

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS U.S., Inc. 28550 Cabot Drive Suite 500 Novi Michigan 48377 Generated 11/22/2022 7:59:12 AM

# JOB DESCRIPTION

Ford LTP - Off Site

# **JOB NUMBER**

240-176080-1

Eurofins Canton 180 S. Van Buren Avenue Barberton OH 44203



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### Qualifiers

GC/MS	VOA
00/11/0	

Qualifiers		3
GC/MS VOA		
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	
Glossary		5
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	ð
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	9
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)	13
MDC	Minimum Detectable Concentration (Radiochemistry)	10
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	

### Job ID: 240-176080-1

#### Laboratory: Eurofins Canton

#### Narrative

#### Job Narrative 240-176080-1

#### Receipt

The samples were received on 11/9/2022 9:45 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 0.4°C and 2.5°C

#### GC/MS VOA

Method 8260D\_SIM: The matrix spike/matrix spike duplicate (MS/MSD) for analytical batch 240-551914 was not analyzed due to an instrument fault.

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

### **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	EET CAN
8260D SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN

#### **Protocol References:**

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

#### Laboratory References:

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

## Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-176080-1	TRIP BLANK_84	Water	11/07/22 00:00	11/09/22 09:45
240-176080-2	MW-111S_110722	Water	11/07/22 12:29	11/09/22 09:45

## **Detection Summary**

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

Client Sample ID: TRIP BLANK\_84

No Detections.

### Client Sample ID: MW-111S\_110722

No Detections.

Job ID: 240-176080-1

Lab Sample ID: 240-176080-1

Lab Sample ID: 240-176080-2

RL

1.0

1.0

1.0

1.0

1.0

1.0

Limits

62 - 137

56 - 136

78 - 122

73 - 120

MDL Unit

0.49 ug/L

0.46 ug/L

0.44 ug/L

0.51 ug/L

0.44 ug/L

0.45 ug/L

D

Prepared

Prepared

Analyte

1,1-Dichloroethene

Tetrachloroethene

Trichloroethene

Toluene-d8 (Surr)

Vinyl chloride

Surrogate

cis-1,2-Dichloroethene

trans-1,2-Dichloroethene

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

### Client Sample ID: TRIP BLANK\_84 Date Collected: 11/07/22 00:00 Date Received: 11/09/22 09:45

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Result Qualifier

1.0 U

1.0 U

1.0 U

1.0 U

1.0 U

1.0 U

%Recovery Qualifier

91

92

98

101

### Job ID: 240-176080-1

### Lab Sample ID: 240-176080-1 Matrix: Water

Analyzed

11/16/22 15:58

11/16/22 15:58

11/16/22 15:58

11/16/22 15:58

11/16/22 15:58

11/16/22 15:58

Analyzed

11/16/22 15:58

11/16/22 15:58

11/16/22 15:58

11/16/22 15:58

Dil Fac

1

1

1

1

1

1

1

1

1

1

Dil Fac

Eurofins	Canton

### Client Sample ID: MW-111S\_110722 Date Collected: 11/07/22 12:29 Date Received: 11/09/22 09:45

### Job ID: 240-176080-1

### Lab Sample ID: 240-176080-2 Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/15/22 17:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		66 - 120					11/15/22 17:39	1
Method: SW846 8260D - Vo	latile Organic	Compound	ds bv GC/MS						
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/16/22 19:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/22 19:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 19:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/22 19:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 19:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/22 19:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		62 - 137					11/16/22 19:57	1
4-Bromofluorobenzene (Surr)	93		56 - 136					11/16/22 19:57	1
Toluene-d8 (Surr)	99		78 - 122					11/16/22 19:57	1
Dibromofluoromethane (Surr)	101		73 - 120					11/16/22 19:57	1

