PREPARED FOR

Attn: Kristoffer Hinskey ARCADIS US Inc 28550 Cabot Drive Suite 500 Novi, Michigan 48377

Generated 11/13/2023 4:50:33 AM

JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-194773-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

Eurofins Cleveland

Job Notes

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Authorization

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Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396 Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-194773-1

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Definitions/Glossary

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Qualifiers

GC/MS VO

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

Glossarv

MDA

Ciossaiy	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"

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)

Minimum Detectable Activity (Radiochemistry)

Negative / Absent NEG POS Positive / Present Practical Quantitation Limit PQL

PRES Presumptive QC **Quality Control**

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

TEF Toxicity Equivalent Factor (Dioxin) TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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Case Narrative

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-194773-1

Job ID: 240-194773-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-194773-1

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

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

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

Receipt

The samples were received on 11/3/2023~8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.8° C, 2.2° C and 2.9° C

GC/MS VOA

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

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Method Summary

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

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

Protocol References:

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

Laboratory References:

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

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Sample Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-194773-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-194773-1	TRIP BLANK_1	Water	10/30/23 00:00	11/03/23 08:00
240-194773-2	MW-102_103023	Water	10/30/23 11:13	11/03/23 08:00
240-194773-3	MW-102S_103023	Water	10/30/23 12:36	11/03/23 08:00
240-194773-4	MW-105S_103023	Water	10/30/23 14:22	11/03/23 08:00
240-194773-5	DUP_14	Water	10/30/23 00:00	11/03/23 08:00

Detection Summary

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_1 Lab Sample ID: 240-194773-1

No Detections.

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac	D M	ethod	Prep Type
Vinyl chloride	1.6	1.0	0.45 ug/L	1	82	:60D	Total/NA

No Detections.

No Detections.

Client Sample ID: DUP_14 Lab Sample ID: 240-194773-5

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Vinyl chloride	2.6	1.0	0.45 ug/L	1	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Date Received: 11/03/23 08:00

Client Sample ID: TRIP BLANK_1

Lab Sample ID: 240-194773-1 Date Collected: 10/30/23 00:00

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 17:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 17:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 17:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 17:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 17:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/07/23 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137			_		11/07/23 17:16	1
4-Bromofluorobenzene (Surr)	97		56 ₋ 136					11/07/23 17:16	1
Toluene-d8 (Surr)	102		78 - 122					11/07/23 17:16	1
Dibromofluoromethane (Surr)	99		73 - 120					11/07/23 17:16	1

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Date Received: 11/03/23 08:00

Client Sample ID: MW-102_103023

Lab Sample ID: 240-194773-2 Date Collected: 10/30/23 11:13

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			11/10/23 15:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		66 - 120			_		11/10/23 15:41	1
Method: SW846 8260D - Volat	•	•		MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte	Result	Qualifier	RL	MDL		<u>D</u> _	Prepared	Analyzed	Dil Fac
Analyte	•	Qualifier		MDL 0.49		D -	Prepared	Analyzed 11/07/23 17:39	Dil Fac
Analyte 1,1-Dichloroethene	Result	Qualifier U	RL		ug/L	<u>D</u> -	Prepared	·	Dil Fac
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result 1.0	Qualifier U	RL	0.49	ug/L ug/L	<u>D</u> -	Prepared	11/07/23 17:39	Dil Fac 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene	Result 1.0 1.0	Qualifier U U U	1.0 1.0	0.49 0.46	ug/L ug/L ug/L	<u> </u>	Prepared	11/07/23 17:39 11/07/23 17:39	Dil Fac 1 1 1 1
Method: SW846 8260D - Volate Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene trans-1,2-Dichloroethene Trichloroethene	Result 1.0 1.0 1.0	Qualifier U U U U	1.0 1.0 1.0	0.49 0.46 0.44	ug/L ug/L ug/L ug/L	<u>D</u> -	Prepared	11/07/23 17:39 11/07/23 17:39 11/07/23 17:39	Dil Fac 1 1 1 1 1 1

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137	_		11/07/23 17:39	1
4-Bromofluorobenzene (Surr)	89		56 - 136			11/07/23 17:39	1
Toluene-d8 (Surr)	99		78 - 122			11/07/23 17:39	1
Dibromofluoromethane (Surr)	107		73 - 120			11/07/23 17:39	1

