# 🛟 eurofins

### Environment Testing America

### **ANALYTICAL REPORT**

Eurofins TestAmerica, Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

#### Laboratory Job ID: 240-139795-1

Client Project/Site: Ford LTP - Off Site

#### For:

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

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 11/23/2020 11:44:42 AM

Michael DelMonico, Project Manager I (330)497-9396 Michael.DelMonico@Eurofinset.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)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

#### Job ID: 240-139795-1

#### Laboratory: Eurofins TestAmerica, Canton

Narrative

#### **CASE NARRATIVE**

#### Client: ARCADIS U.S., Inc.

#### Project: Ford LTP - Off Site

#### Report Number: 240-139795-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to 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.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

#### RECEIPT

The samples were received on 11/7/2020 8:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3° C.

#### VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139795-1) and MW-217S\_110320 (240-139795-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/16/2020.

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

#### VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-217S\_110320 (240-139795-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/11/2020.

No 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
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 TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

### Sample Summary

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

Lab Sample ID 240-139795-1	Client Sample ID	Matrix Water	Collected	Received	Asset ID
240-139795-2	MW-217S_110320	Water	11/03/20 15:06	11/07/20 08:00	

<b>Detection Sur</b>	nmary
----------------------	-------

#### Client Sample ID: TRIP BLANK

No Detections.

#### Client Sample ID: MW-217S\_110320

No Detections.

Lab Sample ID: 240-139795-2

Lab Sample ID: 240-139795-1

### 3 4 5 6 7 8 9 10 11 12 13 14

This Detection Summary does not include radiochemical test results.

#### Client Sample ID: TRIP BLANK Date Collected: 11/03/20 00:00 Date Received: 11/07/20 08:00

#### Lab Sample ID: 240-139795-1 Matrix: Water

Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 16:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/16/20 16:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/16/20 16:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 16:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/16/20 16:06	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/16/20 16:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			75 - 130					11/16/20 16:06	1
4-Bromofluorobenzene (Surr)	97		47 - 134					11/16/20 16:06	1
Toluene-d8 (Surr)	98		69 - 122					11/16/20 16:06	1
Dibromofluoromethane (Surr)	93		78 - 129					11/16/20 16:06	1

Eurofins TestAmerica, Canton

#### Client Sample ID: MW-217S\_110320 Date Collected: 11/03/20 15:06 Date Received: 11/07/20 08:00

#### Lab Sample ID: 240-139795-2 Matrix: Water

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			11/11/20 17:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 133			-		11/11/20 17:50	1
Method: 8260B - Volatile O	rganic Compo	unds (GC/	MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 16:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/16/20 16:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/16/20 16:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 16:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/16/20 16:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/16/20 16:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			75 - 130			-		11/16/20 16:30	1
4-Bromofluorobenzene (Surr)	100		47 - 134					11/16/20 16:30	1
Toluene-d8 (Surr)	100		69 - 122					11/16/20 16:30	1
Dibromofluoromethane (Surr)	95		78 - 129					11/16/20 16:30	1

#### **Surrogate Summary**

Lab Sample ID

240-139795-1

240-139795-2

Matrix: Water

LCS 240-461097/5

MB 240-461097/11

Surrogate Legend

TOL = Toluene-d8 (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr) BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

240-139756-A-7 MS

240-139756-E-7 MSD

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

**Client Sample ID** 

MW-217S\_110320

Lab Control Sample

Matrix Spike Duplicate

Matrix Spike

TRIP BLANK

Method Blank

Prep Type: Total/NA Percent Surrogate Recovery (Acceptance Limits) DCA BFB DBFM TOL (75-130) (78-129) (47-134) (69-122) 83 97 104 100 87 100 106 103 111 97 98 93 112 100 100 95 97 103 101 83 110 97 95 92 9 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Prep Type: Total/NA Baraant Surragata Bacayany (Accontance Limite)

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		
Lab Sample ID	Client Sample ID	(70-133)		
240-139756-I-7 MS	Matrix Spike	107		
240-139756-I-7 MSD	Matrix Spike Duplicate	108		
240-139795-2	MW-217S_110320	110		
LCS 240-460452/4	Lab Control Sample	106		
MB 240-460452/5	Method Blank	110		
Surrogate Legend				

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

11/23/2020

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

#### Lab Sample ID: MB 240-461097/11 Matrix: Water

#### Analysis Batch: 461097

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 12:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/16/20 12:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/16/20 12:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 12:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/16/20 12:22	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/16/20 12:22	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/16/20 12:22	1
4-Bromofluorobenzene (Surr)	97		47 - 134		11/16/20 12:22	1
Toluene-d8 (Surr)	95		69 - 122		11/16/20 12:22	1
Dibromofluoromethane (Surr)	92		78 - 129		11/16/20 12:22	1

#### Lab Sample ID: LCS 240-461097/5 Matrix: Water Analysis Batch: 461097

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	19.4		ug/L		97	73 - 129	
cis-1,2-Dichloroethene	20.0	19.3		ug/L		96	75 - 124	
Tetrachloroethene	20.0	18.6		ug/L		93	70 - 125	
trans-1,2-Dichloroethene	20.0	19.1		ug/L		95	74 - 130	
Trichloroethene	20.0	16.9		ug/L		85	71_121	
Vinyl chloride	20.0	22.0		ug/L		110	61 - 134	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	101		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

100

#### Lab Sample ID: 240-139756-A-7 MS **Matrix: Water** Analysis Batch: 461097

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	20.0	19.2		ug/L		96	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	20.0		ug/L		100	68 - 121
Tetrachloroethene	1.0	U	20.0	17.0		ug/L		85	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	19.6		ug/L		98	69 - 126
Trichloroethene	1.0	U	20.0	15.8		ug/L		79	56 - 124
Vinyl chloride	0.68	J	20.0	21.5		ug/L		104	49 - 136
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		75 - 130						
4-Bromofluorobenzene (Surr)	104		47 - 134						