## **Surrogate Summary**

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

MW-111S\_110722

Lab Control Sample

Method Blank

			Pe	ercent Surre	ogate Recovery (	Acceptance Limits)
		DCA	BFB	TOL	DBFM	
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)	
240-176069-C-2 MS	Matrix Spike	86	92	99	92	
240-176069-F-2 MSD	Matrix Spike Duplicate	85	90	99	93	
240-176080-1	TRIP BLANK_84	91	92	98	101	
240-176080-2	MW-111S_110722	97	93	99	101	
LCS 240-552229/5	Lab Control Sample	84	92	100	93	
MB 240-552229/8	Method Blank	90	90	98	100	
Surrogate Legend						
DCA = 1,2-Dichloroet	nane-d4 (Surr)					
BFB = 4-Bromofluoro	penzene (Surr)					
TOL = Toluene-d8 (Su	ırr)					
DBFM = Dibromofluor	omethane (Surr)					
lethod: 8260D S	IM - Volatile Organic	: Compoun	ds (GC/	MS)		
atrix: Water	<b>.</b>	•	``	,		Prep Type: Total/N
			Pe	ercent Surro	ogate Recovery (	Acceptance Limits)
		DCA				. ,

117

108

111

240-176080-2

LCS 240-551914/3

MB 240-551914/4

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

Job ID: 240-176080-1

Prep Type: Total/NA

5 6

9

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

# Lab Sample ID: MB 240-552229/8

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

Matrix: Water Analysis Batch: 552229

	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/16/22 13:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/22 13:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 13:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/22 13:35	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 13:35	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/22 13:35	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		11/16/22 13:35	1
4-Bromofluorobenzene (Surr)	90		56 - 136		11/16/22 13:35	1
Toluene-d8 (Surr)	98		78 - 122		11/16/22 13:35	1
Dibromofluoromethane (Surr)	100		73 - 120		11/16/22 13:35	1

### Lab Sample ID: LCS 240-552229/5 Matrix: Water Analysis Batch: 552229

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	25.4		ug/L		101	63 - 134	
cis-1,2-Dichloroethene	25.0	25.0		ug/L		100	77 - 123	
Tetrachloroethene	25.0	27.2		ug/L		109	76 - 123	
trans-1,2-Dichloroethene	25.0	24.5		ug/L		98	75 - 124	
Trichloroethene	25.0	25.3		ug/L		101	70 - 122	
Vinyl chloride	25.0	26.0		ug/L		104	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		62 - 137
4-Bromofluorobenzene (Surr)	92		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	93		73 - 120

99

### Lab Sample ID: 240-176069-C-2 MS **Matrix: Water** Analysis Batch: 552229

Toluene-d8 (Surr)

	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	1.0	U	25.0	22.8		ug/L		91	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	23.0		ug/L		92	66 - 128
Tetrachloroethene	1.0	U	25.0	25.4		ug/L		102	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	21.7		ug/L		87	56 - 136
Trichloroethene	1.0	U	25.0	22.3		ug/L		89	61 - 124
Vinyl chloride	1.0	U	25.0	23.8		ug/L		95	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	86		62 - 137						
4-Bromofluorobenzene (Surr)	92		56 - 136						

