# 🛟 eurofins

## Environment Testing America

## **ANALYTICAL REPORT**

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

#### Laboratory Job ID: 240-166229-1

Client Project/Site: Ford LTP - Off Site

#### For:

..... Links

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Ask— The Expert ARCADIS U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 5/23/2022 1:44:36 PM

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

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.

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#### 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)
TEO	

- TEQ Toxicity Equivalent Quotient (Dioxin)
- TNTC Too Numerous To Count

#### Job ID: 240-166229-1

#### Laboratory: Eurofins Canton

#### Narrative

Job Narrative 240-166229-1

**Case Narrative** 

#### Comments

No additional comments.

#### Receipt

The samples were received on 5/7/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.0° 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.

Job ID: 240-166229-1

#### **Method Summary**

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

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-166229-1	TRIP BLANK_143	Water	05/04/22 00:00	05/07/22 08:00
240-166229-2	MW-152S_050422	Water	05/04/22 13:48	05/07/22 08:00

<b>Detection Sur</b>	nmary
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Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_143

No Detections.

#### Client Sample ID: MW-152S\_050422

No Detections.

Lab Sample ID: 240-166229-1

Lab Sample ID: 240-166229-2

This Detection Summary does not include radiochemical test results.

#### Client Sample ID: TRIP BLANK\_143 Date Collected: 05/04/22 00:00 Date Received: 05/07/22 08:00

## Lab Sample ID: 240-166229-1

Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/16/22 16:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/16/22 16:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 16:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/16/22 16:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 16:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/16/22 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137					05/16/22 16:52	1
4-Bromofluorobenzene (Surr)	91		56 - 136					05/16/22 16:52	1
Toluene-d8 (Surr)	92		78 - 122					05/16/22 16:52	1
Dibromofluoromethane (Surr)	100		73 - 120					05/16/22 16:52	1

Analyte

1,4-Dioxane

#### Client Sample ID: MW-152S\_050422 Date Collected: 05/04/22 13:48 Date Received: 05/07/22 08:00

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

Result Qualifier

2.0 U

Job ID: 240-166229-1

Analyzed

05/11/22 20:33

Lab Sample ID: 240-166229-2 Matrix: Water Dil Fac 1

# 8

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		66 - 120					05/11/22 20:33	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			05/16/22 17:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/16/22 17:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 17:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/16/22 17:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 17:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/16/22 17:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137					05/16/22 17:17	1
4-Bromofluorobenzene (Surr)	95		56 - 136					05/16/22 17:17	1
Toluene-d8 (Surr)	97		78 - 122					05/16/22 17:17	1
Dibromofluoromethane (Surr)	104		73 - 120					05/16/22 17:17	1

RL

2.0

MDL Unit

0.86 ug/L

D

Prepared

#### **Surrogate Summary**

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

		Percent Surrogate Recovery (Acceptance Limits)						
		DCA	BFB	TOL	DBFM			
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)			
240-166229-1	TRIP BLANK_143	99	91	92	100			
240-166229-2	MW-152S_050422	102	95	97	104			
240-166235-H-2 MS	Matrix Spike	96	95	95	100			
240-166235-N-2 MSD	Matrix Spike Duplicate	95	94	93	99			
LCS 240-526489/5	Lab Control Sample	97	98	96	101			
MB 240-526489/8	Method Blank	103	95	97	104			
Surrogate Legend								
DCA = 1,2-Dichloroeth	ane-d4 (Surr)							
BFB = 4-Bromofluorob	enzene (Surr)							
TOL = Toluene-d8 (Su	r)							
	omethane (Surr)							

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		13
Lab Sample ID	Client Sample ID	(66-120)		
240-166229-2	MW-152S_050422	106		
240-166234-I-4 MS	Matrix Spike	109		
240-166234-O-4 MSD	Matrix Spike Duplicate	112		
LCS 240-526070/4	Lab Control Sample	106		
MB 240-526070/5	Method Blank	107		
Surrogate Legend				

