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## **Environment Testing** America

## **ANALYTICAL REPORT**

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

### Laboratory Job ID: 240-171941-1

Client Project/Site: Ford LTP - Off Site

### For:

..... Links

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

Attn: Kristoffer Hinskey

Mole Del your

signature.

Authorized for release by: 9/6/2022 8:00:00 AM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten

Results relate only to the items tested and the sample(s) as received by the laboratory.

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### Qualifiers

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	7
CFL	Contains Free Liquid	
CFU	Colony Forming Unit	
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	10
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	11
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	12
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: 240-171941-1

#### Laboratory: Eurofins Canton

#### Narrative

Job Narrative 240-171941-1

**Case Narrative** 

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/23/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.7° C, 3.9° C, 3.9° C and 4.1° C.

#### GC/MS VOA

Method 8260D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-540141.

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

#### **VOA Prep**

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

Job ID: 240-171941-1

### **Method Summary**

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

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

#### **Protocol References:**

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

#### Laboratory References:

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

### Sample Summary

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-171941-1	TRIP BLANK_160	Water	08/19/22 00:00	08/23/22 09:30
240-171941-2	MW-161S_081922	Water	08/19/22 09:45	08/23/22 09:30

### **Detection Summary**

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

Client Sample ID: TRIP BLANK\_160

No Detections.

### Client Sample ID: MW-161S\_081922

No Detections.

Job ID: 240-171941-1

Lab Sample ID: 240-171941-1

Lab Sample ID: 240-171941-2

This Detection Summary does not include radiochemical test results.

#### Client Sample ID: TRIP BLANK\_160 Date Collected: 08/19/22 00:00 Date Received: 08/23/22 09:30

## Lab Sample ID: 240-171941-1

Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/22 21:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/22 21:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/22 21:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/22 21:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137			-		08/25/22 21:31	1
4-Bromofluorobenzene (Surr)	94		56 - 136					08/25/22 21:31	1
Toluene-d8 (Surr)	95		78 - 122					08/25/22 21:31	1
Dibromofluoromethane (Surr)	101		73 - 120					08/25/22 21:31	1

#### Client Sample ID: MW-161S\_081922 Date Collected: 08/19/22 09:45 Date Received: 08/23/22 09:30

Date Received: 08/23/22 09:30								
Method: 8260D SIM - Volatile	Organic Co	mpounds (G	C/MS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/26/22 23:17

1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/26/22 23:17	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	71		66 - 120					08/26/22 23:17	1	
Method: 8260D - Volatile Or	ganic Compo	unds by G	C/MS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	8
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/22 21:53	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/22 21:53	1	9
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:53	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/22 21:53	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:53	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/22 21:53	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					08/25/22 21:53	1	
4-Bromofluorobenzene (Surr)	86		56 - 136					08/25/22 21:53	1	4.5
Toluene-d8 (Surr)	92		78 - 122					08/25/22 21:53	1	
Dibromofluoromethane (Surr)	93		73 - 120					08/25/22 21:53	1	

Job ID: 240-171941-1

#### Lab Sample ID: 240-171941-2 Matrix: Water

Dil Fac 1

### **Surrogate Summary**

70

71

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

Lab Control Sample

Method Blank

latrix: Water						Prep Type: Total/NA	
-			Pe	ercent Surro	ogate Recovery (Ac	ceptance Limits)	
		DCA	BFB	TOL	DBFM		-
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)		
240-171941-1	TRIP BLANK_160	109	94	95	101		
240-171941-2	MW-161S_081922	100	86	92	93		
.CS 240-540141/5	Lab Control Sample	94	90	91	90		
/IB 240-540141/8	Method Blank	102	91	95	96		
Surrogate Legend							ï
DCA = 1,2-Dichloroeth	ane-d4 (Surr)						
BFB = 4-Bromofluorob	enzene (Surr)						Ē
TOL = Toluene-d8 (Su	rr)						
DBFM = Dibromofluor	omethane (Surr)						ī
ethod: 8260D S	IM - Volatile Organic	Compoun	ds (GC/	MS)			
atrix: Water				,		Prep Type: Total/NA	
			Pe	ercent Surro	ogate Recovery (Ac	ceptance Limits)	
		DCA					
ab Sample ID	Client Sample ID	(66-120)					i.
40-171941-2	MW-161S_081922	71					
40-171965-G-5 MS	Matrix Spike	83					
240-171965-M-5 MSD	Matrix Spike Duplicate	77					