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

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

5 10

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78 - 122

## **QC Sample Results**

5 6 7

10

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

Lab Sample ID: 240-17606 Matrix: Water Analysis Batch: 552229	69-C-2 MS										Cli	ent Sa	mple ID: Prep Ty		
	MS	мs													
Surrogate	%Recovery	Qua	lifier	Limits											
Dibromofluoromethane (Surr)	92			73 - 120											
Lab Sample ID: 240-17606 Matrix: Water	69-F-2 MSD								Clien	t Sai	mpl	e ID: N	latrix Spi Prep Ty		
Analysis Batch: 552229	Sample	Sam	nlo	Spike		Men	MSD						%Rec		RPD
Apolyto	-		•	•		-	-		Unit		<b>D</b>	% Baa	Limits	000	Limi
Analyte 1.1-Dichloroethene				Added		Result 23.8	Quai	mer			D	%Rec 95	56 - 135	4	
	1.0			25.0 25.0		23.0 23.4			ug/L			95 94	56 - 135 66 - 128	4	
cis-1,2-Dichloroethene				25.0 25.0		23.4 26.3			ug/L					2	
Tetrachloroethene	1.0								ug/L			105	62 - 131		
trans-1,2-Dichloroethene	1.0			25.0		22.7			ug/L			91	56 - 136	4	
Trichloroethene	1.0			25.0		22.5			ug/L			90	61 - 124	1	
Vinyl chloride	1.0	U		25.0		24.3			ug/L			97	43 - 157	2	24
	MSD	MSL	2												
Surrogate	%Recovery	Qua	lifier	Limits											
1,2-Dichloroethane-d4 (Surr)	85			62 - 137											
4-Bromofluorobenzene (Surr)	90			56 - 136											
Toluene-d8 (Surr)	99			78 - 122											
Dibromofluoromethane (Surr)	93			73 - 120											
lethod: 8260D SIM - V Lab Sample ID: MB 240-5 Matrix: Water		gan	ic Com	pound	s (G	iC/M	5)			C	Clie	nt Sam	ple ID: M Prep Ty		
Analysis Batch: 551914															
		MB	MB												
Analyte	Re	sult	Qualifier		RL	I	MDL	Unit		D	Pr	epared	Analy	zed	Dil Fac
1,4-Dioxane		2.0	U		2.0		0.86	ug/L				-	11/15/22	09:20	1
								-							
• · · ·	a. –		MB								_	-			
Surrogate	%Reco		Qualifier	Limi						-	Pr	epared	Analy		Dil Fac
		111		66 - 1	20								11/15/22	09:20	
1,2-Dichloroethane-d4 (Surr)															
Lab Sample ID: LCS 240- Matrix: Water	551914/3								Cli	ent	San	nple ID	: Lab Cor Prep Ty		
Lab Sample ID: LCS 240-	551914/3								Cli	ent S	San	nple ID	Prep Ty		
Lab Sample ID: LCS 240- Matrix: Water	551914/3			Spike		LCS	LCS		Cli	ent	San	nple ID			
Lab Sample ID: LCS 240- Matrix: Water	551914/3			Spike Added		LCS Result		ifier	Cli Unit	ent		Nple ID	Prep Ty		
Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 551914	551914/3			-				ifier		ent s			Prep Ty %Rec		
Lab Sample ID: LCS 240-5 Matrix: Water Analysis Batch: 551914 Analyte	551914/3 			Added		Result		ifier	Unit	ent :		%Rec	Prep Ty %Rec Limits		

Surrogate	%Recovery Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108	66 - 120

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# GC/MS VOA

### Analysis Batch: 551914

Lab Sample ID 240-176080-2	Client Sample ID MW-111S_110722	Prep Type Total/NA	Matrix Water	Method 8260D SIM	Prep Batch
MB 240-551914/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-551914/3	Lab Control Sample	Total/NA	Water	8260D SIM	

### Analysis Batch: 552229

Lab Sample ID 240-176080-1	Client Sample ID TRIP BLANK 84	Prep Type Total/NA	Matrix Water	Method 8260D	Prep Batch
240-176080-1	MW-111S 110722	Total/NA	Water	8260D	
MB 240-552229/8	Method Blank	Total/NA	Water	8260D	
LCS 240-552229/5	Lab Control Sample	Total/NA	Water	8260D	
240-176069-C-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-176069-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Matrix: Water

Lab Sample ID: 240-176080-1

### Client Sample ID: TRIP BLANK\_84 Date Collected: 11/07/22 00:00 Date Received: 11/09/22 09:45

	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	552229	SAM	EET CAN	11/16/22 15:58	
Client Sam	ple ID: MW	/-111S 11072	2				Lab	Sample ID: 2	240-176080-2
Date Collecte	•								Matrix: Water
	d: 11/07/22 1	2:29							
Date Collecte	d: 11/07/22 1	2:29		Dilution	Batch			Prepared	
Date Collecte Date Receive	d: 11/07/22 1 d: 11/09/22 0	2:29 9:45	Run	Dilution Factor		Analyst	Lab	·	
Date Collecte	d: 11/07/22 1 d: 11/09/22 0 Batch	2:29 9:45 Batch						Prepared	