10

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

Eurofins TestAmerica, Canton

**Client Sample ID: Matrix Spike** 

Prep Type: Total/NA

69 - 122

#### QC Sample Results

10

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

#### Lab Sample ID: 240-139756-A-7 MS **Client Sample ID: Matrix Spike** Matrix: Water Prep Type: Total/NA Analysis Batch: 461097 MS MS %Recovery Qualifier Limits Surrogate Dibromofluoromethane (Surr) 83 78 - 129 **Client Sample ID: Matrix Spike Duplicate** Lab Sample ID: 240-139756-E-7 MSD Matrix: Water Prep Type: Total/NA Analysis Batch: 461097 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 64 - 132 5 35 cis-1,2-Dichloroethene ug/L 1.0 U 20.0 20.1 100 68 - 121 0 35 Tetrachloroethene 1.0 U 20.0 17.8 ug/L 89 52 - 129 4 35 trans-1.2-Dichloroethene 1.0 U 20.0 20.0 ug/L 100 2 35 69 - 126 Trichloroethene 1.0 U 20.0 16.3 ug/L 82 56 - 124 3 35 Vinyl chloride 0.68 J 20.0 22.6 ug/L 109 49 - 136 5 35 MSD MSD %Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 100 75 - 130 4-Bromofluorobenzene (Surr) 106 47 - 134 Toluene-d8 (Surr) 103 69 - 122 Dibromofluoromethane (Surr) 87 78 - 129 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-460452/5 **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA** Analysis Batch: 460452 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac 11/11/20 16:36 1,4-Dioxane 2.0 U 2.0 0.86 ug/L MB MB Qualifier Limits Dil Fac Surrogate %Recoverv Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 110 70 - 133 11/11/20 16:36 1 Lab Sample ID: LCS 240-460452/4 **Client Sample ID: Lab Control Sample** Matrix: Water Prep Type: Total/NA Analysis Batch: 460452 Spike LCS LCS %Rec. Added **Result Qualifier** Limits Analyte Unit D %Rec 1,4-Dioxane 10.0 11.4 ug/L 114 80 - 135 LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 106 70 - 133 **Client Sample ID: Matrix Spike** Lab Sample ID: 240-139756-I-7 MS Matrix: Water Prep Type: Total/NA Analysis Batch: 460452 Sample Sample Spike MS MS %Rec. **Result Qualifier** Added Result Qualifier Unit l imits Analyte D %Rec 1,4-Dioxane 1.5 J 10.0 12.1 ug/L 106 46 - 170

Eurofins TestAmerica, Canton

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	107		70 - 133									
Lab Sample ID: 240-1397	56-I-7 MSD					Client	Samn		latrix Spil	ke Dun	licate	5
Matrix: Water						onem	oump		Prep Ty			
Analysis Batch: 460452												
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	2
1,4-Dioxane	1.5	J	10.0	12.8		ug/L		113	46 - 170	6	26	
	MSD	MSD										i
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	108		70 - 133									÷

#### **QC** Association Summary

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

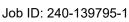
#### **GC/MS VOA**

#### Analysis Batch: 460452

Lab Sample ID 240-139795-2	Client Sample ID MW-217S_110320	Prep Type Total/NA	Matrix Water	Method 8260B SIM	Prep Batch
MB 240-460452/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-460452/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139756-I-7 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139756-I-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139795-1	TRIP BLANK	Total/NA	Water	8260B	
240-139795-2	MW-217S_110320	Total/NA	Water	8260B	
MB 240-461097/11	Method Blank	Total/NA	Water	8260B	
LCS 240-461097/5	Lab Control Sample	Total/NA	Water	8260B	
240-139756-A-7 MS	Matrix Spike	Total/NA	Water	8260B	
240-139756-E-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

#### s Batch: 460452



#### Client Sample ID: TRIP BLANK Date Collected: 11/03/20 00:00 Date Received: 11/07/20 08:00

Lab Sample ID: 240-139795-1
Matrix: Water

Prep Type Total/NA	Batch Type Analysis	Batch Method 8260B	Run	Dilution <u>Factor</u> 1	Batch Number 461097	Prepared or Analyzed 11/16/20 16:06	Analyst HMB	Lab TAL CAN	
<b>Client Sam</b>	ple ID: MW	-217S_110320					Lab Sa	mple ID:	240-139795
Date Collecte	d: 11/03/20 1	5:06						-	Matrix: Wat
Date Receive	d: 11/07/20 0	8:00							
_	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Prep Type Total/NA	Analysis	Method 8260B	Run	<b>Factor</b> 1	Number 461097	or Analyzed 11/16/20 16:30	Analyst HMB	Lab TAL CAN	

#### Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-139795-1

#### Laboratory: Eurofins TestAmerica, Canton

Authority	Program	Identification Number	Expiration Date	
California	State	2927	02-23-21	
Connecticut	State	PH-0590	12-31-21	
Florida	NELAP	E87225	06-30-21	
Georgia	State	4062	02-23-21	
llinois	NELAP	004498	07-31-21	
owa	State	421	06-01-21	
Kansas	NELAP	E-10336	04-30-21	
Kentucky (UST)	State	112225	02-23-21	
Kentucky (WW)	State	KY98016	12-31-20	
Vinnesota	NELAP	OH00048	12-31-20	
Minnesota (Petrofund)	State	3506	08-01-21	
New Jersey	NELAP	OH001	06-30-21	
New York	NELAP	10975	03-31-21	
Ohio VAP	State	CL0024	06-05-21	
Oregon	NELAP	4062	02-24-21	
Pennsylvania	NELAP	68-00340	08-31-21	
Texas	NELAP	T104704517-18-10	08-31-21	
USDA	US Federal Programs	P330-18-00281	09-17-21	
Virginia	NELAP	010101	09-14-21	
Washington	State	C971	01-12-21	
West Virginia DEP	State	210	12-31-20	