#### Surrogate Legend

LCS 240-540396/3

MB 240-540396/4

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

Job ID: 240-171941-1

Prep Type: Total/NA

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

## Lab Sample ID: MB 240-540141/8

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

Matrix: Water Analysis Batch: 540141

-	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/22 13:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/22 13:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 13:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/22 13:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 13:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/22 13:45	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		08/25/22 13:45	1
4-Bromofluorobenzene (Surr)	91		56 - 136		08/25/22 13:45	1
Toluene-d8 (Surr)	95		78 - 122		08/25/22 13:45	1
Dibromofluoromethane (Surr)	96		73 - 120		08/25/22 13:45	1

#### Lab Sample ID: LCS 240-540141/5 Matrix: Water Analysis Batch: 540141

	Spike	LCS L	LCS		%Rec	
Analyte	Added	Result (	Qualifier Unit	D %Rec	Limits	
1,1-Dichloroethene	20.0	21.6	ug/L	108	63 - 134	
cis-1,2-Dichloroethene	20.0	20.5	ug/L	103	77 - 123	
Tetrachloroethene	20.0	19.2	ug/L	96	76 - 123	
trans-1,2-Dichloroethene	20.0	21.3	ug/L	106	75 - 124	
Trichloroethene	20.0	19.5	ug/L	98	70 - 122	
Vinyl chloride	20.0	17.2	ug/L	86	60 - 144	
	LCS LCS					

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
4-Bromofluorobenzene (Surr)	90		56 - 136
Toluene-d8 (Surr)	91		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

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

Lab Sample ID: MB 240-540396/4 Matrix: Water Analysis Batch: 540396							Client Sam	ple ID: Method Prep Type: To	
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/26/22 21:41	1
	MB	MB							
Surrogate %	Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	71		66 - 120					08/26/22 21:41	1

5 10 **Client Sample ID: Lab Control Sample** 

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

Lab Sample ID: LCS 240-	-540396/3					Clie	ent Sai	nple ID	: Lab Cor		
Matrix: Water									Prep Ty	pe: Tot	al/NA
Analysis Batch: 540396											
			Spike	LCS	LCS				%Rec		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
1,4-Dioxane			10.0	9.61		ug/L		96	80 - 122		
	LCS	LCS									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	70		66 - 120								
Lab Sample ID: 240-1719	65-G-5 MS						CI	ient Sa	mple ID: I	Matrix 3	Spike
Matrix: Water									· Prep Ty		
Analysis Batch: 540396											
	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
1,4-Dioxane	2.0	U	10.0	11.0		ug/L		110	51 - 153		
	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	83		66 - 120								
Lab Sample ID: 240-1719	65-M-5 MSD					Client	Samp	le ID: N	latrix Spil	ke Dup	licate
Matrix: Water									Prep Ty	pe: Tot	al/NA
Analysis Batch: 540396											
-	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	10.6		ug/L		106	51 - 153	4	16
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	77		66 - 120								

### **QC** Association Summary

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

8260D SIM

### GC/MS VOA

240-171965-M-5 MSD

Matrix Spike Duplicate

#### Analysis Batch: 540141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-171941-1	TRIP BLANK_160	Total/NA	Water	8260D	
240-171941-2	MW-161S_081922	Total/NA	Water	8260D	
MB 240-540141/8	Method Blank	Total/NA	Water	8260D	
LCS 240-540141/5	Lab Control Sample	Total/NA	Water	8260D	
analysis Batch: 540	396				
					/ /
Lab Sample ID	Client Sample ID	Prep Type	Matrix Water	Method	Prep Batch
Lab Sample ID 240-171941-2	Client Sample ID MW-161S_081922	Total/NA	Water	8260D SIM	Prep Batch
Lab Sample ID 240-171941-2 MB 240-540396/4	Client Sample ID MW-161S_081922 Method Blank	Total/NA Total/NA	Water Water	8260D SIM 8260D SIM	Prep Batch
Lab Sample ID 240-171941-2 MB 240-540396/4 LCS 240-540396/3	Client Sample ID MW-161S_081922	Total/NA	Water	8260D SIM	Prep Batch

