Date/Time:  Date/Date/Time:  Date/Time:  Date/Date/Date/Date/Date/Date/Date/Date/					
Date Time:  Date Date Date Date Date Date Date Date	Possible Hazard Identification  Non-Hazard Flammable Sk		Sample Disposal ( A fee may be assessed if s Return to Client	samples are retained longer than I month) [ab Archive For Months	
Company:  Company:  Arcad 15  Date/Time:  Received by:  Company:  Company:  Company:  Company:  Company:  Company:  Date/Time:  Company:  Company:	Sample Address: Settor (F. C.) Submit all results through Cadena at itomalia@care.evel IV Reporting requested.	0	to readed	MUHIN	
The think company Date line:  Company Company Date line:	,,		Received by: Coke	Con	
Company: Date/Time: Da	Also t	Date 2		Company	C.
	Rejuminshed by	Date	1100	Company:	12)
	02008 TestAmerica I discriminates. Pro: Ast riches mesonand		1		100

**TestAmerica** 

Chain of Custody Record

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Canton Facility	Login # : [62656
Client Ar (adi) Site Name	Cogler unpacked by:
Cooler Received on 2-12-22 Opened on 2-12-22	Alica
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier	Other Other
Receipt After-hours: Drop-off Date/Time Storage Location	Odici
TestAmerica Cooler # 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 IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp. 2 °C Corrected Cooler	m 157
IR GUN# IR-14 (CF +0.1°C) Observed Cooler Temp. [> ( °C Corrected Cooler IR GUN #IR-15 (CF +0.2°C) Observed Cooler Temp. °C Corrected Cooler	Temp. C
	No No
· · · · · · · · · · · · · · · · · · ·	No NA Tests that are not
	checked for pH by
-Were tamper/custody seals intact and uncompromised?	No NA Receiving:
3. Shippers' packing slip attached to the cooler(s)?	
4. Did custody papers accompany the sample(s)?	No Oil and Grease
5. Were the custody papers relinquished & signed in the appropriate place?	No TOC
6. Was/were the person(s) who collected the samples clearly identified on the COC?	
7. Did all bottles arrive in good condition (Unbroken)?	
<ul> <li>8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?</li> <li>9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample, the containers (Y/N) is a container of the containers (Y/N).</li> </ul>	No
	No
<b>9</b>	No
	No
If yes, Questions 13-17 have been checked at the originating laboratory.	
	No (NA) pH Strip Lot# <u>HC157842</u>
	No
	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 17. Was a LL Hg or Me Hg trip blank present? Yes	No (No
Contacted PM by via Verbal V	oice Mail Other
Concerning	
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page	Samples processed by:
. •	, , ,
19. SAMPLE CONDITION	
Sample(s) were received after the recommended holdi	ng time had expired.
Sample(s) were received Sample(s) were received with bubble >6 mm in	in a broken container.
	- Grameter (140thly 1141)
20. SAMPLE PRESERVATION	
Sample(s) were fur	ther preserved in the laboratory.
Sample(s) were fur Time preserved: Preservative(s) added/Lot number(s):	
VOA Sample Preservation - Date/Time VOAs Frozen:	

#### DATA VERIFICATION REPORT



February 26, 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 WA04 OFF-SITE GW Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - North Central

Laboratory submittal: 162656-1 Sample date: 2022-02-10

Report received by CADENA: 2022-02-26

Initial Data Verification completed by CADENA: 2022-02-26

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 QC batch MS/MSD issues as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

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

# **CADENA Valid Qualifiers**

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

# **Analytical Results Summary**

**CADENA Project ID:** E203631

**Laboratory:** Eurofins Environment Testing LLC - North Central

**Laboratory Submittal:** 162656-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401626 2/10/20	5561			MW-214 2401626 2/10/20	5562	22	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC OSW-826	0B									
	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>OBBSim</u>									
	1,4-Dioxane	123-91-1					ND	4.0	ug/l	



# Ford Motor Company – Livonia Transmission Project

# **DATA REVIEW**

# Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-162656-1

CADENA Verification Report: 2022-02-26

Analyses Performed By:

TestAmerica North Canton, Ohio

Report # 44711R Review Level: Tier III Project: 30080642.402.02

#### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-162656-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

			Sample Collection		Ana	lysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM
TRIP BLANK_14	240-162656-1	Water	02/10/2022		Х	
MW-214S_021022	240-162656-2	Water	02/10/2022		X	Х

#### **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).

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 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: 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: March 10, 2022