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4	120
-7	0

**Chain of Custody Record** 



Б

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

Client Contact Company Name: Arcadis	Regulat	ory program:		F	DW		T	NPD	ES	T	RC	RA		- 0	ther									TestAmerica I	aboratorio
Address: 28550 Cabot Drive, Suite 500	Client Project N	Manager: Kris H	linskey				Site	Conts	act: Ju	ulia N	lcCla	fferty	y			Lab	Conta	ct: Mi	ke De	Monie	:0			COC No:	aboratorit
	Telephone: 248	-994-2240		-			Tele	phone	e: 734	-644-	5131	-				Tele	phone	: 330-	497-93	396			-		-
City/State/Zip: Novi, MI, 48377	Email: kristoff	er.hinskey@arc	adis.co	m	-		1376	Analy	sis Tu	urnar	ound	Time		T	1	_	_		A	naly	ses			for lab use only	COC
Phone: 248-994-2240			-	_	-		TAT	TAT if different from below													Walk-in client				
Project Name: Ford LTP Off-Site	Grary	EI F							Ī	- 3	weeks														
Project Number: 30050315.402.04	Method of Ship	ment/Carrier:	/		-		1	0 day	r P		weeks week			_							z			Lab sampling	
PO # 30050315.402.04	Shipping/Track	ing No:				_	1		1	2	days			N/X	rab=	8	8260B			808	8260B SIM			Job/SDG No:	
	company rise	ang 199.		Ma	trix	-	-	Cont	ainers			tives	_	mple (	50B	8260	CE 8		15	de 82				500/3E/G NO.	
Sample Identification	Sample Date	Sample Time	Air	Sediment		Other:	H2SO4	3	T	NaOH ZaAci		1.		Filtered Sample (Y / N)	Composite=C / Grab=G	cis-1,2-DCE 8260B	frans-1,2-DCE	PCE 8260B	TCE 8260B	/inyl Chloride 8260B	1,4-Dioxane				ecific Notes
TRIP BLANK	11/2/2						T		1			T	-	-		T			1		X	1	TT		
	103/20		-		-		+		1	+	-	+	-	+	X	X	X	7	×	+	$\wedge$				
MW-2175_110320	03/20	15:06	2	X					6						X	X	X	×	X	×	X				
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Possible Hazard Identification Non-Hazard  rain 1	Irritant T Poise	n B	Unkno	wn			5		e Disp Return						d if sar By La			ined I Archiv			month) Mor	the			
Special Instructions/QC Requirements & Comments:			CHAR			-	-		(cum	10.04	icin .		Dis	posar	by Da		1 4	denty	c i di		NIG1	uis	-		
Submit all results through Cadena at jtomalia@cade Level IV Reporting requested.	naco.com. Cadena #	E203631																							
Relinquished	Company:		D	ate/Tin			-		R	leceiv	ed by:		-		-			-	Com	payey:	1	_	-	Date/Time: /	-
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©2008. TestAmerica Laboratories, Inc. All rights reserved. TestAmerica & Delayn <sup>114</sup> are trademarks of TestAmerica Laboratories, Inc.			~~		~		т						,	1	/										
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Canton Facility	
lient Arcadi S Site Name	Cooler unpacked by
coler Received on $11^{-}7^{-}20$ Opened on $11^{-}7^{-}20$	
FedEx: 1 <sup>st</sup> Grd Exp) UPS FAS Clipper Client Drop Off TestAmerica	Courier Other
Receipt After-hours: Drop-off Date/Time Storage L	
	Dther
<ul> <li>Packing material used: Bubble Wrap Foam Plastic Bag None COOLANT: Wet Ice Blue Ice Dry Ice Water None</li> <li>Cooler temperature upon receipt IR GUN# IR-11 (CF +0.9 °C) Observed Cooler Temp. °C Corrected IR GUN #IR-12 (CF +0.5 °C) Observed Cooler Temp. °C Corrected Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity - Were the seals on the outside of the cooler(s) signed &amp; dated?</li> <li>Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?</li> <li>Were tamper/custody seals intact and uncompromised?</li> <li>Shippers' packing slip attached to the cooler(s)?</li> <li>Did custody papers accompany the sample(s)?</li> <li>Were the person(s) who collected the samples clearly identified on the COC?</li> <li>Did all bottle labels (ID/Date/Time) be reconciled with the COC?</li> <li>For each sample, does the COC specify preservatives (Y/N), # of containers (YA)</li> <li>Were correct bottle(s) used for the test(s) indicated?</li> <li>Sufficient quantity received to perform indicated analyses?</li> <li>Are these work share samples and all listed on the COC?</li> <li>If yes, Questions 13-17 have been checked at the originating laboratory.</li> <li>Were air bubbles &gt;6 mm in any VOA vials?</li> </ul>	Other
6. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #/	4 Yes No
7. Was a LL Hg or Me Hg trip blank present?	Yes No
Contacted PM Date by via	Verbal Voice Mail Other
Concerning	
	t page Samples processed by:
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional nex	
SAMPLE CONDITION     Sample(s)	ided holding time had expired.
9. SAMPLE CONDITION Cample(s) were received after the recommen Cample(s) were were	nded holding time had expired. e received in a broken container.
9. SAMPLE CONDITION ample(s) were received after the recommen ample(s) were	ided holding time had expired.
9. SAMPLE CONDITION Sample(s)	nded holding time had expired. e received in a broken container.
9. SAMPLE CONDITION         iample(s)	nded holding time had expired. e received in a broken container.