Total/NA

Water

Lab Sample ID: 240-171941-1

### Client Sample ID: TRIP BLANK\_160 Date Collected: 08/19/22 00:00 Date Received: 08/23/22 09:30

	Batch	Batch		Dilution	Batch			Prepared	
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed	
Total/NA	Analysis	8260D		1	540141	TJL1	EET CAN	08/25/22 21:31	
lient Sam	ple ID: MW	-161S 08192	2				Lab	Sample ID: 2	240-171941-2
	d: 08/19/22 0							•	
Date Collecte	•	9:45						•	
Date Collecte	d: 08/19/22 0	9:45		Dilution	Batch			Prepared	Matrix: Water
Date Collecte Date Receive	d: 08/19/22 0 d: 08/23/22 0	9:45 9:30	Run	Dilution Factor	Batch Number	Analyst	Lab	·	
Date Collecte	d: 08/19/22 0 d: 08/23/22 0 Batch	9:45 9:30 Batch			Number	Analyst TJL1		Prepared	

#### Laboratory References:

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

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

#### Laboratory: Eurofins Canton

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

Authority	Program	Identification Number	Expiration Date	
California	State	2927	02-27-23	
Connecticut	State	PH-0590	12-31-23	
Florida	NELAP	E87225	06-30-23	
Georgia	State	4062	02-27-23	
Illinois	NELAP	200004	07-31-23	
owa	State	421	06-01-23	
Kentucky (UST)	State	112225	02-27-23	
Kentucky (WW)	State	KY98016	12-31-22	
Minnesota	NELAP	039-999-348	12-31-22	
Minnesota (Petrofund)	State	3506	08-01-23	
New Jersey	NELAP	OH001	06-30-23	
New York	NELAP	10975	04-01-23	
Ohio	State	8303	02-23-23	
Ohio VAP	State	CL0024	02-27-23	
Oregon	NELAP	4062	08-31-22	
Pennsylvania	NELAP	68-00340	08-31-23	
Texas	NELAP	T104704517-22-17	08-31-22	
√irginia	NELAP	11570	09-14-22	
Washington	State	C971	01-12-23	
West Virginia DEP	State	210	12-31-22	

	TestAmerica I aboratorias Inc	, COC Net	1 of 1 COC	only	Walk-in client Lab sampling	Job/SDG No:	Sample Specific Notes / Special Instructions:	1 Trip Blank	3 VOAs for 8260D 3 VOAs for 8260D SIM			Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time: Date/Time:
Chain of Custody Record 10448 Citation Drive. Suite 200 / Brighton, MI 48116 / 810-229-2763	RCRA Other	ristina Weaver Lab Contact: Mike DelMonico	04-2329 Telephone: 330-966-9783	Analysis Turnaround Time Analyses	ceks cecks cecks	8560D 3650D 560D D	НИОЗ         Одинист           1,4-Dioxane 8           1,4-Dioxane 8           7,4-Dioxane 8           7,4-Dioxane 8	× × ×	NG XXXXXXXXX		al ( A fee may be assessed if samples are retained longer than 1 month)	Return to Client Disposal By Lab Archive For Months 4 C Received by Could Celd Starter Company: 10 Backing the Laboratory Live Contrans. Received to Laboratory Live Contrans. Received to Laboratory Live Contrans. Received to Laboratory Live Contrans.
Chain of Custody Record TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 4	L	Client Project Manager: Kris Hinskey Site Contact: Christina Weaver	Telephone: 269-832-7478 Telephone: 248-994-2329	Email: Kristoffer.Hinskey@arcadis.com	Sampler Name: TAT if different from below Sampler Of the second state of the second state of the second s	Shipping/Tracking No:	VaOH HCI HXO3 Outleters & Sediffeent Sediffeent Adveous Adveous	8/19/22 - 1	08/19/ta C945 6 6	Chain of Custody		Unknown Date/Time: Date/Time: B1/22/22 Date/Time: Date/Time:
MICHIGAN 190 Testame	Client Contact Company Name: Arcadis	ive. Suite 500			LTP Off-Site 180642-402.04		Sample Identification S		° MW-1615 081972 0	Page 16 of 18	Identification	ammable Skin Irrita ments & Comments: SS and at jtomalla@cadehaco. MI Car jo Maria ananos. n.