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

**Eurofins Canton** 

Job ID: 240-166229-1

Prep Type: Total/NA

Prep Type: Total/NA

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

#### Lab Sample ID: MB 240-526489/8 **Matrix: Water**

#### Analysis Batch: 526489

	MB	MB							
Analyte Re	esult	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/16/22 10:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/16/22 10:20	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 10:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/16/22 10:20	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 10:20	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/16/22 10:20	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		05/16/22 10:20	1
4-Bromofluorobenzene (Surr)	95		56 - 136		05/16/22 10:20	1
Toluene-d8 (Surr)	97		78 - 122		05/16/22 10:20	1
Dibromofluoromethane (Surr)	104		73 - 120		05/16/22 10:20	1

#### Lab Sample ID: LCS 240-526489/5 Matrix: Water Analysis Batch: 526489

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	22.2		ug/L		111	63 - 134	
cis-1,2-Dichloroethene	20.0	21.6		ug/L		108	77 - 123	
Tetrachloroethene	20.0	19.3		ug/L		96	76 - 123	
trans-1,2-Dichloroethene	20.0	21.2		ug/L		106	75 - 124	
Trichloroethene	20.0	21.4		ug/L		107	70 - 122	
Vinyl chloride	20.0	22.1		ug/L		110	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120

95

#### Lab Sample ID: 240-166235-H-2 MS **Matrix: Water** Analysis Batch: 526489

Toluene-d8 (Surr)

7 maryolo Batom one lo									
	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1.0	U	20.0	18.4		ug/L		92	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	18.2		ug/L		91	66 - 128
Tetrachloroethene	1.0	U	20.0	16.0		ug/L		80	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	17.8		ug/L		89	56 - 136
Trichloroethene	1.0	U	20.0	17.6		ug/L		88	61 - 124
Vinyl chloride	1.0	U	20.0	17.4		ug/L		87	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		62 - 137						
4-Bromofluorobenzene (Surr)	95		56 - 136						

Euro	fins (	Canton
		ouncon

**Client Sample ID: Method Blank** 

#### **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Client Sample ID: Matrix Spike** 

Prep Type: Total/NA

78 - 122

5/23/2022

#### QC Sample Results

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

#### Lab Sample ID: 240-166235-H-2 MS **Client Sample ID: Matrix Spike** Matrix: Water Prep Type: Total/NA Analysis Batch: 526489 MS MS %Recovery Qualifier Limits Surrogate Dibromofluoromethane (Surr) 100 73 - 120 **Client Sample ID: Matrix Spike Duplicate** Lab Sample ID: 240-166235-N-2 MSD Matrix: Water Prep Type: Total/NA Analysis Batch: 526489 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 20.0 20.2 ug/L 101 56 - 135 9 26 cis-1,2-Dichloroethene 1.0 U 20.0 19.8 ug/L 99 66 - 128 8 14 Tetrachloroethene 1.0 U 20.0 17.0 ug/L 85 62 - 131 6 20 trans-1.2-Dichloroethene 1.0 U 20.0 19.0 95 56 - 136 15 ug/L 7 Trichloroethene 1.0 U 20.0 19.2 ug/L 96 61 - 124 8 15 Vinyl chloride 1.0 U 20.0 19.1 ug/L 96 43 - 157 10 24 MSD MSD %Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 95 62 - 137 4-Bromofluorobenzene (Surr) 94 56 - 136 Toluene-d8 (Surr) 93 78 - 122 Dibromofluoromethane (Surr) 99 73 - 120 Method: 8260D SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-526070/5 **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA** Analysis Batch: 526070 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 05/11/22 19:41 1 MB MB Qualifier Surrogate %Recovery Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 107 66 - 120 05/11/22 19:41 1 Lab Sample ID: LCS 240-526070/4 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA Analysis Batch: 526070 Spike LCS LCS %Rec Added Result Qualifier Limits Analyte Unit D %Rec 1,4-Dioxane 10.0 8.96 ug/L 90 80 - 122 LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 106 66 - 120 **Client Sample ID: Matrix Spike** Lab Sample ID: 240-166234-I-4 MS Prep Type: Total/NA Matrix: Water Analysis Batch: 526070 Sample Sample Spike MS MS %Rec **Result Qualifier** Added **Result Qualifier** Limits Analyte Unit D %Rec 1,4-Dioxane 2.0 U 10.0 9.45 ug/L 95 51 - 153