#### Laboratory References:

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

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

### Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
owa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
<i>l</i> innesota	NELAP	039-999-348	12-31-22
/linnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
lew York	NELAP	10975	04-01-23
Dhio	State	8303	02-27-23
Dhio VAP	State	CL0024	02-27-23
Dregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
/irginia	NELAP	460175	09-14-23
Washington	State	C971	01-12-23
Vest Virginia DEP	State	210	12-31-22

**Eurofins Canton** 

Client Contact Company Name: Arcadis Address: 24550 Cabot Drive, Suite 500 Gity/State/Lip: Novi, MI, 48377 Phone: 248-094-2240 Project Number: 30146655, 402.04 Project Number: 3014655, 402.05 Project Numbe	ин.         DN         NOBS         RCM         DM           Kir Hinkey         Information         Information         Information         Information           Kir Hinkey         Information         Information         Information         Information         Information           Birterdiscon         Anona         Information         Information         Information         Information           Mir Telling         0 by         Information         Information         Information         Information           Mir Telling         0 by         Information         Information         Information         Information         Information           Mir Telling         0 by         Information         Information         Information         Information         Information           Mir Telling         0 by         Information         Information         Information         Information         Information           Mir Telling         0 by         Information         Information         Information         Information         Information         Information           Mir Telling         Information         Information         Information         Information         Information           Mir Telling         Informatin         Information         In	190	Chain of Custody Record TestAmerica Laboratory location: Brighton — 10448 Citation Drive. Suite 200 / Brighton, MI 48116 / 810-229-2763	/ 810-229-2763	
Областия и или или и или или или или и или	Matrix Markan Markan     Control Water     Actual Control Water     Actual Control Water       Addition Specific Spec	Client Contact	L DW L NPDES	Other	
Contracting Nutry 10, 101	Constraint         Constraint <thconstraint< th="">         Constraint         Constrai</thconstraint<>	c ompany Name: Arcadis Address: 28550 Cabot Drive, Suite 500	, iai	Lab Contact: Mike DelMonico	TestAmerica Laboratorics, Inc. COC No:
Multi-Lift         Test branch family spratedication         Addition         Addition         Addition           Project State         Japper Value         Japper Value         Japper Value         Addition         Addition           Project State         Japper Value         Japper Value         Japper Value         Addition         Addition         Addition           Project State         Japper Value         Japper Value         Addition         Addition         Addition         Addition           Project State         Japper Value         Japper Value         Addition         Addition         Addition         Addition           Project State         Japper Value         Japper Value         Addition         Addition         Japper Value         Addition           Addition         Japper Value         Japper Value         Addition         Addition         Japper Value	The interference         Tends int	City/State/Zip: Novi, MI, 48377	Tele	Telephone: 330-497-9396	-
Indefinition         Induit National         Induit Nation	Image: Name: Notice:         Image: Name: Notice:         Image: Name: Notice:         Image: Name: Notice:         Image: Name: Name: Notice:         Name: Nam	Phone: 248-994-2240		Analyses	
Тире Values: Risk Risk         Team Risk <td>Multic Mines Rada         Under Statat         Under St</td> <td>Project Name: Ford LTP Off-Site</td> <td>Lehrur Fenerin IVI adlerent from b</td> <td></td> <td>Walk-in client</td>	Multic Mines Rada         Under Statat         Under St	Project Name: Ford LTP Off-Site	Lehrur Fenerin IVI adlerent from b		Walk-in client
OD 18 MARS, 64 (M)         Bugner (Fractures)         Martin         Link         Constance Amongania         Martin	OD 18 MARGE GERIAL         Support Interviewen         Tel:         Tel:         Tel:         Display         Display </td <td>Project Number: 30146655.402.04</td> <td>IO GAY - week</td> <td>3 98 =•C</td> <td>Lab sampling</td>	Project Number: 30146655.402.04	IO GAY - week	3 98 =•C	Lab sampling
American	Simple transmission         Simple transmission         American         American <th< td=""><td>P() # 30146655.402.04</td><td>1 day</td><td>5 85608 E 85608 DB DB</td><td>Job/SDG No:</td></th<>	P() # 30146655.402.04	1 day	5 85608 E 85608 DB DB	Job/SDG No:
TRIP BLANK_SH         II/1/1/2         II/1/2         II/1/1/2         II/1/2	TRIP BLANK, E4       II/17/22        I       I       N G X X X X X X       X X X X       I       I       I         MW-I IS _ 1U7TQ       IU37UQ       IG       IV       IV       X X X X X       IV	Sample Identification	Containers & Preservatives Another Anot	Composite=C ; +-DCE 82608 rans-1,2-DCE 82608 rans-1,2-DCE 82608 CE 82608	Sample Specific Notes / Special Instructions:
日 6 1 1 4 1 3 VOAs for 2260B SIM 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 1	1     6     1     4     X <td>TRIP BLAN</td> <td></td> <td>G X X X X X Z</td> <td>1 Trip Blank</td>	TRIP BLAN		G X X X X X Z	1 Trip Blank
Image: Description of the second of the s	Indextmine     January	CLEON SILL-NIM	9 07.61	X X X X X Y	3 VOAs for 8260B
Date Time     Date Time       Indication     240-176080 Chain of Custody       240-176080 Chain of Custody       Sample Disposal A fer may be accessed if samples are retained longer than 1 month.       Sample Disposal A fer may be accessed if samples are retained longer than 1 month.       Sample Disposal A fer may be accessed if samples are retained longer than 1 month.       Date Time.	Image: Dispersion of Custody       240-176080 Chain of Custody       240-176080 Chain of Custody       240-176080 Chain of Custody       240-176080 Chain of Custody       Date Time				
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Barberton Facility				Login #		
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	re samples and all listed 3-17 have been checked			Yes	0	
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Login # :	176	080