Eurofins - Canton Sample Receipt Form/Narrative Login	
Barberton Facility	
	Cooler unpacked by:
lient AR adis Site Name	RAChelle HAidel
poler Received on 8 23-22 Opened on 8 23-22	
edEx: 1" Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier	
eccept After-boll's: Drop-off Date/Time Storage Location urofins Cooler # Foam Box Client Cooler Box Other	
COOLANT: Wet Ice Blue Ice Dry Ice Water None	
Cooler temperature upon receipt See Multiple Cooler	Form
IR GUN# IR-13 (CF 0.0 °C) Observed Cooler Temp °C Corrected Cooler IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp °C Corrected Cooler	
IR GUN #IR-15 (CF -0.7°C) Observed Cooler Temp°C Corrected Coole	r Temp°C
Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	es No Tests that are set
	es No NA checked for pH by
	es No Receiving:
	es No NA VOAs
	es No Oll and Grease
	the TOC
	es No
Did all bottles arrive in good condition (Unbroken)?	es No es No
B. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	es No
For each sample, does the COC specify preservatives (10, 10, 14 of containers, (2)N), and	sample type of grab/comp(YN)?
	es) No
1. Sufficient quantity received to perform indicated analyses?	IN NO
2. Are these work share samples and all listed on the COC?	E No
If yes, Questions 13-17 have been checked at the originating laboratory.	E No 28679
	IS NO (NA) pH Surp Lour HCHART
	n No
15. Were air bubbles >6 mm in any VOA vials?  Larger than this.	E No MA
( West NOA at Mark - second in the secler(s)) This Direct Least	
	ts No
	es No es No
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #       Yes         17. Was a LL Hg or Me Hg trip blank present?       Yes         Contacted PM       Date       by	ts (No)
7. Was a LL Hg or Me Hg trip blank present? Yr Contacted PM Date by via Verbal	ts (No)
7. Was a LL Hg or Me Hg trip blank present?	ts (No)
17. Was a LL Hg or Me Hg trip blank present?       Y         Contacted PM Date by via Verbal	ts (No)
7. Was a LL Hg or Me Hg trip blank present? Yr Contacted PM Date by via Verbal Concerning	Voice Mail Other
7. Was a LL Hg or Me Hg trip blank present? Yr Contacted PM Date by via Verbal Concerning	Voice Mail Other
7. Was a LL Hg or Me Hg trip blank present? Yr Contacted PM Date by via Verbal Concerning	Voice Mail Other
17. Was a LL Hg or Me Hg trip blank present?	Voice Mail Other
7. Was a LL Hg or Me Hg trip blank present?	Voice Mail Other Samples processed by:
17. Was a LL Hg or Me Hg trip blank present?       Yi         Contacted PM       Date       by       via Verbal         Concerning	Samples processed by:
7. Was a LL Hg or Me Hg trip blank present?	Samples processed by: ling time had expired. d in a broken container.
17. Was a LL Hg or Me Hg trip blank present?	Samples processed by: ling time had expired. d in a broken container. in diameter. (Notify PM)
17. Was a LL Hg or Me Hg trip blank present?	Samples processed by: ling time had expired. d in a broken container.
17. Was a LL Hg or Me Hg trip blank present?       Yr         Contacted PM       Date       by       via Verbal         Concerning	Samples processed by: ling time had expired. d in a broken container. in diameter. (Notify PM)
17. Was a LL Hg or Me Hg trip blank present?       Yr         Contacted PM       Date       by       via Verbal         Concerning	Samples processed by: ling time had expired. d in a broken container. in diameter. (Notify PM)
17. Was a LL Hg or Me Hg trip blank present?       Yi         Contacted PM       Date       by       via Verbal         Concerning	Samples processed by: ling time had expired. d in a broken container. in diameter. (Notify PM)