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Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-102S_103023 Lab Sample ID: 240-194773-3

Date Collected: 10/30/23 12:36 Matrix: Water

Date Received: 11/03/23 08:00

Trichloroethene

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/10/23 16:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			66 - 120					11/10/23 16:05	1
Method: SW846 8260D - Volat	ile Organic Comp	ounds by G						77770720 70.00	•
Method: SW846 8260D - Volat Analyte		ounds by G		MDL	Unit	D	Prepared	Analyzed	Dil Fac
		Qualifier	C/MS		Unit ug/L	<u>D</u> .	Prepared		Dil Fac
Analyte	Result	Qualifier U	GC/MS		ug/L	<u>D</u> .	Prepared	Analyzed	Dil Fac
Analyte 1,1-Dichloroethene	Result 1.0	Qualifier U U	RL 1.0	0.49 0.46	ug/L	<u> </u>	Prepared	Analyzed 11/07/23 18:02	Dil Fac 1 1 1

'	Vinyl chloride	1.0	U	1.0	0.45 ug/L		11/07/23 18:02	1
	Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
'	1,2-Dichloroethane-d4 (Surr)	99		62 - 137			11/07/23 18:02	1
	4-Bromofluorobenzene (Surr)	101		56 - 136			11/07/23 18:02	1
	Toluene-d8 (Surr)	99		78 - 122			11/07/23 18:02	1
	Dibromofluoromethane (Surr)	97		73 - 120			11/07/23 18:02	1

1.0

0.44 ug/L

1.0 U

11/13/2023

11/07/23 18:02

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Client Sample ID: MW-105S_103023

Lab Sample ID: 240-194773-4 Date Collected: 10/30/23 14:22 Matrix: Water

Date Received: 11/03/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/10/23 16:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		66 - 120			-		11/10/23 16:29	1
Method: SW846 8260D - Volati	le Organic Comp	ounds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 18:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 18:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 18:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/07/23 18:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137			-		11/07/23 18:26	1
4-Bromofluorobenzene (Surr)	81		56 ₋ 136					11/07/23 18:26	1
Toluene-d8 (Surr)	93		78 - 122					11/07/23 18:26	1
Dibromofluoromethane (Surr)	99		73 - 120					11/07/23 18:26	1

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Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Date Received: 11/03/23 08:00

Client Sample ID: DUP_14 Lab Sa
Date Collected: 10/30/23 00:00

Lab Sample ID: 240-194773-5

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			11/10/23 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		66 - 120					11/10/23 16:52	1

	atino organio comp	oundo by c							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 18:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 18:49	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 18:49	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:49	1
Vinyl chloride	2.6		1.0	0.45	ug/L			11/07/23 18:49	1
Surrogate	%Recovery	Qualifier	l imits				Prenared	Analyzed	Dil Fac

	Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
	1,2-Dichloroethane-d4 (Surr)	100		62 - 137	-		11/07/23 18:49	1
	4-Bromofluorobenzene (Surr)	106		56 - 136			11/07/23 18:49	1
	Toluene-d8 (Surr)	107		78 - 122			11/07/23 18:49	1
L	Dibromofluoromethane (Surr)	102		73 - 120			11/07/23 18:49	1

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Surrogate Summary

Client: ARCADIS US Inc Job ID: 240-194773-1 Project/Site: Ford LTP - Off Site

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

Matrix: Water Prep Type: Total/NA

				Percent Sui	rrogate Rec
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-194531-F-1 MSD	Matrix Spike Duplicate	97	99	101	100
240-194531-I-1 MS	Matrix Spike	103	97	97	97
240-194773-1	TRIP BLANK_1	99	97	102	99
240-194773-2	MW-102_103023	106	89	99	107
240-194773-3	MW-102S_103023	99	101	99	97
240-194773-4	MW-105S_103023	108	81	93	99
240-194773-5	DUP_14	100	106	107	102
LCS 240-593723/4	Lab Control Sample	100	96	99	89
MB 240-593723/7	Method Blank	95	89	88	103

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water Prep Type: Total/NA

	DCA	
ent Sample ID	(66-120)	
trix Spike	81	
trix Spike Duplicate	153 S1+	
/-102_103023	109	
/-102S_103023	110	
/-105S_103023	111	
P_14	112	
Control Sample	101	
thod Blank	89	
t / /	rix Spike rix Spike Duplicate /-102_103023 /-102S_103023 /-105S_103023 P_14 Control Sample	rrix Spike 81 rrix Spike Duplicate 153 S1+ /-102_103023 109 /-102S_103023 110 /-105S_103023 111 P_14 112 Control Sample 101

