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Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 240-159632-1

Client Project/Site: Ford LTP - Off-Site

For:

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

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 11/23/2021 10:31:35 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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Expert

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Qualifiers

GC/MS	VOA
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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 allows visiting many or many not be present in this years	
Appreviation	Listed under the "D" column to designets that the result is reported on a dry weight basis	6
а 0/ D		
	Containe Free Liquid	
CFL	Colony Forming Unit	
CFU	Colony Forming Onic	8
	Contains No Free Liquid	
	Duplicate Error Ratio (normalized absolute difference)	9
Dii Fac		
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
	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: 240-159632-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-159632-1

Comments

No additional comments.

Receipt

The samples were received on 11/9/2021 10:00 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 3.7° C and 3.8° C.

GC/MS VOA

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

VOA Prep

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

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
240-159632-1	TRIP BLANK_41	Water	11/05/21 00:00	11/09/21 10:00
240-159632-2	MW-215S_110521	Water	11/05/21 15:00	11/09/21 10:00

Detection Summary

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

Client Sample ID: TRIP BLANK_41

No Detections.

Client Sample ID: MW-215S_110521

No Detections.

Job ID: 240-159632-1

Lab Sample ID: 240-159632-1

Lab Sample ID: 240-159632-2

Client Sample ID: TRIP BLANK_41 Date Collected: 11/05/21 00:00 Date Received: 11/09/21 10:00

Job ID: 240-159632-1

Lab Sample ID: 240-159632-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	5
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/16/21 21:21	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/21 21:21	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/21 21:21	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/21 21:21	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/21 21:21	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/21 21:21	1	8
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	93		62 - 137					11/16/21 21:21	1	9
4-Bromofluorobenzene (Surr)	85		56-136					11/16/21 21:21	1	
Toluene-d8 (Surr)	92		78 - 122					11/16/21 21:21	1	
Dibromofluoromethane (Surr)	100		73-120					11/16/21 21:21	1	

Client Sample ID: MW-215S_110521 Date Collected: 11/05/21 15:00 Date Received: 11/09/21 10:00

Lab Sample ID: 240-159632-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/21 00:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		66 - 120			-		11/17/21 00:59	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	0.49	ug/L			11/16/21 22:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/21 22:37	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/21 22:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/21 22:37	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/21 22:37	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/21 22:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		62 - 137			-		11/16/21 22:37	1
4-Bromofluorobenzene (Surr)	81		56 - 136					11/16/21 22:37	1
Toluene-d8 (Surr)	93		78 - 122					11/16/21 22:37	1
Dibromofluoromethane (Surr)	102		73-120					11/16/21 22:37	1

Surrogate Summary

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

Ŭ	· · · ·	,			Prep Type: Total/NA	
		Pe	ercent Surro	ogate Recove	ery (Acceptance Limits)	
	DCA	BFB	TOL	DBFM		
Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)		5
Matrix Spike	88	90	93	97		
Matrix Spike Duplicate	86	90	92	94		
TRIP BLANK_41	93	85	92	100		
MW-215S_110521	96	81	93	102		
Lab Control Sample	86	91	94	94		
Method Blank	94	85	91	102		8
-d4 (Surr)						9
ene (Surr)						10
thane (Surr)						
- Volatile Organic	Compound	ds (GC/	MS)			
-			•		Prep Type: Total/NA	
		Pe	ercent Surro	ogate Recove	ery (Acceptance Limits)	
	DCA					13
Client Sample ID	(66-120)					

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

TOL = Toluene-d8 (Surr)

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

Method: 8260B SIM - Volatile Org

Matrix: Water

Lab Sample ID

240-159632-1

240-159632-2

LCS 240-513207/5

MB 240-513207/8

240-159556-A-21 MS

240-159556-A-21 MSD

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		
Lab Sample ID	Client Sample ID	(66-120)		
240-159546-G-2 MS	Matrix Spike	82		
240-159546-M-2 MSD	Matrix Spike Duplicate	85		
240-159632-2	MW-215S_110521	82		
LCS 240-513286/4	Lab Control Sample	82		
MB 240-513286/5	Method Blank	85		

Surrogate Legend

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

11/23/2021

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

Lab Sample ID: MB 240-513207/8 Matrix: Water

Matrix: Water Analysis Batch: 513207

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			11/16/21 14:40	1
cis-1,2-Dichloroethene 1.0	U	1.0	0.46	ug/L			11/16/21 14:40	1
Tetrachloroethene 1.0	U	1.0	0.44	ug/L			11/16/21 14:40	1
trans-1,2-Dichloroethene 1.0	U	1.0	0.51	ug/L			11/16/21 14:40	1
Trichloroethene 1.0	U	1.0	0.44	ug/L			11/16/21 14:40	1
Vinyl chloride 1.0	U	1.0	0.45	ug/L			11/16/21 14:40	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137		11/16/21 14:40	1
4-Bromofluorobenzene (Surr)	85		56 - 136		11/16/21 14:40	1
Toluene-d8 (Surr)	91		78 - 122		11/16/21 14:40	1
Dibromofluoromethane (Surr)	102		73-120		11/16/21 14:40	1

Lab Sample ID: LCS 240-513207/5 Matrix: Water Analysis Batch: 513207

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25.0	26.9		ug/L		107	63 - 134	
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	77 - 123	
Tetrachloroethene	25.0	27.1		ug/L		108	76-123	
trans-1,2-Dichloroethene	25.0	25.3		ug/L		101	75 - 124	
Trichloroethene	25.0	26.3		ug/L		105	70-122	
Vinyl chloride	25.0	20.2		ug/L		81	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		62 - 137
4-Bromofluorobenzene (Surr)	91		56 - 136
Toluene-d8 (Surr)	94		78-122
Dibromofluoromethane (Surr)	94		73-120