WI-NC-099

### **DATA VERIFICATION REPORT**



November 23, 2020

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: 30050315.0301.01 off site Event Specific Scope of Work References: Sample COC Laboratory: TestAmerica - North Canton Laboratory submittal: 139795-1 Sample date: 2020-11-03 Report received by CADENA: 2020-11-23 Initial Data Verification completed by CADENA: 2020-11-23 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.
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

**Reportable Results Only** 

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton Laboratory Submittal: 139795-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401397 11/3/20	7951			MW-217 2401397 11/3/20			
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-826</u>	<u>0B</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>OBBSim</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 # 240-139795-1 CADENA Verification Report: 2020-11-23

Analyses Performed By: TestAmerica North Canton, Ohio

Report #39252R Review Level: Tier III Project: 30050315.402.02

### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-139795-1 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) includes 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		Analy	/sis
Sample ID	Lab ID	Matrix	Collection Date	Parent Sample	VOC (Full Scan)	VOC (SIM)
TRIP BLANK	240-139795-1	Water	11/03/2020		х	
MW-217S_110320	240-139795-2	Water	11/03/2020		Х	Х

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

		Rep	orted		mance ptable	Not	
	Items Reviewed	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		

#### **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	Re	ported		ormance eptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMET	RY (GC/N	IS)			
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation					1
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
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		X		Х	
C. RT of sample compounds within the established RT windows		X		X	
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:	Curindialued L
DATE:	December 02, 2020

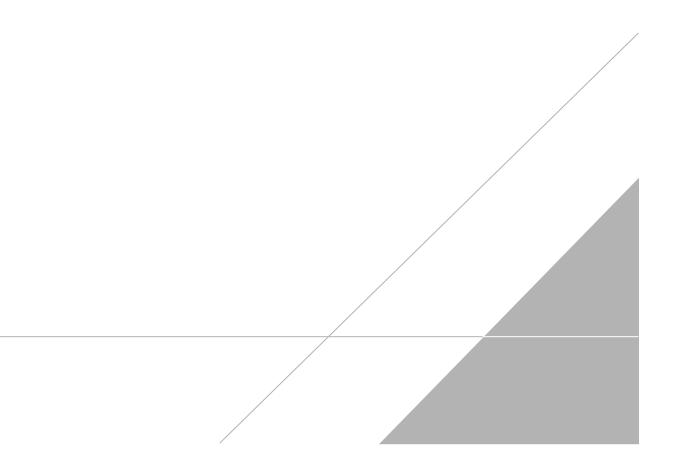
PEER REVIEW: Andrew Korycinski

DATE: December 03, 2020

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



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



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	11		)
e	4	10	

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



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

Client Contact	Regula	tory program:		Г	DW		5	NPDI	ES	T	RC	RA		- 0	ther									
Company Name: Arcadis	Client Project	Manager: Kris I	linske	v	_		Site	Conta	et: J	ulia M	Cla	fferty	v		-	Lab	Conta	et: Mi	ke De	Moni	00		TestAmerica Labora	torie
ddress: 28550 Cabot Drive, Suite 500					_				_					_	_								COC 110.	_
ty/State/Zip: Novi, MI, 48377	Telephone: 24		_					ephone								Tele	phone	:: 330-						COC
none: 248-994-2240	Email: kristof	fer.hinskey@arc	cadis.c	om			-	Analy	sis Tu	urnard	ound	Time	_		-	T	1	T	T	Analy	ses		For lab use only	11.0%
oject Name: Ford LTP Off-Site	Sampler Nam	e:					TAT	l'if diffe		m belov													Walk-in client	
	Gary		/				1	0 day		2 21	veeks												Lab sampling	
roject Number: 30050315.402.04	Method of Ship	oment/Carrier:								- 20					2		OB			8	SIM		a Martin Street	
D # 30050315.402.04	Shipping/Trac	king No:							1	10	lay			mple (Y/	60B	32608	E 826			8260B	8260B SIM		Job/SDG No:	
				M	atrix			Conti	ainers	& Pre	serva	tives		a	826(	CE 8	2-DC	08	OB	oride	ane 8		1 martine and	1
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Solid	Other:	H2SO4	HN03	HCI	NaOH ZaAci	Unpres	Other:		Filtered	1.1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chioride	1,4-Dioxane		Sample Specific 7 Special Instruct	
TRIP BLANK	11/2/						Ē		1		-	T	-			T	T		T	1				-
	11/03/20	)	$\vdash$	-	-	-	+		4		+	+	-	+	X	X	X	7	×	+	X			
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Possible Hazard Identification									Dia															_
I Non-Hazard □ sin Irrit	ant 🗆 🗁 Pois	on B	Unkn	own						to Cli					By La			Archiv			month) Months			
oecial Instructions/QC Requirements & Comments:																								
ubmit all results through Cadena at jtornalia@cadena evel IV Reporting requested.	co.com, Cadena	#E203631																						
	Company:		I	Date/T	ime: .		_	_	R	Receive	d by			-	-	_	_		Con	nam			Date Time 1	
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elinquished by	Company		I	Date/T	ime:	01		915	R	leceive	d by	11	1	1	50		J		Con	ipany v		-n	Date/Time:	
elinquished by:	Company:	CADES	I	Date/1	ime:	01	0	113		Receive	ed in	Labo	orator	by:	m	the	2		Con	- Ge		TA	11-6-20 Date/Time;	09
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#### **Client Sample ID: TRIP BLANK**

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

93

95

#### Lab Sample ID: 240-139795-1 **Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 16:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/16/20 16:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/16/20 16:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/16/20 16:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/16/20 16:06	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/16/20 16:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		75 - 130			-		11/16/20 16:06	1
4-Bromofluorobenzene (Surr)	97		47 - 134					11/16/20 16:06	1
Toluene-d8 (Surr)	98		69 - 122					11/16/20 16:06	1

78 - 129

#### Client Sample ID: MW-217S\_110320 Date Collected: 11/03/20 15:06 Date Received: 11/07/20 08:00

Dibromofluoromethane (Surr)

Dibromofluoromethane (Surr)

#### Lab Sample ID: 240-139795-2

11/16/20 16:06

Matrix: Water

1

1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/11/20 17:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		70 - 133					11/11/20 17:50	1

Analyte	Result	Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19 ug/L			11/16/20 16:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16 ug/L			11/16/20 16:30	1
Tetrachloroethene	1.0	U	1.0	0.15 ug/L			11/16/20 16:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19 ug/L			11/16/20 16:30	1
Trichloroethene	1.0	U	1.0	0.10 ug/L			11/16/20 16:30	1
Vinyl chloride	1.0	U	1.0	0.20 ug/L			11/16/20 16:30	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 130				11/16/20 16:30	1
4-Bromofluorobenzene (Surr)	100		47 - 134				11/16/20 16:30	1
Toluene-d8 (Surr)	100		69 - 122				11/16/20 16:30	1