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

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

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

Lab Sample ID: MB 240-593723/7

Matrix: Water Analysis Batch: 593723

	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			11/07/23 12:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 12:58	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 12:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 12:58	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 12:58	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/07/23 12:58	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		11/07/23 12:58	1
4-Bromofluorobenzene (Surr)	89		56 - 136		11/07/23 12:58	1
Toluene-d8 (Surr)	88		78 - 122		11/07/23 12:58	1
Dibromofluoromethane (Surr)	103		73 - 120		11/07/23 12:58	1

Lab Sample ID: LCS 240-593723/4

Matrix: Water

Analysis Batch: 593723

Client Sample ID: Lab Control Sample

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Type: Total/NA

	Spike	LCS	LCS			%Rec	
Analyte	Added	Result	Qualifier Ur	nit D	%Rec	Limits	
1,1-Dichloroethene	25.0	26.8	ug	/L	107	63 - 134	
cis-1,2-Dichloroethene	25.0	22.9	ug	/L	92	77 - 123	
Tetrachloroethene	25.0	25.4	ug	/L	102	76 - 123	
trans-1,2-Dichloroethene	25.0	24.1	ug	/L	96	75 - 124	
Trichloroethene	25.0	25.6	ug	/L	102	70 - 122	
Vinyl chloride	12.5	10.2	ug	/L	81	60 - 144	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	96		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	89		73 - 120

Lab Sample ID: 240-194531-F-1 MSD

Matrix: Water

Analysis Batch: 593723

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

ample Saı	imple Spike	MSD	MSD				%Rec		RPD
Result Qu	ualifier Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1.0 U	25.0	27.7		ug/L		111	56 - 135	16	26
1.4	25.0	24.5		ug/L		92	66 - 128	12	14
15	25.0	42.6		ug/L		109	62 - 131	0	20
1.0 U	25.0	24.6		ug/L		98	56 - 136	9	15
26	25.0	49.4		ug/L		94	61 - 124	1	15
1.0 U	12.5	10.7		ug/L		86	43 - 157	11	24
	1.0 U 1.0 U 26	Result Qualifier Added 1.0 U 25.0 1.4 25.0 15 25.0 1.0 U 25.0 26 25.0	Result Qualifier Added Result 1.0 U 25.0 27.7 1.4 25.0 24.5 15 25.0 42.6 1.0 U 25.0 24.6 26 25.0 49.4	Result Qualifier Added Result Qualifier 1.0 U 25.0 27.7 1.4 25.0 24.5 15 25.0 42.6 1.0 U 25.0 24.6 26 25.0 49.4	Result Qualifier Added Result Qualifier Unit 1.0 U 25.0 27.7 ug/L 1.4 25.0 24.5 ug/L 15 25.0 42.6 ug/L 1.0 U 25.0 24.6 ug/L 26 25.0 49.4 ug/L	Result Qualifier Added Result Qualifier Unit D 1.0 U 25.0 27.7 ug/L ug/L 1.4 25.0 24.5 ug/L 15 25.0 42.6 ug/L 1.0 U 25.0 24.6 ug/L 26 25.0 49.4 ug/L	Result Qualifier Added Result Qualifier Unit D %Rec 1.0 U 25.0 27.7 ug/L 111 1.4 25.0 24.5 ug/L 92 15 25.0 42.6 ug/L 109 1.0 U 25.0 24.6 ug/L 98 26 25.0 49.4 ug/L 94	Result Qualifier Added Result Qualifier Unit D %Rec Limits 1.0 U 25.0 27.7 ug/L 111 56 - 135 1.4 25.0 24.5 ug/L 92 66 - 128 15 25.0 42.6 ug/L 109 62 - 131 1.0 U 25.0 24.6 ug/L 98 56 - 136 26 25.0 49.4 ug/L 94 61 - 124	Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD 1.0 U 25.0 27.7 ug/L 111 56 - 135 16 1.4 25.0 24.5 ug/L 92 66 - 128 12 15 25.0 42.6 ug/L 109 62 - 131 0 1.0 U 25.0 24.6 ug/L 98 56 - 136 9 26 25.0 49.4 ug/L 94 61 - 124 1