PEER REVIEW: Andrew Korycinski

DATE: March 11, 2022

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

# MICHIGAN 190

#### **Chain of Custody Record**

170	TestAmerica Labora	tory location:	Brig	hton —	10448	Citatio	on Driv	e, S	uite 2	00 /	Brigh	ton, MI	48116	/ 810	0-229	-2763									Tres	LEADER IN ENVIRONMENTAL TEST	ING
Client Contact	Regulat	ory program:		Г	DW			NPD	ES		⊢ R	CRA	-	Oth	ner [												
Company Name: Areadis	Client Project	Janager: Kris	Hinsk	ev	_		Site (	Cont	act: I	Iulia	McC	afforts	_			II ab (	Conto	ot. Mil	o Del	Monie						FestAmerica Laboratories, I COC No:	nc
Address: 28550 Cabot Drive, Suite 500			1111151				Site Contact: Julia McClafferty						Lab Contact: Mike DelMonico					ľ	JUC. No:								
City/State/Zip: Novi, MI, 48377	Telephone: 248	-994-2240					Telep	Telephone: 734-644-5131						Telephone: 330-497-9396						4 - 5 - 4 - 600	_						
	Email: kristoff	er.hinskey@ar	cadis.	com			A	Analy	ysis T	urns	around	Time		T			_		A	nalys	es				T F	1 of 1 COCs  For lab use only	-
Phone: 248-994-2240		Sampler Name: T			TAT			-	1				Г		П										П		
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PO # 30080642.402.04	Shipping/Track	ing No:					1				2 days 1 day		2	-dar		00	8260B			908	B SI					L CDC V	
	Shipping 11 ac	ang . vo.										mple (Y / N)	=C/Grab=G	8	3260	E 8			826	3260				ľ	ob/SDG No:		
				Ma	trix	ſ		Cont	tainers	& P	reserv	atives	- S	Î I	826	E	00-	89	98	oride	ane 8						
				sent sent		ı.	2			_		2 2	red	posi	SCE	2-D	S-1.5	826	826	5	Sioxa					Sample Specific Notes /	
Sample Identification	Sample Date	Sample Time	Air	Aque	Solid	Other:	HZSO4	HNO3	ΗC	Ouv	ZaAc/ NaOH	Other:	Filtered	Composite	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM					Special Instructions:	
MW-2145_OXIOZZ	2/14/2	)		X					1	T	T		N	6	X	Х	X	X	Х	Х						1 Trip Blank	_
M(1-) 146 (2) (2) 2		1/15					$\Box$	$\neg$	/	7	$\top$		1		1.										+	3 VOAs for 8260B	
MM -4142 - ONOX	2/10/27	1425	Ш	X			$\sqcup$		6	4			^	6	X	X	X	4	4	×	X					3 VOAs for 8260B SIM	
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Non-Hazard Flammable Sl Special Instructions/QC Requirements & Comments:	in Irritant Poise	n B	Unk	nown				F	Return	to C	Client	V	Dispo	sal B	y Lab		C A	rchive	For [			onths					
Sample Address:	12400 BEL	DEN C	Τ.																								
Sample Address: Bellen († 6 Submit all results through Cadena at itomalia@ca	denaco.com. Cadena f	E203631																									
Level IV Reporting requested.																											
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# **Client Sample Results**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_14

Date Collected: 02/10/22 00:00 Date Received: 02/12/22 10:20 Lab Sample ID: 240-162656-1

**Matrix: Water** 

Method: 8260B - Volatile O Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0		1.0	0.49		— <u> </u>		02/14/22 14:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	Ü			02/14/22 14:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/14/22 14:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/14/22 14:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/14/22 14:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/14/22 14:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	75		62 - 137					02/14/22 14:26	1
4-Bromofluorobenzene (Surr)	112		56 - 136					02/14/22 14:26	1
Toluene-d8 (Surr)	91		78 - 122					02/14/22 14:26	1
Dibromofluoromethane (Surr)	86		73 - 120					02/14/22 14:26	1

0

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# **Client Sample Results**

Client: ARCADIS U.S., Inc. Job ID: 240-162656-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-214S\_021022

Date Collected: 02/10/22 14:25 Date Received: 02/12/22 10:20

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Toluene-d8 (Surr)

Lab Sample ID: 240-162656-2

02/14/22 20:06

02/14/22 20:06 02/14/22 20:06

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			02/14/22 21:59	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		66 - 120			•		02/14/22 21:59	2
_ Method: 8260B - Volatile O	rganic Compo	unds (GC/I	MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			02/14/22 20:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/14/22 20:06	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/14/22 20:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/14/22 20:06	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/14/22 20:06	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/14/22 20:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137					02/14/22 20:06	

56 - 136

78 - 122

73 - 120

107

89

86

3

5

7

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10

11