93

Lab Sample ID: 240-159556-A-21 MS Matrix: Water Analysis Batch: 513207

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	2520		ug/L		101	56 - 135	
cis-1,2-Dichloroethene	100	U	2500	2460		ug/L		98	66-128	
Tetrachloroethene	3100		2500	5610		ug/L		100	62-131	
trans-1,2-Dichloroethene	100	U	2500	2480		ug/L		99	56 - 136	
Trichloroethene	83	J	2500	2530		ug/L		98	61-124	
Vinyl chloride	100	U	2500	1980		ug/L		79	43 - 157	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	88		62-137							
4-Bromofluorobenzene (Surr)	90		56 - 136							

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Client Sample ID: Matrix Spike

Prep Type: Total/NA

5

10

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

78-122

Lab Sample ID: 240-159556-A-21 MS

QC Sample Results

10

Client Sample ID: Matrix Spike

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

Prep Type: Total/NA Matrix: Water Analysis Batch: 513207 MS MS Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 97 73-120 Lab Sample ID: 240-159556-A-21 MSD **Client Sample ID: Matrix Spike Duplicate** Matrix: Water Prep Type: Total/NA Analysis Batch: 513207 Sample Sample Spike MSD MSD %Rec. RPD **Result Qualifier** RPD **Result Qualifier** Added Limits Limit Analyte Unit D %Rec 100 U 1,1-Dichloroethene 2500 2510 ug/L 100 56 - 135 0 26 ug/L cis-1,2-Dichloroethene 100 U 2500 2470 99 66-128 14 1 Tetrachloroethene 3100 2500 5590 ug/L 99 62-131 0 20 trans-1.2-Dichloroethene 100 U 2500 2480 ug/L 99 56 - 136 0 15 Trichloroethene 83 J 2500 2610 ug/L 101 61-124 3 15 Vinyl chloride 100 U 2500 1920 ug/L 77 43-157 3 24 MSD MSD %Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 86 62-137 4-Bromofluorobenzene (Surr) 90 56-136 92 Toluene-d8 (Surr) 78-122 Dibromofluoromethane (Surr) 94 73-120 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-513286/5 **Client Sample ID: Method Blank** Matrix: Water **Prep Type: Total/NA** Analysis Batch: 513286 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 11/16/21 19:44 1 MB MB %Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 66 - 120 85 11/16/21 19:44 **Client Sample ID: Lab Control Sample** Lab Sample ID: LCS 240-513286/4 Matrix: Water **Prep Type: Total/NA** Analysis Batch: 513286 Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 10.0 9.78 ug/L 98 80 - 122 LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 66 - 120 82 Lab Sample ID: 240-159546-G-2 MS **Client Sample ID: Matrix Spike** Matrix: Water Prep Type: Total/NA Analysis Batch: 513286 Sample Sample Spike MS MS %Rec. Analyte **Result Qualifier** Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 2.0 UF1 10.0 11.0 ug/L 110 51-153

Eurofins TestAmerica, Canton

Job ID: 240-159632-1

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

Surrogata	MS % Receivery	MS	Limito									
1,2-Dichloroethane-d4 (Surr)	82	Quanner	<u> </u>									
							•				P. 4	5
Matrix: Water Analysis Batch: 513286	16-M-2 MSD					Client	Samp	IE ID: N	Prep Ty	ce Dup pe: Tot	licate al/NA	
	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 F1	10.0	9.83		ug/L		98	51 - 153	11	16	8
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									9
1,2-Dichloroethane-d4 (Surr)	85		66-120									10

GC/MS VOA

Analysis Batch: 513207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159632-1	TRIP BLANK_41	Total/NA	Water	8260B	
240-159632-2	MW-215S_110521	Total/NA	Water	8260B	
MB 240-513207/8	Method Blank	Total/NA	Water	8260B	
LCS 240-513207/5	Lab Control Sample	Total/NA	Water	8260B	
240-159556-A-21 MS	Matrix Spike	Total/NA	Water	8260B	
240-159556-A-21 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
Analysis Batch: 5132	86				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch

Lab Sample ID		Fieh lyhe	iviau ix	Welliou	Frep batch
240-159632-2	MW-215S_110521	Total/NA	Water	8260B SIM	
MB 240-513286/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-513286/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-159546-G-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-159546-M-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Matrix: Water

Lab Sample ID: 240-159632-1

Client Sample ID: TRIP BLANK_41 Date Collected: 11/05/21 00:00 Date Received: 11/09/21 10:00

_	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	8260B		1	513207	11/16/21 21:21	SAM	TAL CAN	
Client Sam	ple ID: MW ed: 11/05/21 1	/ <mark>-215S_11052</mark> 5:00	1				Lab Sa	mple ID: 240- Ma	159632-2 atrix: Water
Date Receive	d: 11/09/21 1	0:00							
Date Receive	ed: 11/09/21 1 Batch	0:00 Batch		Dilution	Batch	Prepared			
Date Receive - Prep Type	ed: 11/09/21 1 Batch Type	0:00 Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab	
Date Receive Prep Type Total/NA	ed: 11/09/21 1 Batch Type Analysis	0:00 Batch Method 8260B	Run	Dilution Factor 1	Batch Number 513207	Prepared or Analyzed 11/16/21 22:37	Analyst	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: 240-159632-1

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	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
lowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

