

**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Kristoffer Hinskey Arcadis U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 3/6/2024 8:38:59 AM

# JOB DESCRIPTION

Ford LTP - Off Site

# **JOB NUMBER**

240-200088-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

See page two for job notes and contact information.





# **Eurofins Cleveland**

### Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396

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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	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)	
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: 240-200088-1

#### **Eurofins Cleveland**

# Job Narrative 240-200088-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 2/28/2024 8:00 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 1.2°C and 2.8°C.

#### GC/MS VOA

Method 8260D\_SIM: The following sample(s) was unable to be prepared and/or analyzed due to machine error : MS/MSD.

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

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

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

#### Protocol References:

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

#### Laboratory References:

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

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-200088-1	TRIP BLANK_118	Water	02/22/24 00:00	02/28/24 08:00
240-200088-2	MW-104S_022224	Water	02/22/24 11:50	02/28/24 08:00

**Detection Summary** 

Job ID: 240-200088-1

Lab Sample ID: 240-200088-1

Lab Sample ID: 240-200088-2

#### Client Sample ID: TRIP BLANK\_118

No Detections.

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP - Off Site

#### Client Sample ID: MW-104S\_022224

No Detections.

#### Client Sample ID: TRIP BLANK\_118

Date Collected: 02/22/24 00:00 Date Received: 02/28/24 08:00

Method: SW846 8260D - Volati	le Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 20:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 20:03	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 20:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 20:03	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 20:03	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 20:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137			-		03/01/24 20:03	1
4-Bromofluorobenzene (Surr)	96		56 - 136					03/01/24 20:03	1
Toluene-d8 (Surr)	107		78 - 122					03/01/24 20:03	1
Dibromofluoromethane (Surr)	106		73 - 120					03/01/24 20:03	1

Matrix: Water

Lab Sample ID: 240-200088-1

# 2 3 4 5 6 7 8 9 10

#### Client Sample ID: MW-104S\_022224

Date Collected: 02/22/24 11:50 Date Received: 02/28/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/02/24 02:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		68 - 127			-		03/02/24 02:47	1
Method: SW846 8260D - Volati	ile Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 23:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 23:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 23:15	1
rans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 23:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 23:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 23:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		62 - 137			-		03/01/24 23:15	1
4-Bromofluorobenzene (Surr)	96		56 - 136					03/01/24 23:15	1
Toluene-d8 (Surr)	106		78 - 122					03/01/24 23:15	1
Dibromofluoromethane (Surr)	106		73 - 120					03/01/24 23:15	1

3/6/2024

Job ID: 240-200088-1

#### Lab Sample ID: 240-200088-2 Matrix: Water

10 11 12

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

#### Matrix: Water

#### Prep Type: Total/NA

							p ijpe: ietanita	
				Percent Su	rogate Recovery (	(Acceptance Limits)		
		DCA	BFB	TOL	DBFM			
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)			
240-200088-1	TRIP BLANK_118	119	96	107	106			5
240-200088-2	MW-104S_022224	119	96	106	106			
240-200125-B-1 MS	Matrix Spike	116	100	108	104			
240-200125-B-1 MSD	Matrix Spike Duplicate	116	102	109	105			
LCS 240-604751/5	Lab Control Sample	117	102	107	104			
MB 240-604751/8	Method Blank	118	98	107	104			
Surrogate Legend								i
DCA = 1,2-Dichloroetha	ne-d4 (Surr)							
BFB = 4-Bromofluorobe	nzene (Surr)							1
TOL = Toluene-d8 (Surr	)							
DBFM = Dibromofluoror	methane (Surr)							
lethod: 8260D SIN	I - Volatile Organic Com	pounds (GC	/MS)					
latrix: Water						Pre	p Type: Total/NA	

			Percent Surrogate Recovery (Acceptance Limits)
		DCA	
Lab Sample ID	Client Sample ID	(68-127)	
240-200088-2	MW-104S_022224	100	
LCS 240-604761/4	Lab Control Sample	102	
MB 240-604761/6	Method Blank	104	

#### Surrogate Legend

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

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

#### Lab Sample ID: MB 240-604751/8

#### Matrix: Water Analysis Batch: 604751

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 18:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 18:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 18:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 18:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 18:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 18:27	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		62 - 137		03/01/24 18:27	1
4-Bromofluorobenzene (Surr)	98		56 - 136		03/01/24 18:27	1
Toluene-d8 (Surr)	107		78 - 122		03/01/24 18:27	1
Dibromofluoromethane (Surr)	104		73 - 120		03/01/24 18:27	1