Login # : \_

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Cooler Description	IR Gun #	on Sample Receipt M Observed	Corrected	Coolant
(Circle)	(Circle)	Temp °C	Temp °C	(Circle)
A) Client Box Other	HR-13 48-15	39	3.9	Wet ice Blue ice Dry I Water None
A Client Box Other	IR-13 18-15	Hil	4.1	Wattice Blue Ice Dry I Water None
A Client Box Other	IR-13 .15	3.9	3.9	Wellice Blue Ice Dry I Water None
A Client Box Other	IR-13 (R-15)	2.7	2.7	Water None
A Client Box Other	IR-13 IR-16			Wet Ice Sive Ice Dry I Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry I Water None
A Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry i Water None
A Client Box Other	IR-13 IR-15			Wet Ice Sive Ice Dry I Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry I Water None
A Client Box Other	IR-13 IR-16			Wet ice live ice Dry k Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry k Water None
A Client Box Other	IR-13 IR-15			Watice Sive Ice Dry k Water None
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A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ic Water None
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A Client Box Other	IR-13 IR-15			Wet Ice Sive Ice Dry Ic Water None
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A Client Box Other	IR-13 IR-15			Wet ice live ice Dry ic Water None
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A Client Box Other	IR-13 IR-15			Wetice Sive ice Dry ic Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ic Water None
A Client Box Other	IR-13 IR-15			Wet ice live ice Dry ice Water None
A Client Box Other	IR-13 IR-15	-		Wet Ice Blue Ice Dry Ice Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
A Client Box Other	IR-13 IR-15			Wet ice Blue ice Dry ice Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None
A Client Box Other	IR-13 IR-15			Wellice Blue Ice Dry Ice Water None
A Client Box Other	IR-13 IR-15			Wet Ice Blue Ice Dry Ice Water None

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

## **DATA VERIFICATION REPORT**



September 06, 2022

Kris Hinskey Arcadis Inc 10559 Citation Ave Suite 100 Brighton, MI 48116

CADENA project ID: E203631 Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater Project number: 30080642.402.04 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Barberton Laboratory submittal: 171941-1 Sample date: 2022-08-19 Report received by CADENA: 2022-09-06 Initial Data Verification completed by CADENA: 2022-09-06 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.

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 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
ЛН	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than $5x$ (or $10x$ for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than $10x$ the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

## Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Barberton Laboratory Submittal: 171941-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401719 8/19/20	9411	)		MW-161 2401719 8/19/20	_ 9412	22	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
<u>OSW-8260</u>	<u>D</u>									
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	
	cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		ND	1.0	ug/l	
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	
	Vinyl chloride	75-01-4	ND	1.0	ug/l		ND	1.0	ug/l	
<u>OSW-8260</u>	DSIM									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	



## Ford Motor Company – Livonia Transmission Project

## **DATA REVIEW**

## Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-171941-1

CADENA Verification Report: 2022-09-06

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 46955R Review Level: Tier III Project: 30146655.402.02

## **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-171941-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

			Sample Collection		Ana	lysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM
TRIP BLANK_160	240-171941-1	Water	08/19/22		Х	
MW-161S_081922	240-171941-2	Water	08/19/22		Х	Х

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted		mance ptable	Not
	No	Yes	No	Yes	Required
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 8260D and 8260D 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 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 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	Perfo Acce	Not Required	
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		X	
Tier III Validation					·
System performance and column resolution		Х		X	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
lon abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	X				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	
Notes:					