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Address: 28550 Cabot Drive, Suite 500		Hanager: Mris	NUNSKEY			110) oli	act: Juli	a MCCIA	Iterty			Lab	ontact	: Mike	DelMo	nico		<u>8</u> _	KC No:	
City/State/Zia: Nwi: ML 48377	Telephone: 248	-994-2240				Felephor	e: 734-6	44-5131				Tele	hone:	30-497	-9396				- 200-	Π
	Email: kristoff	er.hinskey@arc	adis.co	-	T	Anal	/sis Tur	around	lime	E	$\left \right $				Ana	vses		For	lab use only	
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Project Name: Ford LTP Off-Site		TUMA	(40 da		3 weeks		_	_									
Project Number: 30080642.402.04	Method of Ship	ment/Carrier:				2		I week		(N	()=		8			WIS		Lao	sampling	
PO# 30080642.402.04	Shipping/Track	ing No:						L day		/ ८) भ	Crab 6	8097	8560			5808 S		Job	/SDG No:	
				Matrix		Con	ainers &	Preservat	ives	dur	1560	8 30	DCE	8		9 9L				
Sample Identification	Sample Date	Sample Time	Alr	Sediment Sediment	Other;	EONH FOSZH	R#OH HCI	NAAN BOaN Sater	:JaqiO	Filtered S	1'1-DCE	cis-1,2-DC	S, t-enerT	b CE 8560	LCE 8260	iexoiQ-4,1			Sample Specific Notes / Special Instructions:	
TRIP BLANK		1	×							2	\times	\times	\times	×	$\hat{\mathbf{x}}$		3		1 Trip Blank	
-mw-2155_1105al	11/5/21	1500	\times				2			2	X	\times	\times	$\overline{\times}$	$\frac{1}{2}$	\times			3 VOAs for 8260B 3 VOAs for 8260B SIM	
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Possible Hazard Identification View-Hazard View-Hazard View-Hazard	t Poisc	80	Unknov			Sampl	e Dispos Schum te	al (A fee	may be	assesse	d if sam	ples ar	e retain	ed long	er that	1 month)	-			Т
Special Instructions/QC Requirements & Comments:					1					mender	A Lat		2			OFA	SIN			Т
Submit all results through Cadena at jtomalia@cadenace Level IV Reporting requested.	o.com - Cadena A	E203631																		
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Relinquispeding	Company:	AUE	<u> </u>	te/Time:	11	8	Rec	cived by:	1d		Z			<u> </u>	ompan		5	Dat	1/8/21 / 1200	
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11 2000, Temperatura Laporteura, de Arrighte reserved Traditionaria & Baugh area virginiera e Ela Arriante Lacoradorea, Inc.	2			5						Μ	L]
23/2																				

11/23/2021

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Canton Facility	Login # :
Client ARCALS Site Name	Cooler unpacked by:
Cooler Received on 1.9.21 Opened on 1.9.21	Varm Dayon
FedEx: 1 st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier	Other
Receipt After hours: Drop-off Date/TimeStorage Location	<u>_</u>
Packing material used: Bubble Wrap Foam Plastic Bag None Other COOLANT: Wet Ice Blue Ice Dry Ice Water None 1. Cooler temperature upon receipt IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp °C Corrected Cooler Former Cooler Temp °C Corrected Cooler Former Cooler Temp °C Corrected Cooler Former Cooler Former Cooler Temp °C Corrected Cooler Former Cooler Form	rm Temp°C
IR GUN #IR-15 (CF +0.2°C) Observed Cooler TempC Corrected Cooler	1 emp°C
 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	No No No No No No No No No No No No No N
Contacted PM Date by via Verbal V	voice Mail Other
Concerning	
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page	Samples processed by:
per corrected Ococ, me 1/1/21	1Sufficient Volume
19. SAMPLE CONDITION Sample(s)	ing time had expired. I in a broken container.
Sample(s) were received with bubble >6 mm i	n diameter. (Notify PM)
20. SAMPLE PRESERVATION	
Sample(s)	ther preserved in the laboratory.
VOA Sample Preservation - Date/Time VOAs Frozen:	

Login #: 159632

	EU	rotins lestAmerica	Canton Sample Reco	eipt Multiple Cooler Fo)m
Cooler D	Description	IR Gun #			Coolant (Circle)
Clent	Box Other	TETA IR-15	3.6	2-7	Terici Blue Ice Dry Ice
	Box Other	de 14" IR-18	3.7	2.8	Water None Watice Blue ice Dry ice
TA Clevel	hor Other	IR-14 IR-15		5-0	Water None Wet Ice Blue Ice Dry Ice
TA Charl	hav Olhar	IR-14 IR-15			Water None Wet Ice Blue Ice Dry Ice
TA Close	ter Other	IR-14 IR-15			Water None Wet ice Blue ice Dry ice
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TA Clent	sox Other	IR-14 IR-15			Water None Wetice Blue ice Dry ice
TA Clefit	Box Other	IR-14 IR-15			Water None
TA Client	Box Other	W.14 W.15			Water None
TA Client	Box Other	IP.14 IP.15			Water None Water Blue too Davice
TA Client	Box Other	10-14 ID-15			Water None
TA Client	Box Other	IP-14 IP-15	· · · · · · · · · · · · · · · · · · ·		Water None
TA Client	Box Other	IR-14 IR-15			Wattee she ice biy ice Water None
TA Client	Box Other	R-14 K-13	-		Water None
TA Client	Box Other	IR-14 IR-15			Wellice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-14 IR-15			Wet Ice Blue Ice Div Ice Water None
TA Client	Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-14 IR-15			Wellice Bluelice Drylce Water None
TA Client	Box Other	IR-14 IR-15			Wellice Bluelice Drylice Water None
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TA Client	Box Other	IR-14 IR-15			Wellice Bluelice Drylice Water None
TA Clent	Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-14 IR-15			Wellice Bluelice Drylice Water None
TA Client	Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
1A Client	Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	IR-14 IR-15			Wet ice Blue ice Dry ice Water None
TA Client	Box Other	IR-14 IR-15			Wet ice Blue ice Dry ice Water None
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TA Clent	Box Other	IR-14 IR-15			Wellce Bluelce Drylce Water None
TA Clent	Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client	Box Other	H-14 IR-15			Wet Ice Sive Ice Dry Ice Water None
TA Client	Box Other	IR-14 IR-15		-	Wellice Bluelice Drylice Water None
TA Client	Sox Other	IR-14 IR-15			Wet ice Sive ice Dry ice
				See Tem	perature Excursion Form

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

DATA VERIFICATION REPORT



November 23, 2021

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 OFF-SITE GW Event Specific Scope of Work References: Sample COC Laboratory: TestAmerica - North Canton Laboratory submittal: 159632-1 Sample date: 2021-11-05 Report received by CADENA: 2021-11-23 Initial Data Verification completed by CADENA: 2021-11-23 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 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.	
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

Laboratory: TestAmerica - North Canton Laboratory Submittal: 159632-1 CADENA Project ID: E203631

MW-215S_110521 2401596322

TRIP BLANK_41 2401596321

Sample Name: Lab Sample ID:

	Sample Date:	11/5/20	21			11/5/20	21		
			Report		Valid		Report		Valid
Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC									
OSW-8260B									
1,1-Dichloroethene	75-35-4	ND	1.0	l/gu	1	ΟN	1.0	ng/l	1
cis-1,2-Dichloroethene	156-59-2	ND	1.0	l/gu	1	ND	1.0	ng/l	ł
Tetrachloroethene	127-18-4	ND	1.0	l/gu	1	ND	1.0	ng/l	1
trans-1,2-Dichloroethene	156-60-5	ND	1.0	l/gu	1	ΠD	1.0	ng/l	1
Trichloroethene	79-01-6	ND	1.0	l/gu	1	ND	1.0	ng/l	1
Vinyl chloride	75-01-4	ND	1.0	l/gu	1	ND	1.0	ng/l	ł
OSW-8260BBSim									
1,4-Dioxane	123-91-1					ND	2.0	l/gu	ł



Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-159632-1 CADENA Verification Report: 2021-11-23

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 43682R Review Level: Tier III Project: 30080642.402.04

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-159632-1 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 Collection		Ana	lysis
Sample ID	Lab ID	Matrix	Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_41	240-159632-1	Water	11/05/21		Х	
MW-215S_110521	240-159632-2	Water	11/05/21		Х	Х

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed	Rep	orted	Perfor Acce	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 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 HCI

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

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	Rep	orted	Perfor Acce	mance ptable	Not
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation					
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		X	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	
Netoc					

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY:	Hrishikesh Upadhyaya

SIGNATURE:

Curindialund

DATE: December 10, 2021

PEER REVIEW: Andrew Korycinski

DATE: December 14, 2021

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



Tree	America I shorato	ev location -	Briahton	101	C hain 48 Citati	of (Cust	dy]	Reco	ord MI 481	16 / 81	0-229-2	763		\mathbf{C}	H	IGAN		estAme	nica
Client Contact	T Regulator	y program:		l L	3	L	PDES	1	RCR		ð	Ŀ				Ŧ	₽			
Company Name: Arcadis		1				1.17						- [TestAmerica Labor	atories, Inc.
Address: 28550 Cabot Drive, Suite 500		nager: Nris r	Inskey			Site	ontact:	Julta	IcClaff	A.			ah Cor	tact: M	ike Del	Monico			COC No:	
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Project Name: Ford L/TP Off-Site	Sampler Name:	IN UNR	Ì			TAT	f different	from helor	weeks weeks		-								Walk-in client	
Project Number: 30080642.402.04	Method of Shipme	nt/Carrier!				2	day		week		9= (N					8	MIS		Lab sampling	10.10
PO# 30080642.402.04	Shipping/Trackin	g No:				-			day		k (Y /	8	8092	0070 -		8 560 E	8092		Job/SDG No:	
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		-	×				-				2	×	×	×	\times	\times	3		1 Trip Blank	
- mw-2155_110521	18/3/11	1500	\times				2				N 12	×	$\overline{\times}$	$ \times$	\times	\times			3 VOAs for 826	OB SIM
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Special Instructions/CAL Requirements & Comments: Science all manufactions interactions of the and the																				
Submit all results prougn Cadena at fromalia@cadenact	o.com - Cadena #E	203631																		
Relinquished by LUUTAN	Company: Arcauiz		Dar	e.Time	21/1	8		Receive	vi V	CIP	さ	orad			Comp	any: (C) d	5		Date/Time: //60	
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Client Sample ID: TRIP BLANK_41

Date Collected: 11/05/21 00:00

Date Received: 11/09/21 10:00

Toluene-d8 (Surr)

Dibromofluoromethane (Surr)

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	0.49	ug/L			11/16/21 21:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/21 21:21	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/16/21 21:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/16/21 21:21	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/16/21 21:21	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/16/21 21:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		62 - 137					11/16/21 21:21	
4-Bromofluorobenzene (Surr)	85		56 - 136					11/16/21 21:21	

78 - 122

73 - 120

Client Sample ID: MW-215S_110521 Date Collected: 11/05/21 15:00 Date Received: 11/09/21 10:00

92

100

Lab Sample ID: 240-159632-2

11/16/21 21:21

11/16/21 21:21

Matrix: Water

1 1 1

Dil Fac

Method: 8260B SIM - Volat	ile Organic Co	mpounds	(GC/MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/21 00:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		66 - 120					11/17/21 00:59	
_ Method: 8260B - Volatile C	rganic Compo	unds (GC/	MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/16/21 22:37	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/16/21 22:37	1
Tetrachloroethene	1.0	U	1.0	0.44	ua/L			11/16/21 22:37	1

1 2-Dichloroethane-d4 (Surr)	96	62-137			11/16/21 22:37
Surrogate	%Recovery Qualifi	er Limits		Prepared	Analyzed
Vinyl chloride	1.0 U	1.0	0.45 ug/L		11/16/21 22:37
Trichloroethene	1.0 U	1.0	0.44 ug/L		11/16/21 22:37
trans-1,2-Dichloroethene	1.0 U	1.0	0.51 ug/L		11/16/21 22:37
Tetrachloroethene	1.0 U	1.0	0.44 ug/L		11/16/21 22:37

1,2-Dichloroethane-d4 (Surr)	96	62 - 137	11/16/21 22:37
4-Bromofluorobenzene (Surr)	81	56 - 136	11/16/21 22:37
Toluene-d8 (Surr)	93	78 - 122	11/16/21 22:37
Dibromofluoromethane (Surr)	102	73 - 120	11/16/21 22:37

Matrix: Water

Lab Sample ID: 240-159632-1

🛟 eurofins

Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 240-159532-1

Client Project/Site: Ford LTP - Off-Site

For:

..... Links

Review your project results through

Total Access

Have a Question?