78 - 129

11/16/20 16:30

# 🛟 eurofins

### Environment Testing America

### **ANALYTICAL REPORT**

Eurofins TestAmerica, Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

#### Laboratory Job ID: 240-139804-1

Client Project/Site: Ford LTP - Off Site

#### For:

.....Links

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

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 11/23/2020 11:59:26 AM

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

### **Table of Contents**

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#### Qualifiers

RPD

TEF

TEQ

TNTC

Qualifiers		3
GC/MS VOA		
Qualifier	Qualifier Description	4
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.	6
¤	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	0
CNF	Contains No Free Liquid	0
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)	
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)	

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

Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count

#### Job ID: 240-139804-1

#### Laboratory: Eurofins TestAmerica, Canton

Narrative

#### **CASE NARRATIVE**

#### Client: ARCADIS U.S., Inc.

#### Project: Ford LTP - Off Site

#### Report Number: 240-139804-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to 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.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

#### RECEIPT

The samples were received on 11/7/2020 8:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3° C.

#### VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139804-1) and MW-112S\_110320 (240-139804-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/17/2020.

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

#### VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-112S\_110320 (240-139804-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/11/2020.

No 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
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 TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, 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	Asset ID
240-139804-1         TRIP BLANK         Water         11/03/20 00:00	11/07/20 08:00	
240-139804-2 MW-112S_110320 Water 11/03/20 16:16	11/07/20 08:00	

<b>Detection Sur</b>	nmary
----------------------	-------

#### Client Sample ID: TRIP BLANK

No Detections.

#### Client Sample ID: MW-112S\_110320

No Detections.

Lab Sample ID: 240-139804-1

Lab Sample ID: 240-139804-2

### 2 3 4 5 6 7 8 9 10 11 12 13 14

This Detection Summary does not include radiochemical test results.

#### Client Sample ID: TRIP BLANK Date Collected: 11/03/20 00:00 Date Received: 11/07/20 08:00

### Lab Sample ID: 240-139804-1

Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/17/20 12:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/17/20 12:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/17/20 12:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/17/20 12:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/17/20 12:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/17/20 12:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 130					11/17/20 12:57	1
4-Bromofluorobenzene (Surr)	101		47 - 134					11/17/20 12:57	1
Toluene-d8 (Surr)	98		69 - 122					11/17/20 12:57	1
Dibromofluoromethane (Surr)	94		78 - 129					11/17/20 12:57	1

Eurofins TestAmerica, Canton

#### Client Sample ID: MW-112S\_110320 Date Collected: 11/03/20 16:16 Date Received: 11/07/20 08:00

Method: 8260B SIM - Volati	le Organic Co	mpounds	(GC/MS)							
Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	5
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/11/20 19:05	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	109		70 - 133			·		11/11/20 19:05	1	
Method: 8260B - Volatile O	rganic Compo	unds (GC/	MS)							
Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	8
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/17/20 13:22	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/17/20 13:22	1	9
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/17/20 13:22	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/17/20 13:22	1	
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/17/20 13:22	1	
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/17/20 13:22	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	108		75 - 130					11/17/20 13:22	1	
4-Bromofluorobenzene (Surr)	102		47 - 134					11/17/20 13:22	1	
Toluene-d8 (Surr)	100		69 - 122					11/17/20 13:22	1	
Dibromofluoromethane (Surr)	89		78 - 129					11/17/20 13:22	1	

### Lab Sample ID: 240-139804-2

Matrix: Water

#### **Surrogate Summary**

Lab Sample ID

240-139804-1

240-139804-2

Matrix: Water

LCS 240-461325/5

MB 240-461325/8

Surrogate Legend

TOL = Toluene-d8 (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr) BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

240-139797-E-2 MS

240-139797-F-2 MSD

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

**Client Sample ID** 

MW-112S\_110320

Lab Control Sample

Matrix Spike Duplicate

Matrix Spike

TRIP BLANK

Method Blank

Prep Type: Total/NA Percent Surrogate Recovery (Acceptance Limits) DCA BFB DBFM TOL (75-130) (78-129) (47-134) (69-122) 83 99 107 104 84 98 105 101 108 101 98 94 108 102 100 89 100 106 102 83 110 102 98 93 9 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Prep Type: Total/NA Limita) Democrat Commonate Decensions (Accounter of

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		
Lab Sample ID	Client Sample ID	(70-133)		
240-139756-I-7 MS	Matrix Spike	107		
240-139756-I-7 MSD	Matrix Spike Duplicate	108		
240-139804-2	MW-112S_110320	109		
LCS 240-460452/4	Lab Control Sample	106		
MB 240-460452/5	Method Blank	110		
Surrogate Legend				

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

11/23/2020

5

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

### Lab Sample ID: MB 240-461325/8

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

Matrix: Water Analysis Batch: 461325

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/17/20 11:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/17/20 11:36	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/17/20 11:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/17/20 11:36	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/17/20 11:36	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/17/20 11:36	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/17/20 11:36	1
4-Bromofluorobenzene (Surr)	102		47 - 134		11/17/20 11:36	1
Toluene-d8 (Surr)	98		69 - 122		11/17/20 11:36	1
Dibromofluoromethane (Surr)	93		78 - 129		11/17/20 11:36	1