#### Lab Sample ID: LCS 240-604751/5 Matrix: Water Analysis Batch: 604751

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	26.6		ug/L		106	63 - 134	
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	77 - 123	
Tetrachloroethene	25.0	27.3		ug/L		109	76 - 123	
trans-1,2-Dichloroethene	25.0	25.4		ug/L		102	75 - 124	
Trichloroethene	25.0	25.6		ug/L		102	70 - 122	
Vinyl chloride	12.5	9.33		ug/L		75	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)			62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120

100

108

#### Lab Sample ID: 240-200125-B-1 MS Matrix: Water Analysis Batch: 604751

4-Bromofluorobenzene (Surr)

Toluene-d8 (Surr)

-	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	100	U	2500	2510		ug/L		100	56 - 135
cis-1,2-Dichloroethene	150		2500	2550		ug/L		96	66 - 128
Tetrachloroethene	100	U	2500	2430		ug/L		97	62 - 131
trans-1,2-Dichloroethene	100	U	2500	2410		ug/L		97	56 - 136
Trichloroethene	1800		2500	3990		ug/L		89	61 - 124
Vinyl chloride	100	U	1250	931		ug/L		74	43 - 157
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	116		62 _ 137						

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

**Client Sample ID: Matrix Spike** 

Prep Type: Total/NA

Job ID: 240-200088-1

Prep Type: Total/NA

**Client Sample ID: Method Blank** 

56 - 136

78 - 122

## 3/6/2024

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: 240-200125- Matrix: Water	B-1 MS										Client	Sample ID: I Prep Ty		
Analysis Batch: 604751	MS													
Surrogate	%Recovery	Qua	lifier	Limits										
Dibromofluoromethane (Surr)	104			73 - 120										
Lab Sample ID: 240-200125-	B-1 MSD								Clier	nt Sa	ample ID	: Matrix Spil		
Matrix: Water												Prep Ty	pe: ro	otal/NA
Analysis Batch: 604751	Sample	Sam	nlo	Spike	MSD	MSE	<b>`</b>					%Rec		RPD
Analyte	Result		•	Added	Result		lifier	Unit		D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene				2500	2500		lillel	ug/L		_	100	56 - 135	0	26
cis-1,2-Dichloroethene	150	0		2500	2580			ug/L			97	66 - 128	1	14
Tetrachloroethene	100			2500	2380			ug/L			97 99	62 - 131	2	20
trans-1.2-Dichloroethene	100			2500	2480						99 97	62 - 131 56 - 136	2	
,		U						ug/L					0	15
	1800			2500	4010			ug/L			90 77	61 - 124		15
Vinyl chloride	100	U		1250	964			ug/L			77	43 - 157	4	24
	MSD	MSE	)											
Surrogate	%Recovery	Qua	lifier	Limits										
1,2-Dichloroethane-d4 (Surr)	116			62 - 137										
4-Bromofluorobenzene (Surr)	102			56 - 136										
Toluene-d8 (Surr)	109			78 - 122										
Dibromofluoromethane (Surr)	105			73 - 120										
lethod: 8260D SIM - Vola Lab Sample ID: MB 240-604 Matrix: Water Analysis Batch: 604761		. 00	mpoun		, <u>, , , , , , , , , , , , , , , , , , </u>						Client S	ample ID: M Prep Ty		
Analysis Daten. 004701		мв	мв											
Analyte	R		Qualifier		RL	мрі	Unit		D	Р	repared	Analyzed		Dil Fac
1,4-Dioxane		2.0	U			0.86					repared	03/01/24 23		1
I, I Dioxano		2.0	0	-		0.00	ug/L					00/01/21/20	.01	
		MB	ΜВ											
Surrogate	%Reco	very	Qualifier	Limits						P	repared	Analyzed	<u> </u>	Dil Fac
1,2-Dichloroethane-d4 (Surr)		104		68 - 127								03/01/24 23	:04	1
Lab Sample ID: LCS 240-604	4761/4								CI	lient	Sample	ID: Lab Cor Prep Ty		
Matrix: Water														
				Spike	LCS	LCS	5					%Rec		
Analysis Batch: 604761				Spike Added	LCS Result			Unit		D	%Rec	%Rec Limits		
Analysis Batch: 604761 <sup>Analyte</sup>				-		Qua		Unit ug/L		<u>D</u>	%Rec 97			
Matrix: Water Analysis Batch: 604761 Analyte 1,4-Dioxane		LCS		Added	Result	Qua				<u>D</u>		Limits		
Analysis Batch: 604761 Analyte	 LCS %Recovery			Added	Result	Qua				<u>D</u>		Limits		