Ask-

The

www.eurofinsus.com/Env

Visit us at:

Expert

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

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 11/22/2021 9:28:46 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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Definitions/Glossary

Minimum Detectable Activity (Radiochemistry) Minimum Detectable Concentration (Radiochemistry)

Not Detected at the reporting limit (or MDL or EDL if shown)

Reporting Limit or Requested Limit (Radiochemistry)

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

Method Detection Limit Minimum Level (Dioxin)

Most Probable Number

Not Calculated

Negative / Absent

Positive / Present

Presumptive

Quality Control

Method Quantitation Limit

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

3

Qualifiers

G

MDA

MDC MDL

ML MPN

MQL

NC

ND

NEG

POS

PQL

QC

RER

RL RPD

TEF

TEQ

TNTC

PRES

GC/MS VOA		
Qualifier	Qualifier Description	
F1	MS and/or MSD recovery exceeds control limits.	
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.	5
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	o
CFL	Contains Free Liquid	0
CFU	Colony Forming Unit	
CNF	Contains No Free Liquid	3
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"	

Job ID: 240-159532-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-159532-1

Comments

No additional comments.

Receipt

The samples were received on 11/6/2021 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

GC/MS VOA

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

VOA Prep

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

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
240-159532-1	TRIP BLANK_10	Water	11/01/21 00:00	11/06/21 08:00
240-159532-2	MW-223S_110121	Water	11/01/21 13:00	11/06/21 08:00

Detection Summary

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

Job ID: 240-159532-1

Client Sample ID: TRIP BLANK_10

Lab Sample ID: 240-159532-1

No Detections.

Client Sample ID: MW-223S_110121						mple ID: 2	40-159532-2
Analyte	Result	Qualifier	RL	MDL Unit	Dil Fac	D Method	Prep Type
Trichloroethene	0.67	J	1.0	0.44 ug/L	1	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TRIP BLANK_10 Date Collected: 11/01/21 00:00 Date Received: 11/06/21 08:00

Job	ID:	240-1	59532-
000		210	

Lab Sample ID: 240-159532-1

Matrix: Water

5

Analyte	rganic Compo Result	Qualifier	RL	MDL	Unit	D	Prepared	Analvzed	Dil Fac	5
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/12/21 02:04	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/12/21 02:04	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/12/21 02:04	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/12/21 02:04	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/12/21 02:04	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/12/21 02:04	1	8
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					11/12/21 02:04	1	9
4-Bromofluorobenzene (Surr)	85		56 - 136					11/12/21 02:04	1	
Toluene-d8 (Surr)	110		78-122					11/12/21 02:04	1	
Dibromofluoromethane (Surr)	100		73-120					11/12/21 02:04	1	

Client Sample ID: MW-223S_110121 Date Collected: 11/01/21 13:00 Date Received: 11/06/21 08:00

Lab Sample ID: 240-159532-2 Matrix: Water

Matrix: Water

Method: 8260B SIM - Volatile C	organic Co	mpounds ((GC/MS)	MDI	11	P	Duou ouo d	A walk made		i
Analyte	Result	Qualifier	RL	MDL	Unit	U	Prepared	Analyzed	DilFac	
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/21 19:40	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	83		66 - 120			-		11/12/21 19:40	1	
_ Method: 8260B - Volatile Orga	nic Compo	unds (GC/I	MS)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/12/21 02:26	1	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/12/21 02:26	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/12/21 02:26	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/12/21 02:26	1	
Trichloroethene	0.67	J	1.0	0.44	ug/L			11/12/21 02:26	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/12/21 02:26	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	93		62-137			-	-	11/12/21 02:26	1	
4-Bromofluorobenzene (Surr)	77		56 - 136					11/12/21 02:26	1	
Toluene-d8 (Surr)	100		78 - 122					11/12/21 02:26	1	
Dibromofluoromethane (Surr)	94		73-120					11/12/21 02:26	1	ī

Surrogate Summary

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

Prep Type: Total/NA Percent Surrogate Recovery (Acceptance Limits) BFB DBFM DCA TOL 5 (62-137) (56-136) (78-122) (73-120) **Client Sample ID** TRIP BLANK_10 85 110 100 100 MW-223S_110121 77 100 94 93 Matrix Spike 96 94 116 97 Matrix Spike Duplicate 90 87 108 92 Lab Control Sample 89 87 107 90 Method Blank 92 73 102 90 9 Prep Type: Total/NA

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Ma	trix	• W	ater
IVIA	UIN		αισι

Lab Sample ID

240-159532-1

240-159532-2

240-159539-B-5 MS

LCS 240-512565/4

MB 240-512565/6

240-159539-B-5 MSD

Surrogate Legend

		Percent Surrogate Recovery (Acceptance Limits)		
		DCA		
Lab Sample ID	Client Sample ID	(66-120)		
240-159532-2	MW-223S_110121	83		
240-159543-G-3 MS	Matrix Spike	85		
240-159543-O-3 MSD	Matrix Spike Duplicate	83		
LCS 240-512758/4	Lab Control Sample	83		
MB 240-512758/5	Method Blank	84		

Surrogate Legend

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

Job ID: 240-159532-1

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

Lab Sample ID: MB 240-512565/6 Matrix: Water

Analysis Batch: 512565

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			11/11/21 23:50	1
cis-1,2-Dichloroethene 1.0	U	1.0	0.46	ug/L			11/11/21 23:50	1
Tetrachloroethene 1.0	U	1.0	0.44	ug/L			11/11/21 23:50	1
trans-1,2-Dichloroethene 1.0	U	1.0	0.51	ug/L			11/11/21 23:50	1
Trichloroethene 1.0	U	1.0	0.44	ug/L			11/11/21 23:50	1
Vinyl chloride 1.0	U	1.0	0.45	ug/L			11/11/21 23:50	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		11/11/21 23:50	1
4-Bromofluorobenzene (Surr)	73		56 - 136		11/11/21 23:50	1
Toluene-d8 (Surr)	102		78 - 122		11/11/21 23:50	1
Dibromofluoromethane (Surr)	90		73-120		11/11/21 23:50	1

Lab Sample ID: LCS 240-512565/4 Matrix: Water Analysis Batch: 512565

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	10.0	10.4		ug/L		104	63 - 134	
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	77 - 123	
Tetrachloroethene	10.0	10.6		ug/L		106	76 - 123	
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	75 - 124	
Trichloroethene	10.0	8.95		ug/L		90	70 - 122	
Vinyl chloride	10.0	9.56		ug/L		96	60 - 144	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		62 - 137
4-Bromofluorobenzene (Surr)	87		56 - 136
Toluene-d8 (Surr)	107		78-122
Dibromofluoromethane (Surr)	90		73-120