#### Lab Sample ID: LCS 240-461325/5 Matrix: Water Analysis Batch: 461325

Spike	LCS	LCS				%Rec.	
Added	Result	Qualifier	Unit	D	%Rec	Limits	
20.0	20.2		ug/L		101	73 - 129	
20.0	20.3		ug/L		102	75 - 124	
20.0	19.3		ug/L		96	70 - 125	
20.0	20.0		ug/L		100	74 - 130	
20.0	17.7		ug/L		88	71 - 121	
20.0	23.5		ug/L		118	61 - 134	
	Added 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.	Added         Result           20.0         20.2           20.0         20.3           20.0         19.3           20.0         20.0           20.0         20.0           20.0         17.7	Added         Result         Qualifier           20.0         20.2         20.0           20.0         20.3         20.3           20.0         19.3         20.0           20.0         20.0         20.0           20.0         20.0         17.7	Added         Result         Qualifier         Unit           20.0         20.2         ug/L         ug/L           20.0         20.3         ug/L         ug/L           20.0         19.3         ug/L         ug/L           20.0         20.0         ug/L         ug/L           20.0         17.7         ug/L	Added         Result         Qualifier         Unit         D           20.0         20.2         ug/L         ug/L         D           20.0         20.3         ug/L         ug/L         D           20.0         19.3         ug/L         Unit         D           20.0         20.0         19.3         ug/L         Unit         D           20.0         17.7         ug/L         Unit         Unit         D	Added         Result         Qualifier         Unit         D         %Rec           20.0         20.2         20.2         ug/L         101           20.0         20.3         ug/L         102           20.0         19.3         ug/L         96           20.0         20.0         ug/L         100           20.0         17.7         ug/L         88	Added         Result         Qualifier         Unit         D         %Rec         Limits           20.0         20.2         ug/L         ug/L         101         73 - 129           20.0         20.3         ug/L         102         75 - 124           20.0         19.3         ug/L         96         70 - 125           20.0         20.0         ug/L         100         74 - 130           20.0         17.7         ug/L         88         71 - 121

	LCS	LCS			
Surrogate	%Recovery	Qualifier	Limits		
1,2-Dichloroethane-d4 (Surr)	100		75 - 130		
4-Bromofluorobenzene (Surr)	106		47 - 134		
Toluene-d8 (Surr)	102		69 - 122		
Dibromofluoromethane (Surr)	83		78 - 129		

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#### Lab Sample ID: 240-139797-E-2 MS **Matrix: Water** Analysis Batch: 461325

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	20.0	19.1		ug/L		95	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	19.2		ug/L		96	68 - 121
Tetrachloroethene	1.0	U	20.0	17.6		ug/L		88	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	18.8		ug/L		94	69 - 126
Trichloroethene	1.0	U	20.0	15.8		ug/L		79	56 - 124
Vinyl chloride	1.0	U	20.0	22.8		ug/L		114	49 - 136
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	99		75 - 130						
4-Bromofluorobenzene (Surr)	107		47 - 134						

69 - 122

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

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

#### QC Sample Results

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

#### Lab Sample ID: 240-139797-E-2 MS **Client Sample ID: Matrix Spike** Matrix: Water Prep Type: Total/NA Analysis Batch: 461325 MS MS %Recovery Qualifier Limits Surrogate Dibromofluoromethane (Surr) 83 78 - 129 **Client Sample ID: Matrix Spike Duplicate** Lab Sample ID: 240-139797-F-2 MSD Matrix: Water Prep Type: Total/NA Analysis Batch: 461325 Sample Sample Spike MSD MSD %Rec. RPD **Result Qualifier** Added Unit Limits RPD Limit Analyte **Result Qualifier** D %Rec 1.0 U 1,1-Dichloroethene 20.0 20.6 ug/L 103 64 - 132 8 35 cis-1,2-Dichloroethene ug/L 1.0 U 20.0 20.0 100 68 - 121 35 4 Tetrachloroethene 1.0 U 20.0 17.8 ug/L 89 52 - 129 35 1 trans-1.2-Dichloroethene 1.0 U 20.0 19.9 100 35 ug/L 69 - 126 6 Trichloroethene 1.0 U 20.0 16.8 ug/L 84 56 - 124 6 35 Vinyl chloride 1.0 U 20.0 22.0 ug/L 110 49 - 136 4 35 MSD MSD %Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 98 75 - 130 4-Bromofluorobenzene (Surr) 105 47 - 134 Toluene-d8 (Surr) 101 69 - 122 Dibromofluoromethane (Surr) 84 78 - 129 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-460452/5 **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA** Analysis Batch: 460452 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac 11/11/20 16:36 1,4-Dioxane 2.0 U 2.0 0.86 ug/L MB MB Qualifier Limits Dil Fac Surrogate %Recoverv Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 110 70 - 133 11/11/20 16:36 1 Lab Sample ID: LCS 240-460452/4 **Client Sample ID: Lab Control Sample** Matrix: Water Prep Type: Total/NA Analysis Batch: 460452 Spike LCS LCS %Rec. Added **Result Qualifier** Limits Analyte Unit D %Rec 1,4-Dioxane 10.0 11.4 ug/L 114 80 - 135 LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 106 70 - 133 **Client Sample ID: Matrix Spike** Lab Sample ID: 240-139756-I-7 MS Matrix: Water Prep Type: Total/NA Analysis Batch: 460452 Sample Sample Spike MS MS %Rec. **Result Qualifier** Added Result Qualifier Unit I imits Analyte D %Rec 1,4-Dioxane 1.5 J 10.0 12.1 ug/L 106 46 - 170

Eurofins TestAmerica, Canton

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	107		70 - 133									
- Lab Sample ID: 240-1397	56-I-7 MSD					Client	Samp	le ID: N	latrix Spil	ke Dup	licate	
Matrix: Water									Prep Ty			
Analysis Batch: 460452												
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	-
1,4-Dioxane	1.5	J	10.0	12.8		ug/L		113	46 - 170	6	26	
	MSD	MSD										ī
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	108		70 - 133									5

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

#### Analysis Batch: 460452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139804-2	MW-112S_110320	Total/NA	Water	8260B SIM	
VB 240-460452/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-460452/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139756-I-7 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139756-I-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139804-1	TRIP BLANK	Total/NA	Water	8260B	
240-139804-2	MW-112S_110320	Total/NA	Water	8260B	
MB 240-461325/8	Method Blank	Total/NA	Water	8260B	
LCS 240-461325/5	Lab Control Sample	Total/NA	Water	8260B	
240-139797-E-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-139797-F-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Job ID: 240-139804-1

**Matrix: Water** 

Lab Sample ID: 240-139804-2

#### Client Sample ID: TRIP BLANK Date Collected: 11/03/20 00:00 Date Received: 11/07/20 08:00

Batch

Туре

Analysis

P BLANK					Lab Sa	mple ID: 2	240-139804-1
):00						-	Matrix: Water
:00							
Batch		Dilution	Batch	Prepared			
Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
8260B		1	461325	11/17/20 12:57	НМВ	TAL CAN	