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	109		66 - 120									
Lab Sample ID: 240-1662	34-0-4 MSD					Client	Samn		latrix Spi	ke Dun	licate	
Matrix: Water						Unorth	oump		Prep Ty			
Analysis Batch: 526070												
	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	9.96		ug/L		100	51 - 153	5	16	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	112		66 - 120									Ē

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

#### Analysis Batch: 526070

8260D SIM	Water	Prep Type Total/NA	Client Sample ID MW-152S_050422	Lab Sample ID 240-166229-2
8260D SIM	Water	Total/NA	Method Blank	MB 240-526070/5
8260D SIM	Water	Total/NA	Lab Control Sample	LCS 240-526070/4
8260D SIM	Water	Total/NA	Matrix Spike	240-166234-I-4 MS
8260D SIM	Water	Total/NA	Matrix Spike Duplicate	240-166234-O-4 MSD
			Matrix Spike Duplicate	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-166229-1	TRIP BLANK_143	Total/NA	Water	8260D	
240-166229-2	MW-152S_050422	Total/NA	Water	8260D	
MB 240-526489/8	Method Blank	Total/NA	Water	8260D	
LCS 240-526489/5	Lab Control Sample	Total/NA	Water	8260D	
240-166235-H-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-166235-N-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Job ID: 240-166229-1

Matrix: Water

Lab Sample ID: 240-166229-1

#### Client Sample ID: TRIP BLANK\_143 Date Collected: 05/04/22 00:00 Date Received: 05/07/22 08:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D			526489	05/16/22 16:52	HMB	TAL CAN
Client Sam	ple ID: MW	-152S_050422					Lab Sa	mple ID: 240-166229-
ate Collecte	d: 05/04/22 1	3:48						Matrix: Wate

<b>_</b>	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	526489	05/16/22 17:17	HMB	TAL CAN
Total/NA	Analysis	8260D SIM		1	526070	05/11/22 20:33	CS	TAL CAN

#### Laboratory References:

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

**12** 13

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

#### Laboratory: Eurofins Canton

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	02-27-23	
Oregon	NELAP	4062	02-27-23	
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	