116

Lab Sample ID: 240-159539-B-5 MS **Matrix: Water** Analysis Batch: 512565

Toluene-d8 (Surr)

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	25	U	250	224		ug/L		90	56 - 135	
cis-1,2-Dichloroethene	43		250	285		ug/L		97	66 - 128	
Tetrachloroethene	25	U	250	201		ug/L		80	62-131	
trans-1,2-Dichloroethene	86		250	316		ug/L		92	56 - 136	
Trichloroethene	830	F1	250	936	F1	ug/L		41	61 - 124	
Vinyl chloride	25	U	250	246		ug/L		99	43 - 157	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							
1,2-Dichloroethane-d4 (Surr)	96		62-137							
4-Bromofluorobenzene (Surr)	94		56 - 136							

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

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

Client Sample ID: Method Blank Prep Type: Total/NA 5 10

Eurofins TestAmerica, Canton

78-122

QC Sample Results

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

Lab Sample ID: 240-159539-B-5 MS **Client Sample ID: Matrix Spike** Prep Type: Total/NA Matrix: Water Analysis Batch: 512565 MS MS Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 97 73-120 Lab Sample ID: 240-159539-B-5 MSD **Client Sample ID: Matrix Spike Duplicate** Matrix: Water Prep Type: Total/NA Analysis Batch: 512565 Sample Sample Spike MSD MSD %Rec. RPD RPD **Result Qualifier** Added **Result Qualifier** %Rec Limits Limit Analyte Unit D 25 Ū 1,1-Dichloroethene 250 213 ug/L 85 56 - 135 5 26 ug/L cis-1.2-Dichloroethene 43 250 272 92 66-128 5 14 Tetrachloroethene 25 U 250 210 ug/L 84 62-131 4 20 trans-1.2-Dichloroethene 86 250 297 ug/L 84 56 - 136 6 15 Trichloroethene 830 F1 250 885 F1 ug/L 21 61-124 6 15 Vinyl chloride 25 U 250 233 ug/L 93 43-157 6 24 MSD MSD %Recovery Qualifier Surrogate Limits 1,2-Dichloroethane-d4 (Surr) 90 62-137 87 4-Bromofluorobenzene (Surr) 56-136 108 Toluene-d8 (Surr) 78-122 Dibromofluoromethane (Surr) 92 73-120 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Lab Sample ID: MB 240-512758/5 **Client Sample ID: Method Blank** Matrix: Water **Prep Type: Total/NA** Analysis Batch: 512758 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 11/12/21 16:51 1 MB MB %Recovery Qualifier Dil Fac Surrogate Limits Prepared Analyzed 1,2-Dichloroethane-d4 (Surr) 66 - 120 11/12/21 16:51 84 **Client Sample ID: Lab Control Sample** Lab Sample ID: LCS 240-512758/4 Matrix: Water Prep Type: Total/NA Analysis Batch: 512758 Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 10.0 9.63 ug/L 96 80 - 122 LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 66 - 120 83 Lab Sample ID: 240-159543-G-3 MS **Client Sample ID: Matrix Spike** Matrix: Water Prep Type: Total/NA Analysis Batch: 512758 Sample Sample Spike MS MS %Rec. Analyte **Result Qualifier** Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 2.0 UF1 10.0 100 9.98 ug/L 51-153

Eurofins TestAmerica, Canton

Job ID: 240-159532-1

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	85		66 - 120									5
Lab Sample ID: 240-15954 Matrix: Water	3-O-3 MSD					Client	Samp	le ID: N	latrix Spil Prep Ty	ke Dup pe: Tot	licate tal/NA	6
Analysis Batch: 512758	Commis	Commis	Cuilta	MOD	Med				0/ D = =			
Analyta	Sample	Sample	Sріке Addad	Decult	NISD	l lmit	D	% Dee	%Rec.		RPD	
Analyte	Result	Quaimer	Added	Result	Quaimer	Unit		%Rec	Limits	KPD	Limit	
1,4-Dioxane	2.0	UF1	10.0	9.71		ug/L		97	51 - 153	3	16	8
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									9
1,2-Dichloroethane-d4 (Surr)	83		66 - 120									
												10

Eurofins TestAmerica, Canton

GC/MS VOA

Analysis Batch: 512565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159532-1	TRIP BLANK_10	Total/NA	Water	8260B	
240-159532-2	MW-223S_110121	Total/NA	Water	8260B	
MB 240-512565/6	Method Blank	Total/NA	Water	8260B	
LCS 240-512565/4	Lab Control Sample	Total/NA	Water	8260B	
240-159539-B-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-159539-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
– Analysis Batch: 5127	758				

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159532-2	MW-223S_110121	Total/NA	Water	8260B SIM	
MB 240-512758/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-512758/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-159543-G-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-159543-O-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Matrix: Water

Lab Sample ID: 240-159532-1

Client Sample ID: TRIP BLANK_10 Date Collected: 11/01/21 00:00 Date Received: 11/06/21 08:00

Date Receive	d: 11/06/21 0	8:00						
Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512565	11/12/21 02:04	LEE	TAL CAN
Client Sam	ple ID: MW	/-223S_110121					Lab Sa	mple ID: 240-159532-2
Date Collecte	d: 11/01/21 1	3:00						Matrix: Water
Date Receive	d: 11/06/21 0	8:00						
	Batch	Batch	_	Dilution	Batch	Prepared		

Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512565	11/12/21 02:26	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	512758	11/12/21 19:40	CS	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: 240-159532-1

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	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
lowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