Cooler Description	Eurofins - Canton IR Gun #	Observed	Corrected	Coolant
(Circle)	(Circle)	Temp %	Temp °C	(Circle)
Client Box Other	HR-13 18-15	2.5	2.5	Wellice Bluelice Dry B
TA Clent Box Other	IR-13 (IR-16	0.4	04	Wellice She lice Dry is
TA Client Bex Other	IR-13 IR-16			Wellice Bluelice Dry la Water None
TA Client Box Other	IR-13 IR-16			Wellce Bluelce Dry k
TA Client Box Other	IR-13 IR-16			Water None Wetce Sive ice Dry k Water None
TA Client Box Other	IR-13 IR-16			Wellce Shelice Dryk Water None
TA Client Box Other	IR-13 IR-16			Wellce Bluelice Dry k
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TA Client Box Other	IR-13 IR-16			Water None Wetice Blue ice Dry is
TA Client Box Other	IR-13 IR-16			Weller None Wellce Blue Ice Dry Ic
TA Client Bex Other	IR-13 IR-15			Water None Wetter She Ice Dry Ic
TA Client Box Other	IR-13 IR-15			Water None Wet Ice Bloe Ice Dry Ic
TA Client Box Other	IR-13 IR-16			Wet ICo Blue Ico Dry Ic
TA Client Box Other	IR-13 IR-15			Wellie Blue Ice Dry Ic
TA Client Box Other	IR-13 IR-16			Wet Ice She Ice Dry Ic
TA Client Box Other	R-13 IR-15			Wet ice Blue ice Dry ic
TA Client Bex Other	IR-13 IR-16			Water None Wette She ice Dry ice
TA Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice
TA Client Box Other	IR-13 IR-16			Water None Wet Ice Blue Ice Dry Ice
TA Client Box Other	IR-13 IR-16			Water None Wet Ice - Blue Ice Dry Ice
TA Client Box Other	IR-13 IR-16			Water None Wet Ice Blue Ice Dry Ice
TA Client Box Other	IR-13 IR-15			Water None Wet Ice Blue Ice Dry Ice
TA Client Box Other	IR-13 IR-16			Water None Wet Ice Sive Ice Dry Ice
TA Client Box Other	IR-13 IR-16			Water None Wet Ice Sive Ice Dry Ice
TA Client Box Other	IR-13 IR-15			Water Hone Wet Ice She Ice Dry Ice
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TA Client Box Other	IR-13 IR-15			Water None Wet Ice Sive Ice Dry Ice
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TA Client Box Other	IR-13 IR-15			Water None Wet Ice Blue Ice Dry Ice
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TA Client Box Other	IR-13 IR-15			Water None Wat ice Blue ice Dry ice
			See Tem	Perature Excursion Form