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

MICHIGAN 190	, 0/1 & 0 TestAmerica Laboratory location: Brighton 10448 Citat	Chain of Custody Record 10448 Citation Drive, Suite 2007 Birchton, MI 48116 / 810-229-2763		TestAmerica
Client Contact Company Name: Arcadis	-	NPDES RCRA Other		
Address: 28550 Cabot Drive, Suite 500	Client Project Manager: Kris Hinskey	Site Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No: COC No:
City/State/Zip: Novi, MI, 48377	Telephone: 269-832-7478	Telephone: 248-994-2329	Telephone: 330-966-9783	
Physics 748 004 7540	Email: Kristoffer.Hinskey@arcadis.com	Analysis Turnaround Time	Analyses	ylnd
Project Name: Ford LTP Off-Site	Sampler Name: Sama When HINCLE	TAT if different from below 3 weeks 10 day ~ 2 weeks		Walk-in client Lab sampling
Froject Number: Sunato-42.402.04 PO# 30080642.402.04	Method of Shipment/Carrier: Shipping/Tracking No:	/ Grab=G	8260D	Job/SDG No:
Sample Identification	Sample Date Sediment Aqueous Aducous Sediment Sediment	Сошрозисе – С Сопрес: 2500 рание – С рание – С ран	cis-1,2-DCE 8 Trans-1,2-DCE 8 PCE 8260D Vinyl Chloride 1,4-Dioxane 8	Sample Specific Notes / Special Instructions:
TRIP BLANK_ 143	X	x 40	××	1 Trip Blank
MW-1525-050422	514/22 13,46 X	6 WG X		3 VOAs for 8260D 3 VOAs for 8260D SIM
Page 17				
of 18				
		240-166229 Chain of Custody	f Custody	
Possible Hazard Identification Possible Flammable Skin Irritant Poison B   v <non-hazard< td=""> Flammable Skin Irritant Poison B   Special Instructions/OC Requirements &amp; Comments: Second Comments: Second Comments:   Sample Address: Sydy 550 BLact Second Comments:   Submit all results through Cadema at Romalia@cademacc.com Cadema #E203631</non-hazard<>	Skin Irritant Poison B Unknown えんびか SF Cademaco.com. Cadema #E203631	Sample Disposal ( A fee may be assessed if sam Return to Client Disposal By Lab	assessed if samples are retained longer than 1 month) Disposal By Lab Archive For Months	-
Level IV Reporting requested. Relinquished by: Broom 147, 0, 101, 0, 41, 0	Date/Time:	Received by:	Conpany:	
Relinquisted by Relinquisted by All	Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Company: Com	COCCONNUM COLO STUTION COCCONNUM NO COLO STUTION COCCONNUM NO COLO STUTION	y a	5/5/22 15:50 Date/Time 5/6/27 / 0900 Date/Dimes, 10 000
2/23/			5	
20				

5/23/2022

					10009
<b>Eurofins TestAmerica</b>	Canton Sample Reco	eipt Form/Narrativ	/e	Login #	: llega
Canton Facility		<u> </u>			
Client <u>HrCad</u>	1.2	Site Name		_ Cooler	unpacked by:
Cooler Received on	5-7-22	Opened on 5	-9-22	Voi	m loyh
FedEx: 1 <sup>st</sup> Grd Exp	UPS FAS Clipper		TestAmerica Co	urier Other	
<b>Receipt After-hours</b> : D			Storage Loca	ation	
TestAmerica Cooler #	Foam Bo		Box Oth	er	
-		Foam Plastic Bag		er	
COOLANT:	Wet Ice Blue Ice	Dry Ice Water			
1. Cooler temperature	upo <del>n rec</del> eipt		See Multiple Co	ooler Form	<b>\</b>
	CF 0.0 °C) Observed C CF -0.7°C) Observed				<u>)</u> °C
			- /	$\sim$	C
-	ly seals on the outside of the outside of the coole			Yes No Yes No NA	Tests that are not
	tody seals on the bottle(s			Yes No	checked for pri by
-	tody seals intact and unc		E/MEIIE):	Yes No NA	Receiving:
-	p attached to the cooler(	-		YENNO	VOAs
	accompany the sample(s)			Yes No	Oil and Grease
	pers relinquished & sign		place?	Yes No	TOC
6. Was/were the person	(s) who collected the same	mples clearly identif	ied on the COC?	No No	
	in good condition (Unb			Ves No	
	ls (ID/Date/Time) be rec			Yes No	2
_	es the COC specify prese		containers (YN),		of grab/comp(Y/N)?
	s) used for the test(s) ind		U	No	0
	eceived to perform indicate	•		Yes No	
	e samples and all listed o -17 have been checked a		raton	Yes No	
	ample(s) at the correct p	~ ~	natory.	Yes No NA	pH Strip Lot# <u>HC157842</u>
14. Were VOAs on the	· · · ·			Vel Na	pri sup bow <u>moretere</u>
15. Were air bubbles >6	mm in any VOA vials?	🛛 🖕 Larger t	han this. 🥼	Yes No NA	
16. Was a VOA trip bla	nk present in the cooler(			(Yes) No.	
17. Was a LL Hg or Me	Hg trip blank present? _			_Yes (No)	
Contacted PM	Date	by	via Ve	rbal Voice Mail (	Other
			viu ver		
Concerning					
· · · · · · · · · · · · · · · · · · ·					
18. CHAIN OF CUST	ODY & SAMPLE DIS	CREPANCIES	additional next p	age Samples	processed by:
			•		•
					·····
19. SAMPLE CONDI					
Sample(s)		were receiv	ed with bubble >6	mm in diameter.	(Notify PM)
20. SAMPLE PRESER	RVATION		<u> </u>	<u>_</u>	
Sample(s)			w	ere further preserv	ed in the laboratory.
Time preserved:	Preservative(s) a	dded/Lot number(s)			
VOA Somula Branaria	on Doto/Time VOAc F				
· UA Sample rreservation	on - Date/Time VOAs F	102011.			