	The second s		I estAmerica Laboratories, inc. COC No:		1 of 1 COCs	For lab use only	Walk-in client	Lab sampling	Job/SDG No:		Sample Specific Notes / Special Instructions:	1 Trip Blank	3 VOAs for 8260B 3 VOAs for 8260B								2		1115 DateTime: 1500	Date/Time 11/C171 /43	Date/Time:
29-2763			Lab Contact: Mike DelMonico	Telenhone: 310-407-0306		Analyses		FX1	eoB 21 15 e0B 85 e0B 90B	e 85 DCE	CE 8260E		X X X X X X X X X X X X X X X X X X X	XXXXXXX				Istody		nples are retained longer than 1 month) b Archive For Mont			STORAGE Company. APCK	Company TA	Company:
of Custody Record Drive, Suite 200 / Brighton, MI 48116 / 810-22	L Differ		ite Contact: Julia McClafferty	relephone: 734-644-5131		Autarysis Luraround Line	IAT if different from below	10 day v 2 weeks	2 days - day e (Y/N	Containers & Preservatives	Composite Filtered Sa Other: Another NaoH HCT HCO HCO HZOA	1 N C X	6 N C ×	6 N C V				240-159532 Chain of Cu		Sample Disposal (Afee may be assessed if san Cample Disposal By La			500 Received by: COLD	435 Received by: Have	Received in Laboratory by:
Chain C atory location: Brighton 10448 Citation	tory program: DW		Manager: Kris Hinskey	8-994-2240		ter.ninskey@arcadis.com	ETH TURNER	pment/Carrier:	king No:	Matrix	Sediment Sediment Aqueous Altr Altr Altr	X -	1355 6	1300 6						on B Unknown	FF703631		PLAS Date/Time: 11/1/21 / 10	CADIS Date/Time	Date Time
JAN TestAmerica Labora	Regulat		Client Project 1	Telephone: 248			Sampler Name	Method of Ship	Shipping/Track		Sample Date	-	state central	0121 11/1/21							omments: omalia@cadenaco.com. Cadena #)	Company:	UUUN COMPANY RC	Company:
MICHIC 190	Client Contact	Company Name: Arcadis	Address: 28550 Cabot Drive. Suite 500		City/State/Zip: Novi, MI, 48377	Phone: 248-994-2240	Project Name: Ford LTP Off-Site	Project Number: 30080642.402.04	PO#30080642.402.04		Sample Identification	TRIP BLANK_ \Q	AAU-2455 - 140	MW-2235_ 11	2000	17	of 19			Possible Hazard Identification	Special Instructions/QC Requirements & C Submit all results through Cadena at itc	Level IV Reporting requested.	Retinquished by:	Kelinquished by:	Kelinquished by Clin

1/22/2003 телерика Перендани, Inc. Игран перена 1990 година 1990 годи 1990 годи 1990 годи

		IEGE CZ
Eurofins TestAmerica Canton Sample Receipt Form/Narrative	Login # :_	2010
	Cooler un	packed by:
$\frac{1}{\sqrt{1 + 1}} = \frac{1}{\sqrt{1 + 1}}$	1.44	her, Surma
Coller Received on 117 G / 21 Opened on 117 G / 21	$P(\omega)$	
Receipt After-hours: Dron-off Date/Time	Other	
estAmerica Cooler # TA Foam Box Client Cooler Box Other		
Packing material used: Bubble Wrap Foam Plastic Bag None Other		
COOLANT: Weilce Blue Ice Dry Ice Water None		
Cooler temperature upon receipt	form	
IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp. 1.0 °C Corrected Cooler	Temp. 1. 1	_°C
IR GUN #IR-15 (CF +0.2°C) Observed Cooler Temp°C Corrected Cooler	r lemp	<u>_*C</u>
Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	eg No	Tests that are not
-Were tamper/custody seals on the bottle(s) or bottle kits (LI Ha/MeHa)?	NO NA	checked for pH by
-Were tamper/custody seals intact and uncompromised?		Receiving:
Shippers' packing slip attached to the cooler(s)?	NO NA	VOAs
Did custody papers accompany the sample(s)?	No No	Oil and Grease
Were the custody papers relinguished & signed in the appropriate place?	No No	тос
Was/were the person(s) who collected the samples clearly identified on the COC?	No	L
Did all bottles arrive in good condition (Unbroken)?	No No	
Could all bottle labels (ID/Date/Time) be reconciled with the COC?	s) No	
For each sample, does the COC specify preservatives (VN), # of containers (VN), and s	sample type of g	grab/comp(Y/N)?
. Were correct bottle(s) used for the test(s) indicated? (Ye	s) No	
. Sufficient quantity received to perform indicated analyses?	s No	
Are these work share samples and all listed on the COC? Ye	es No	
If yes, Questions 13-17 have been checked at the originating laboratory.	_	
B. Were all preserved sample(s) at the correct pH upon receipt? Ye	s No (NA) p	H Strip Lot# HC157842
4. Were VOAs on the COC?	s No	
5. Were air bubbles >6 mm in any VOA vials?	s No NA	
5. Was a VOA inp blank present in the cooler(s)? I np Blank Lot $\# O(0.012) = O(0.012)$	S NO	
	3 (10)	T
ontacted PM by via Verbal V	Voice Mail Oth	er
oncerning	$\hat{\square}$	
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DATA VERIFICATION REPORT



November 22, 2021

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 OFF-SITE GW Event Specific Scope of Work References: Sample COC Laboratory: TestAmerica - North Canton Laboratory submittal: 159532-1 Sample date: 2021-11-01 Report received by CADENA: 2021-11-22 Initial Data Verification completed by CADENA: 2021-11-22 Number of Samples:2 Sample Matrices: Water Test Categories: GCMS VOC Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

MS/MSD recovery outliers or sample duplicate RPD outliers were not determined using a client sample from this submittal for the test and QC batch noted so qualification was not required based on these sample-specific QC outliers: GCMS VOC QC batch 512565.