#### Client Sample ID: MW-112S\_110320 Date Collected: 11/03/20 16:16 Date Received: 11/07/20 08:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	461325	11/17/20 13:22	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	460452	11/11/20 19:05	SAM	TAL CAN

#### Laboratory References:

Prep Type

Total/NA

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-139804-1

#### Laboratory: Eurofins TestAmerica, 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	02-23-21	
Connecticut	nnecticut State		12-31-21	
Florida	NELAP	E87225	06-30-21	
Georgia	State	4062	02-23-21	
Illinois	NELAP	004498	07-31-21	
lowa	State	421	06-01-21	
Kansas	NELAP	E-10336	04-30-21	
Kentucky (UST)	State	112225	02-23-21	
Kentucky (WW)	State	KY98016	12-31-20	
Minnesota	NELAP	OH00048	12-31-20	
Minnesota (Petrofund)	State	3506	08-01-21	
New Jersey	NELAP	OH001	06-30-21	
New York	NELAP	10975	03-31-21	
Ohio VAP	State	CL0024	06-05-21	
Oregon	NELAP	4062	02-24-21	
Pennsylvania	NELAP	68-00340	08-31-21	
Texas	NELAP	T104704517-18-10	08-31-21	
USDA	US Federal Programs	P330-18-00281	09-17-21	
Virginia	NELAP	010101	09-14-21	
Washington	State	C971	01-12-21	
West Virginia DEP	State	210	12-31-20	

3

1.4/2.3

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



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

Client Contact	Regulat	tory program:		Г	DW		Г	NPDI	ES	Г	R	CRA	T	Oth	er [												
Company Name: Arcadis	Client Project	Manager: Kris H	linskey	-			Site	Conta	ict: J	ulia N	leCla	fferty	-		-	Lab	Contac	et: Mil	ke Del	Monio	:0				TestAmerica COC No:	Laborat	ories,
Address: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240					Tele	phone	e: 734	1-644-	5131				-	Telep	phone:	330-4	97-93	96				-		-	
City/State/Zip: Novi, MI, 48377	Email: kristoff	fer.hinskey@arci	udis con					Analy	sis Ti	urnare	ound	Time	-	-	-				4	nalys	ies				/ of For lab use only	1 0	COCs
Phone: 248-994-2240												_				1							T			-	
Project Name: Ford LTP Off-Site	Sampler Name	Schafe	V					of differ	1	21	veeks														Walk-in client Lab sampling		24
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TRIP BLANK	11/20/20								1						1	L	X	×	+	L	x						
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TestAmerica Cooler	the second se	Box Client Cooler	Box Other		and the particular of the compt.
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### **DATA VERIFICATION REPORT**



November 23, 2020

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: 30050315.0301.01 off site Event Specific Scope of Work References: Sample COC Laboratory: TestAmerica - North Canton Laboratory submittal: 139804-1 Sample date: 2020-11-03 Report received by CADENA: 2020-11-23 Initial Data Verification completed by CADENA: 2020-11-23 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.
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

**Reportable Results Only** 

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton Laboratory Submittal: 139804-1

		Sample Name: Lab Sample ID: Sample Date:	<b>D:</b> 2401398041				MW-112S_110320 2401398042 11/3/2020				
			_	Report	_	Valid	_	Report		Valid	
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	
GC/MS VOC											
<u>OSW-826</u>	<u>DB</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>OBBSim</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 # 240-139804-1 CADENA Verification Report: 2020-11-23

Analyses Performed By: TestAmerica North Canton, Ohio

Report #39256R Review Level: Tier III Project: 30050315.402.02

### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-139804-1 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) includes 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		Analy	/sis
Sample ID	Lab ID	Matrix	Collection Date	Parent Sample	VOC (Full Scan)	VOC (SIM)
TRIP BLANK	240-139804-1	Water	11/03/20		Х	
MW-112S_110320	240-139804-2	Water	11/03/20		Х	Х

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

		Rep	orted		mance ptable	Not
	Items Reviewed	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	

#### **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	Re	ported		ormance eptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMET	RY (GC/N	IS)			
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation					1
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
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		X		Х	
C. RT of sample compounds within the established RT windows		X		X	
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:	Curindialued [
DATE:	December 03, 2020