### GC/MS VOA

#### Analysis Batch: 604751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200088-1	TRIP BLANK_118	Total/NA	Water	8260D	
240-200088-2	MW-104S_022224	Total/NA	Water	8260D	
MB 240-604751/8	Method Blank	Total/NA	Water	8260D	
LCS 240-604751/5	Lab Control Sample	Total/NA	Water	8260D	
240-200125-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-200125-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200088-2	MW-104S_022224	Total/NA	Water	8260D SIM	
MB 240-604761/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-604761/4	Lab Control Sample	Total/NA	Water	8260D SIM	

			I	Lab Chro	nicle				
lient: Arcadis l roiect/Site: Fo	U.S., Inc. rd LTP - Off Site	e						Job	ID: 240-200088-1
•	le ID: TRIP B							Lab Sample ID:	· 240-200088-1
ate Collected	: 02/22/24 00:00 : 02/28/24 08:00	0					-	and outline	Matrix: Water
		-							
	Batch	Batch	_	Dilution	Batch			Prepared	
Prep Type Total/NA	<b>Type</b> Analysis	<u>Method</u> 8260D	Run	<b>Factor</b>		Analyst CDG	_ Lab EET CLE	or Analyzed 03/01/24 20:03	
Date Received:	: 02/28/24 08:00	-							
	Batch	Batch		Dilution	Batch			Prepared	
	Туре	Method	Run	Factor		Analyst	Lab	or Analyzed	
Prep Type					004754				
Total/NA	Analysis	8260D		1	604751		EET CLE	03/01/24 23:15	
	Analysis Analysis	8260D 8260D SIM		1 1	604751 604761		EET CLE EET CLE	03/01/24 23:15 03/02/24 02:47	
Total/NA Total/NA Laboratory Refer	Analysis rences:	8260D SIM	Parborton OH (	1	604761				
Total/NA Total/NA Laboratory Refer	Analysis rences:		Barberton, OH 4	1	604761				
Total/NA Total/NA Laboratory Refer	Analysis rences:	8260D SIM	Barberton, OH 4	1	604761				
Total/NA Total/NA Laboratory Refer	Analysis rences:	8260D SIM	Barberton, OH 4	1	604761				

Ргер Туре	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	604751	CDG	EET CLE	03/01/24 23:15
Total/NA	Analysis	8260D SIM		1	604761	MDH	EET CLE	03/02/24 02:47

#### Laboratory References:

#### Accreditation/Certification Summary

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

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#### Laboratory: Eurofins Cleveland

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	02-27-24 *
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	03-03-24
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-01-24
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

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



Chain of Custody Record



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

Client Contact	Regulat	tory program	:		w	E 1	PDES		R	RA	Γ	Othe	er											
ompany Name: Arcadis	Client Project !	Manager: Kris	Hinsk	ey		Site	ontact:	: Chri	istin a W	eaver				Lab (	Contai	et: MI	ke D el	Monie	0				TestAmerica Laboratories, I	
Idress: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240	_	_		Teler	hone: 2	248-99	4-2240	_				Telec	phone:	330-	197-93	96						
ty/State/Zlp: N ov1, M I, 48377							malysis																1 of 1 COCs For lab use only	
ne: 248-994-2240	Em all: kristoff	er.kinskey@a	rcadis.							Analyses														
oject Name: Ford LTP Off-Site	Sampler Name		-			TAT	if different		elow 3 week:													1	Walk-in chient	
ect Number: 30167538.402.04	Method of Ship	othe	يىن	1		10	day		2 week: I week	2					Ι.				5				Lab sampling	
						4		-	2 days		(N/)	a b=G		0	82 60D			00	D SIM					
# 3016753&402.04	Shipping/Track	dag No:							l day		ple ()	C/Gr	QQ	82600	8			e 82 60D	8260				Job/SDG Na	
				Matri	x		Contain	ers & F	Preserva	tives	Sag	ite=0	826	CE	2-D0	£2 60D	82600	lorid	ane					
Sample I dentification	Sample Date	Sample Time		Aqueors Sediment	Solid Other:	H2SOH	HCI HCI	NaOH	ZnA <i>d</i> NeOH Unites	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	1,1-DCE 8260D	cis-1,2-DCE	Irans-1,2-DCE	PCE 82	TCE 82(	Vinyl Chloride	1,4-Dioxane 82600				Sample Specific Notes / Special Instructions:	
TRIP BLANK_ 118				1			1			Ť		G	_	X	X	X	X	X			1		1 Trip Blank	
MW-1045-022224	<u>Olealou</u>	11-0		1			1				N	6	X	Х	X	X	X	X	X				3 VOAs for 8260D	
MW-1093_012224	2/22/24	150	+	6		+	6				14	6	~								_		3 VOAs for 8260D SIM	
				-++		+ +			_							-	-	-		-	+	-		
					_					Hanna man						5_	ļ							
																	-							
					-	-										-	1	-				-		
					_	_	240-20		8 Cha	n of Cu						_		-				-		
			1			-			o ona	n or cu	Istod	ly			-									
										1	1 1				I	-	1							
			+							-						-		-			_	-		
Possible Hazard Identification Von-Hazard Plammable Skin	n Irritant Poise	on B	Unkr	nown		Sa			d (A fee Client	maybe:				les are		archive		han 1		) xnths				
cial Instructions/QC Requirements & Comments:												ź												
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# **DATA VERIFICATION REPORT**