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.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

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

Laboratory: TestAmerica - North Canton Laboratory Submittal: 159532-1 CADENA Project ID: E203631

	Lab Sample ID:	2401595	321			2401595	322		
	Sample Date:	11/1/20	21			11/1/20	21		
			Report		Valid		Report		Valid
Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC									
<u>OSW-8260B</u>									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	1	DN	1.0	ng/l	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	l/gn	1	ND	1.0	l/gn	1
Tetrachloroethene	127-18-4	ND	1.0	l/gn	1	ND	1.0	l/gn	1
trans-1,2-Dichloroethene	156-60-5	ND	1.0	l/gn	1	ND	1.0	l/gn	1
Trichloroethene	79-01-6	ND	1.0	l/gn		0.67	1.0	l/gn	-
Vinyl chloride	75-01-4	ND	1.0	l/gn		ND	1.0	l/gn	1

MW-2235_110121

Sample Name: TRIP BLANK_10

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ug/|

2.0

QN

123-91-1

1,4-Dioxane

OSW-8260BBSim

l/gn



Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-159532-1 CADENA Verification Report: 2021-11-22

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 43577R Review Level: Tier III Project: 30080642.402.04

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-159532-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

			Sample Collection		Analysis				
Sample ID	Lab ID	Matrix	Date	Parent Sample	voc	VOC SIM			
TRIP BLANK_10	240-159532-1	Water	11/01/21		х				
MW-223S_110121	240-159532-2	Water	11/01/21		Х	X			

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

	Items Reviewed	Rep	orted	Perfoi Acce	rmance 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		X		
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		x		x		
12.	Data Package Completeness and Compliance		Х		X		

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.

All identified compounds met the specified criteria.

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

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY:	Bhagyashree Fulzele
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SIGNATURE: Brutzele

DATE: December 07, 2021

PEER REVIEW: Andrew Korycinski

DATE: December 8, 2021

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



TestAmerica	The second state addression and the second state of	TestAmerica Laboratories, Inc.	COC No:	1 of 1	For lab use only	Walk-in client	Lab sampling	Job/SDG No:		Sample Specific Notes / Special Instructions:	1 Trip Blank	3 VOAs for 8260B 3 VOAs for 8260B SIM	>				hs		1715 Date/Time: 71500	Date/Time: 143	Date/Time:
29-2763			Lab Contact: Mike DelMonico	Telephone: 330-497-9396	Analyses		1	15 809 21 95 608 85 608 1608	068 08 08 08 08 08 08 08 08 08 08	1,1-DCE Trans-1,2-D PCE 8266 TCE 8266 Vinyl Chid Vinyl Chid		XXXXXX	XXXXXXXX		ustody		mples are retained longer (han 1 month) ab Archive For For Mont		STORAGE Company ARCF	Company: TA	Company:
of Custody Record • Drive, Suite 200 / Brighton, MI 48116 / 810-22	- NPDES RCRA Other		Site Contact: Julia McClafferty	Telephone: 734-644-5131	Analysis Turnaround Time	TAT if different from below	10 day v 2 weeks	Crab= day e(Y/N	Containers & Preservatives	1110CE Біј(есец Сошрогі Гіј(есец Ларсе: Иаон НСЈ НСЈ НСЈ НСЈ	1 N C V	6 1 2 2	6 N C >		240-159532 Chain of Cu		Sample Disposal (A fee may be assessed if sar		500 Received by: COLD	1435 Received by: Here	Received in Laboratory by:
Chain oratory location: Brighton - 10448 Citation	latory program: 🔽 DW		ct manager: Kris Hinskey	148-994-2240	offer.hinskey@arcadis.com	me: SETH TURNER	hipment/Carrier:	acking No:	Matrix	c Sediment Sediment Alr Alr	X -	1355 6	1300 6				ison B 🛛 🗇 Unknown	a#E203631	PLAS Date/Time: / /	CADTS Date/Time:	Date/Time
MICHIGAN 190 TestAmerica Labor	Client Contact Regul	e: Arcadis	Cabot Drive, Suite 500	Novi, Mil, 48377 1 ciephone: 2-	L-2240 Email: kristo	Ford LTP Off-Site	rr: 30080642.402.04 Method of Shi	. 402.04 Shipping/Tra		Sample Identification Sample Date	LANK_/Q	-2128 - HOIST - 21113	- 2235_ 1/0121 11/1/21				zard Identification zard — annable — Cain Irriant — Pois - Pois	rions/JCL requirements & Comments: ults through Cadena at jtomaila@cadenaco.com, Cadena inting requested.	ST Company	Winth WW Somethe	Company:

1/22/2003 телерика Перендани, Inc. Игран перена 1990 година 1990 годи 1990 годи 1990 годи

Client Sample ID: TRIP BLANK_10 Date Collected: 11/01/21 00:00 Date Received: 11/06/21 08:00

Job	ID:	240-1	59532-
000		210	

Lab Sample ID: 240-159532-1

Matrix: Water

5

Analyte	Result	Qualifier	, RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	5
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/12/21 02:04	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/12/21 02:04	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/12/21 02:04	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/12/21 02:04	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/12/21 02:04	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/12/21 02:04	1	8
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					11/12/21 02:04	1	9
4-Bromofluorobenzene (Surr)	85		56 - 136					11/12/21 02:04	1	
Toluene-d8 (Surr)	110		78-122					11/12/21 02:04	1	
Dibromofluoromethane (Surr)	100		73-120					11/12/21 02:04	1	

Client Sample ID: MW-223S_110121 Date Collected: 11/01/21 13:00 Date Received: 11/06/21 08:00

Lab Sample ID: 240-159532-2 Matrix: Water

Matrix: Water

Method: 8260B SIM - Volatile (Drganic Co	mpounds ((GC/MS)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/21 19:40	1	ï
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	83		66 - 120			-		11/12/21 19:40	1	
_ Method: 8260B - Volatile Orga	nic Compo	unds (GC/								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L		-	11/12/21 02:26	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/12/21 02:26	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/12/21 02:26	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/12/21 02:26	1	
Trichloroethene	0.67	J	1.0	0.44	ug/L			11/12/21 02:26	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/12/21 02:26	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	93		62 - 137			-		11/12/21 02:26	1	
4-Bromofluorobenzene (Surr)	77		56 - 136					11/12/21 02:26	1	
Toluene-d8 (Surr)	100		78 - 122					11/12/21 02:26	1	
Dibromofluoromethane (Surr)	94		73-120					11/12/21 02:26	1	