## **DATA VERIFICATION REPORT**



May 23, 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: 30080642.801.01 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Barberton Laboratory submittal: 166229-1 Sample date: 2022-05-04 Report received by CADENA: 2022-05-23 Initial Data Verification completed by CADENA: 2022-05-23 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 <u>http://clms.cadenaco.com/index.cfm</u>.

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: 166229-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401662 5/4/202	2291	MW-152 2401662 5/4/202					
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-826</u>	<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	
<u>OSW-826</u>	<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 # 240-166229-1 CADENA Verification Report: 2022-05-23

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 45700R Review Level: Tier III Project: 30080642.402.02

## **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-166229-1 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_143	240-166229-1	Water	05/04/22		х				
MW-152S_050422	240-166229-2	Water	05/04/22		Х	Х			

#### DATA REVIEW

#### 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
1. Sample receipt condition		Х		Х	
2. Requested analyses and sample results		Х		Х	
3. Master tracking list		Х		Х	
4. Methods of analysis		Х		Х	
5. Reporting limits		Х		Х	
6. Sample collection date		Х		Х	
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		Х		Х	
9. Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
11. Narrative summary of Quality Assurance or sample problems provided		х		х	
12. Data Package Completeness and Compliance		Х		Х	

#### **DATA REVIEW**

#### **ORGANIC ANALYSIS INTRODUCTION**

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

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

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

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

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

#### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

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

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

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.

#### DATA REVIEW

#### 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 REVIEW

#### DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Rep	orted		rmance ptable	Not Required
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		X	
Tier III Validation					
System performance and column resolution		Х		X	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
lon abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	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		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	
Notes:					

%RSD Relative standard deviation

%R Percent recovery

- RPD Relative percent difference
- %D Percent difference

VALIDATION PERFORMED BY:	Hrishikesh Upadhyaya
SIGNATURE:	Curindialund

DATE: June 07, 2022

PEER REVIEW: Andrew Korycinski

DATE: June 09, 2022

## NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



MICHIGAN 190

1.0/1.0

#### Chain of Custody Record



.