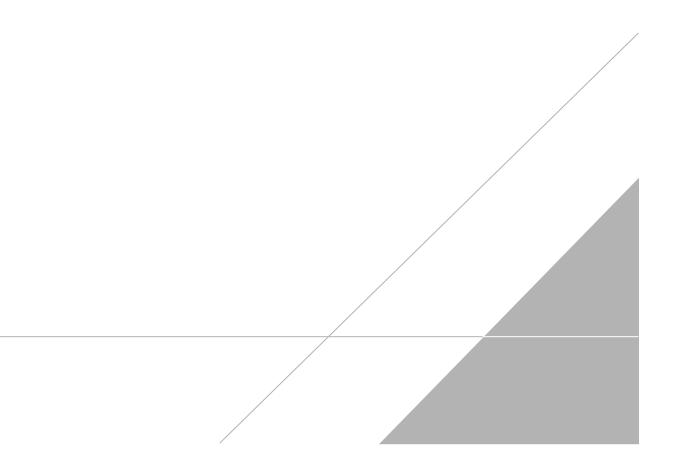
PEER REVIEW: Andrew Korycinski

DATE: December 04, 2020

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



1.4/2.3

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



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

Client Contact	Regula	tory program:		Г	DW	-	NPI	DES		F 1	RCF	RA	T	Oth	er											
Company Name: Arcadis	Client Project	Manager: Kris	Hinske	y	-	Sit	e Con	tact:	Julia	a McC	Claff	ferty	-	-	-	Lab (	Conta	ct: Mi	ke De	Moni	02			TestAmerica COC No:	Laborato	ries, Inc
Address: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240				Te	lepho	nc: 73	34-64	14-513	31				-	Teler	hone	: 330-4	197-9	396	_					
City/State/Zip: Novi, MI, 48377							-	lysis				Ima	-	_	_					naly				/ of	/ co	Cs
Phone: 248-994-2240	Eman: Kriston	er.hinskey@ar	cadis.co	om		-						IIIIC						T		Chary	l		TT	For lab use only		
Project Name: Ford LTP Off-Site	Sampler Name					TA	Tifdi	Terent f		elow 3 wee	eks			19										Walk-in client		
	Gary	Schats	2V			_	10 da	ay		2 wee	eks													Lab sampling		
Project Number: 30050315.402.04	Method of Ship			_						1 wee 2 day			2	p=q			OB			8	SIM					
PO # 30050315.402.04	Shipping/Track	king No:								1 day			Sample (Y /	-C / Grab	OB	8260B	SE 826			e 8260B	8260B			Job/SDG No:		
				M	atrix	-	Cot	tainer	rs & I	Preser	vati	ves	Sam		8260B	CE	2-DC	80B	808	Chloride						
Sample Identification	Sample Date	Sample Time	Air	Aqueous		H2SO4	HN03	HCI	NaOH	ZnAc/	Unpres	Other:	Filtered	Composite	1,1-DCE 8	cis-1,2-DCE	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Ch	1,4-Dioxane				pecific Not Instruction	
TRIP BLANK	11/ 1		TT	T		1	F	,			-		-						1	I.						
	03/20		++	+	++-	-	+	11					+	-	X	×	×	×	+	+	×					
MW-1125_110320	103/20	1616		K				6							X	×	X	X	X	×	X					
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Possible Hazard Identification				_		-						may be									mont	h)				
Non-Hazard Cammable cin I Special Instructions/QC Requirements & Comments:	rritant 🗆 Poise	on B	Unkne	own		_	Г	Retur	rn to l	Client	t		Dispo	sal By	y Lab		F A	Archiv	e For		M	onths			-	
Submit all results through Cadena at jtomalia@cade	naco com Cadena i	E203621																								
Level IV Reporting requested.	naco,com, cadena i	12203031																								
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#### **Client Sample ID: TRIP BLANK**

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

94

1.0 U

#### Lab Sample ID: 240-139804-1 Matrix: Water

guine compo								
Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1.0	U	1.0	0.19	ug/L			11/17/20 12:57	1
1.0	U	1.0	0.16	ug/L			11/17/20 12:57	1
1.0	U	1.0	0.15	ug/L			11/17/20 12:57	1
1.0	U	1.0	0.19	ug/L			11/17/20 12:57	1
1.0	U	1.0	0.10	ug/L			11/17/20 12:57	1
1.0	U	1.0	0.20	ug/L			11/17/20 12:57	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
108		75 - 130			-		11/17/20 12:57	1
101		47 - 134					11/17/20 12:57	1
98		69 - 122					11/17/20 12:57	1
	Result           1.0           %Recovery           108           101	Result         Qualifier           1.0         U           1.0         U	Result         Qualifier         RL           1.0         U         1.0           1.0         1.0         1.0           1.0         1.0         1.0           1.0         1.0         1.0           1.0         1.0         1.0           1.0         1.0         1.0           1.0	Result         Qualifier         RL         MDL           1.0         U         1.0         0.19           1.0         U         1.0         0.19           1.0         U         1.0         0.16           1.0         U         1.0         0.15           1.0         U         1.0         0.19           1.0         U         1.0         0.19           1.0         U         1.0         0.19           1.0         U         1.0         0.10           1.0         U         1.0         0.20           %Recovery         Qualifier         Limits           101         47 - 134         47 - 134	Result         Qualifier         RL         MDL         Unit           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.16         ug/L           1.0         U         1.0         0.15         ug/L           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.15         ug/L           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.20         ug/L           1.0         U         1.0         0.20         ug/L           1.0         1.0         0.20         ug/L           1.01         47 - 134         47 - 134	1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.16         ug/L           1.0         U         1.0         0.15         ug/L           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.19         ug/L           1.0         U         1.0         0.10         ug/L           1.0         U         1.0         0.20         ug/L           1.0         U         1.0         0.20         ug/L           1.0         1.0         0.20         ug/L           1.08         75 - 130         101         47 - 134	Result         Qualifier         RL         MDL         Unit         D         Prepared           1.0         U         1.0         0.19         ug/L         10	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

78 - 129

#### Client Sample ID: MW-112S\_110320 Date Collected: 11/03/20 16:16 Date Received: 11/07/20 08:00

Dibromofluoromethane (Surr)

Vinyl chloride

#### Lab Sample ID: 240-139804-2

11/17/20 12:57

11/17/20 13:22

Matrix: Water

1

1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/11/20 19:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		70 - 133					11/11/20 19:05	1
Method: 8260B - Volatile C	-		MS)						
	-	unds (GC/I Qualifier	MS) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	-	Qualifier		<b>MDL</b> 0.19		<u> </u>	Prepared	Analyzed 11/17/20 13:22	Dil Fac
Analyte 1,1-Dichloroethene	Result	Qualifier	RL		ug/L	<u> </u>	Prepared		Dil Fac
Analyte 1,1-Dichloroethene	Result 1.0	Qualifier U U	<b>RL</b> 1.0	0.19	ug/L ug/L	D	Prepared	11/17/20 13:22	<b>Dil Fac</b> 1 1 1
cis-1,2-Dichloroethene	Result 1.0 1.0	Qualifier U U U	<b>RL</b> 1.0 1.0	0.19 0.16	ug/L ug/L ug/L	<u> </u>	Prepared	11/17/20         13:22           11/17/20         13:22	Dil Fac 1 1 1 1

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108	75 - 130		11/17/20 13:22	1
4-Bromofluorobenzene (Surr)	102	47 - 134		11/17/20 13:22	1
Toluene-d8 (Surr)	100	69 - 122		11/17/20 13:22	1
Dibromofluoromethane (Surr)	89	78 - 129		11/17/20 13:22	1

1.0

0.20 ug/L