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

11/22/2022

- Weter and

# **Eurofins Canton**

## Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

### Authorization

Your

Authorized for release by Michael DelMonico, Project Manager I Michael.DelMonico@et.eurofinsus.com (330)497-9396 Generated 11/22/2022 7:59:12 AM

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# **DATA VERIFICATION REPORT**



November 22, 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: 30146655.402.04 off-site Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Barberton Laboratory submittal: 176080-1 Sample date: 2022-11-07 Report received by CADENA: 2022-11-22 Initial Data Verification completed by CADENA: 2022-11-22 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.
E	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: 176080-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401760 11/7/20	0801			MW-111 2401760 11/7/20		22	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-8260</u>	<u>)</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-8260</u>	DSIM									
	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 # 240-176080-1 CADENA Verification Report: 2022-11-22

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 47768R Review Level: Tier III Project: 30146655.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-176080-1 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_84	240-176080-1	Water	11/07/22		Х	
-	MW-111S_110722	240-176080-2	Water	11/07/22		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	Х				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		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: December 05, 2022

PEER REVIEW: Andrew Korycinski

DATE: December 06, 2022

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS





### **Chain of Custody Record**



HE LEADER IN ENVIRONMENTAL TESTING

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

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Ade	dress: 28550 Cabot Drive, Suite 500	Client Project N	Manager: Kris	Hins	key			Site	Con	tact: C	hrist	ina W	eaver				Lab	Conta	ct: Mi	ike De	Moni	<b>c</b> 0			COC No:
L	uress. 265.0 Cable Drive, Suite 300	Telephone: 248	-994-2240					Tel	epho	ne: 248	8-994	-2293					Tele	phone	: 330-	497-9	396				
City	ty/State/Zip: Novi, M1, 48377					_									_										1 of 1 COC
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	Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Other:	H2SO4	HN03	HCI	NaOH ZnAc'	VAOH	Other:	Filtered Sample (Y / N)	Composite=C / Grab=G	1.1-DCE 8260B	cis-1,2-DCE	Trans-1.2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM			Sample Specific Note Special Instructions
	TRIP BLANK_84	11/7/22		Γ	1	Τ		Τ		1				N	G	X	X	X	X	X	X	1			1 Trip Blank
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185	2008. TestAmerica Laboratorias, Inc. All rights reserved. stAmerica & Useign 1 <sup>ee</sup> are trademarks of TestAmerica Laboratories, Inc.													(	$\mathcal{I}$										

### Client Sample ID: TRIP BLANK\_84

### Date Collected: 11/07/22 00:00

Date Received: 11/09/22 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/16/22 15:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/22 15:58	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 15:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/22 15:58	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 15:58	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/22 15:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		62 - 137		11/16/22 15:58	1
4-Bromofluorobenzene (Surr)	92		56 - 136		11/16/22 15:58	1
Toluene-d8 (Surr)	98		78 - 122		11/16/22 15:58	1
Dibromofluoromethane (Surr)	101		73 - 120		11/16/22 15:58	1

### Client Sample ID: MW-111S\_110722 Date Collected: 11/07/22 12:29 Date Received: 11/09/22 09:45

Lab Sample ID: 240-176080-2

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			11/15/22 17:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			66 - 120					11/15/22 17:39	1

### Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/16/22 19:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/22 19:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 19:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/22 19:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/22 19:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/22 19:57	1
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Surrogate	%Recovery Qu	Qualifier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97	62 - 137		11/16/22 19:57	1
4-Bromofluorobenzene (Surr)	93	56 - 136		11/16/22 19:57	1
Toluene-d8 (Surr)	99	78 - 122		11/16/22 19:57	1
Dibromofluoromethane (Surr)	101	73 - 120		11/16/22 19:57	1

7:58 AM

### Lab Sample ID: 240-176080-1 Matrix: Water