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

Client Contact	Regulat	tory program:			T D	W.		NPI	DES		EF	RCRA		1	Othe	er									
Company Name: Arcadis	Client Project	Client Project Manager: Kris Hinskey				Site Contact: Christina Weaver												TestAmerica Laboratories, Inc							
Address: 28550 Cabot Drive, Suite 500			THISK	ie y									Lab Contact: Mike DelMonico					COC No:							
City/State/Zip: Novi, MI, 48377	Telephone: 269	-832-7478					Tel	Telephone: 248-994-2329					Telep	hone	330-9	966-91	783				1 of 1 COCs				
	Email: Kristof	Email: Kristoffer.Hinskey@arcadis.com						Ana	lysis T	urna	roun	d Tim	e				_			A	nalys	es			For lab use only
Phone: 248-994-2240	Sampler Name						TA	C at dat	Terent fr	on he	low	-													Walk-in client
Project Name: Ford LTP Off-Site		Samantha Hindle Method of Shipment/Carrier:							Π.3	3 wee														wak-menen	
Project Number: 30080642.402.04						- 1	0 da	y		2 wee 1 wee				/2							5			Lab sampling	
				_			4			Ξ2	2 days	s		2	ab=			60D			8	0 SII			
PO # 30080642.402.04	Shipping/Track	ing No:			1 1000			6			I day			ple (Y	c/Gr	DOS	8260[	CE 82			le 826	8260D SIM			Job/SDG No:
			H	1	Matri			Cor	atainer	s & P	Т	vatives		d Sam	osite=(	E 826	-DCE	1.2-D	260D	260D	Chlorid	oxane			
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid Other:	H2SO4	EONH	HCI	HORN	ZaAc/ NaOH	Unpres Other:		Filtered Sample (Y / N)	Composite=C / Grab=G	1.1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1.4-Dioxane			Sample Specific Notes / Special Instructions:
TRIP BLANK_ 143				X				1						0	6	х	Х	X	X	X	X				1 Trip Blank
MW-1525_050422	514/22	13:48		X				6						N	6	X	X	λ	X	X	X	X			3 VOAs for 8260D 3 VOAs for 8260D SI
2																									
3					1	1				1	1	+												-	
					-	+	+			1	+					_		-		_	-			+-	
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											-			250	Jiai	n or	Cust	ody							
	Irritant Poisc	on B	Unka	nown			S	amp	le Disp Return	posal n to C	l (Af	ee ma	y be as Di	ssess	ed if	samp Lab	les are		ned lo rchive			month) Months			
Special Instructions/QC Requirements & Comments: Sample Address: 34550 BLACC Submit all results through Cadena at jtomalia@cade	m st												0.	opes.		Dat									
evel IV Reporting requested.	naco.com, Cadena #	E203631																							
sameline Hindle	Company:	1		51	Time:		5:5	50	I		ived h		0	d	st	2~	au	L		Com		adis			Date/Time: 515122 15:5
elinquished by:	Company: ARCA	DIS		Date/	Time: 161	22	10	90		Recet	_	N/	/		-	-		0			Dany.				Date/Time: 5/6/27 / 090
Relindursticd by	Company:			Date	Time:	12 1	325		Î	Acce	ved i	in Lab	orator	y by	:	Ab	34	01		Com		Th	DC		DataClime: -228

### Client Sample ID: TRIP BLANK\_143

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

Date Collected: 05/04/22 00:00

#### Lab Sample ID: 240-166229-1 Matrix: Water

	gaine compo								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/16/22 16:52	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/16/22 16:52	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 16:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/16/22 16:52	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 16:52	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/16/22 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137			-		05/16/22 16:52	1
4-Bromofluorobenzene (Surr)	91		56 - 136					05/16/22 16:52	1
Toluene-d8 (Surr)	92		78 - 122					05/16/22 16:52	1
Dibromofluoromethane (Surr)	100		73 - 120					05/16/22 16:52	1

#### Client Sample ID: MW-152S\_050422 Date Collected: 05/04/22 13:48 Date Received: 05/07/22 08:00

Dibromofluoromethane (Surr)

#### Lab Sample ID: 240-166229-2

Matrix: Water

Method: 8260D SIM - Volatil	e Organic Co	mpounds (	(GC/MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/11/22 20:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		66 - 120			-		05/11/22 20:33	1

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

104

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/16/22 17:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/16/22 17:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 17:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/16/22 17:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/16/22 17:17	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/16/22 17:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137			-		05/16/22 17:17	1
4-Bromofluorobenzene (Surr)	95		56 - 136					05/16/22 17:17	1
Toluene-d8 (Surr)	97		78 - 122					05/16/22 17:17	1

73 - 120

05/16/22 17:17

1