March 06, 2024

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: 30167538.402.04 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory submittal: 200088-1 Sample date: 2024-02-22 Report received by CADENA: 2024-03-06 Initial Data Verification completed by CADENA: 2024-03-06 Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

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

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

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

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

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

# **CADENA Valid Qualifiers**

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

# Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 200088-1

		Sample Name:TRIP BLANK_118Lab Sample ID:2402000881Sample Date:2/22/2024					MW-104 2402000 2/22/202	882	4	
	Angluta		Desult	Report	11	Valid	Desult	Report	11	Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-8260</u>	<u>ID</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>	<u>IDSIM</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 # 240-200088-1 CADENA Verification Report: 2024-03-06

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 53263R Review Level: Tier III Project: 30167538.402.02

## **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-200088-1 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 ID	Lab ID	Matrix	Sample	Barant Sampla	Analysis		
Sample ID		Matrix	Collection Date	Parent Sample	VOC	VOC SIM	
TRIP BLANK_118	240-200088-1	Water	02/22/2024		Х		
MW-104S_022224	240-200088-2	Water	02/22/2024		Х	Х	

#### DATA REVIEW

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed	Rep	orted		mance otable	Not Required
		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		X	
5.	Reporting limits		Х		Х	
6.	Sample collection date		Х		Х	
7.	Laboratory sample received date		Х		X	
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 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 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 continuing 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 (C	SC/MS)				
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation	1	1			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	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:	Bindu Sree M B
SIGNATURE:	BASHMB
DATE:	March 19, 2024

PEER REVIEW: Andrew Korycinski

DATE: March 26, 2024

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS







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

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### Client Sample ID: TRIP BLANK\_118

### Date Collected: 02/22/24 00:00

Date Received: 02/28/24 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 20:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 20:03	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 20:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 20:03	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 20:03	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 20:03	1
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Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		62 - 137		03/01/24 20:03	1
4-Bromofluorobenzene (Surr)	96		56 - 136		03/01/24 20:03	1
Toluene-d8 (Surr)	107		78 - 122		03/01/24 20:03	1
Dibromofluoromethane (Surr)	106		73 - 120		03/01/24 20:03	1

#### Client Sample ID: MW-104S\_022224 Date Collected: 02/22/24 11:50 Date Received: 02/28/24 08:00

Dibromofluoromethane (Surr)

Method: SW846 8260D SIM	- Volatile Orga	anic Comp	ounds (GC/N	IS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/02/24 02:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		68 - 127			-		03/02/24 02:47	1

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

106

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Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 23:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 23:15	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 23:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 23:15	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 23:15	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 23:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		62 - 137			-		03/01/24 23:15	1
4-Bromofluorobenzene (Surr)	96		56 - 136					03/01/24 23:15	1
Toluene-d8 (Surr)	106		78 - 122					03/01/24 23:15	1

73 - 120

### Lab Sample ID: 240-200088-1 Matrix: Water

Lab Sample ID: 240-200088-2

**Matrix: Water** 

03/01/24 23:15

1