%RSD Relative standard deviation

%R Percent recovery

- RPD Relative percent difference
- %D Percent difference

VALIDATION PERFORMED BY: Vinayak Hegde
SIGNATURE:
DATE: September 26, 2022

PEER REVIEW: Andrew Korycinski

DATE: September 28, 2022

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



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS





**Chain of Custody Record** 



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

	Client Contact	Regula	tory program:			DW	-	NPDE	ES	Г	RC	RA	F	- Oth	ner											
	Company Name: Arcadis	1			_										1						_					estAmerica Laboratories, In
	Address: 28550 Cabot Drive, Suite 500	Client Project Manager: Kris Hinskey						e Conta	ict: C	hristi	na W	eaver				Lab Contact: Mike DelMonico						, CO	DC Nor			
		Telephone: 269-832-7478					Tel	Telephone: 248-994-2329							Telephone: 330-966-9783					+						
	City/State/Zip: Novi, MI, 48377							Analysis Turnaround Time																1 of 1 COCs		
	Phone: 248-994-2240	Email: Kristol	fer.Hinskey@a	rcadis.	com		-							Analyses						Fo	r lab use only					
		Sampler Name		1			TA	T if differ	rent fro	m below	v	1					[								w	alk-in client
	Project Name: Ford LTP Off-Site	2	2 00	V.						3 v																
	Project Number: 30080642.402.04	Method of Shir	ment/Carrier:	Pr	14		_	10 day		- 2 v	veeks										5				La	b sampling
			-								lays		2				Q			8	Sil				- 2	
	PO # 30080642.402.04	Shipping/Track	king No:							1 d	iay		N.	Gra		EOC	826			8260D	60C				Jo	b/SDG No:
					M	atrix		Conta	ainers	& Pre	servat	ives	mple (Y / N)	Composite=C / Grab=G	8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D		_	de	1,4-Dioxane 8260D SłM				100	
							-				T	T	Sa	site	8	DC	2-0	60	600	lori	Kan					
					Aqueous		H2SO4	8		E a	Les II	i.	Filtered	odu	1,1-DCE	1.2-	-S-	PCE 8260D	TCE 8260D	Vinyl Chloride	D					Sample Specific Notes /
	Sample Identification	Sample Date	Sample Time	Air	Aqu Sedi	Solid Other:	H2S	60NH	HCI	Va/	Unpres	Other:	File	Co	1	cis-	Tra	PCI	1C	Zinj	1,4-					Special Instructions:
0	TRIP BLANK 160	e ligina			A				1		T	T	1	1			V			V						4 Trie Dlauli
		8/19/22			4			4	Ы				٨	١C	, X	X	X	X	X	X						1 Trip Blank
0	AMAR 1610 +01977	08/19/12	0945		~				1				-la		X	X	V		1	V	$\checkmark$					3 VOAs for 8260D
	Prive TUIS	partin	VIN	+-+	5			<u>                                     </u>	2		+-		-N	11/2	1/	1	$\sim$	A	$\sim$	X	$\overline{}$					3 VOAs for 8260D SIM
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	Special Instructions/QC Requirements & Comments:		1	1									-							-						
	Sample Address: 34551 B-COLON Submit all results through Cadena at jtomalia@cadenacd	Sta	2 79	N																						
	Level IV Reporting requested.	com. Cadena	#E203631	,																						
	Relinquished by:	Company:	1.	1	Date/Ti	me: 4			R	eccive	td hv		11			1	1		Conv	a calma //		1			D	to/Times
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#### Client Sample ID: TRIP BLANK\_160 Date Collected: 08/19/22 00:00 Date Received: 08/23/22 09:30

## Lab Sample ID: 240-171941-1

Matrix: Water

5 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/22 21:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/22 21:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/22 21:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/22 21:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137					08/25/22 21:31	1
4-Bromofluorobenzene (Surr)	94		56 - 136					08/25/22 21:31	1
Toluene-d8 (Surr)	95		78 - 122					08/25/22 21:31	1
Dibromofluoromethane (Surr)	101		73 - 120					08/25/22 21:31	1

#### Client Sample ID: MW-161S\_081922 Date Collected: 08/19/22 09:45 Date Received: 08/23/22 09:30

Date Received: 08/23/22 09:30								
Method: 8260D SIM - Volatile C	Organic Cor	mpounds (G	C/MS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/26/22 23:17

1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/26/22 23:17	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	71		66 - 120					08/26/22 23:17	1	
	rganic Compo	unds by G	C/MS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	8
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/25/22 21:53	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/25/22 21:53	1	9
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:53	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/25/22 21:53	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/25/22 21:53	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/25/22 21:53	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					08/25/22 21:53	1	
4-Bromofluorobenzene (Surr)	86		56 - 136					08/25/22 21:53	1	4.0
Toluene-d8 (Surr)	92		78 - 122					08/25/22 21:53	1	13
Dibromofluoromethane (Surr)	93		73 - 120					08/25/22 21:53	1	4.4

## Lab Sample ID: 240-171941-2

Matrix: Water

Dil Fac