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	101		78 - 122

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Prep Type: Total/NA

Project/Site: Ford LTP - Off Site

Client: ARCADIS US Inc Job ID: 240-194773-1

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

Lab Sample ID: 240-194531-F-1 MSD Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Analysis Batch: 593723

MSD MSD

Surrogate %Recovery Qualifier Limits Dibromofluoromethane (Surr) 100 73 - 120

Lab Sample ID: 240-194531-I-1 MS

Matrix: Water

1,1-Dichloroethene

Tetrachloroethene

Trichloroethene

Vinyl chloride

cis-1,2-Dichloroethene

trans-1.2-Dichloroethene

Analyte

Analysis Batch: 593723

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

MS MS %Rec Spike Added Result Qualifier Unit D %Rec Limits 25.0 23.5 ug/L 94 56 - 135 25.0 21.8 81 66 - 128 ug/L 25.0 42.7 ug/L 110 62 - 131 ug/L 25.0 22.4 90 56 - 136 25.0 49.8 ug/L 96 61 - 124

ug/L

1.0 U MS MS

MR MR

Sample Sample

1.0 U

14

15

26

1.0 U

Result Qualifier

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

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

Lab Sample ID: MB 240-594170/6

Matrix: Water

Analysis Batch: 594170

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Limits

80 - 122

43 - 157

Prep Type: Total/NA

Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 11/10/23 10:32 MB MB

12.5

9.56

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 89 66 - 120 11/10/23 10:32

Lab Sample ID: LCS 240-594170/4

Analyte

1,4-Dioxane

Matrix: Water Prep Type: Total/NA Analysis Batch: 594170 Spike LCS LCS %Rec

Result

11.4

Qualifier

Unit

ug/L

D

%Rec

114

Added

10.0

LCS LCS %Recovery Qualifier Surrogate Limits 66 - 120 1,2-Dichloroethane-d4 (Surr) 101

Lab Sample ID: 240-194709-B-1 MS

Ma

An

ab Sample ID: 240-194709-B-1 MS	Client Sample ID: Matrix Spike
Matrix: Water	Prep Type: Total/NA
analysis Batch: 594170	

Sample Sample Spike MS MS %Rec Result Qualifier Added Result Qualifier Limits Analyte Unit %Rec 35 F1 F2 1,4-Dioxane 10.0 40.2 F1 ug/L 48 51 - 153

Eurofins Cleveland

10

QC Sample Results

Client: ARCADIS US Inc Job ID: 240-194773-1 Project/Site: Ford LTP - Off Site

MSD MSD

Result Qualifier

67.3 F1 F2

Unit

ug/L

D

%Rec

320

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		66 - 120

Lab Sample ID: 240-194709-B-1 MSD

Matrix: Water

Analysis Batch: 594170

	Sample	Sample	Spike	
Analyte	Result	Qualifier	Added	
1,4-Dioxane	35	F1 F2	10.0	
	MSD	MSD		
Surrogate	%Recovery	Qualifier	Limits	
1,2-Dichloroethane-d4 (Surr)	153	S1+	66 - 120	

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

RPD

%Rec Limits RPD Limit

51 - 153 51

QC Association Summary

Client: ARCADIS US Inc
Project/Site: Ford LTP - Off Site

Job ID: 240-194773-1

GC/MS VOA

Analysis Batch: 593723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194773-1	TRIP BLANK_1	Total/NA	Water	8260D	
240-194773-2	MW-102_103023	Total/NA	Water	8260D	
240-194773-3	MW-102S_103023	Total/NA	Water	8260D	
240-194773-4	MW-105S_103023	Total/NA	Water	8260D	
240-194773-5	DUP_14	Total/NA	Water	8260D	
MB 240-593723/7	Method Blank	Total/NA	Water	8260D	
LCS 240-593723/4	Lab Control Sample	Total/NA	Water	8260D	
240-194531-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	
240-194531-I-1 MS	Matrix Spike	Total/NA	Water	8260D	

Analysis Batch: 594170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194773-2	MW-102_103023	Total/NA	Water	8260D SIM	
240-194773-3	MW-102S_103023	Total/NA	Water	8260D SIM	
240-194773-4	MW-105S_103023	Total/NA	Water	8260D SIM	
240-194773-5	DUP_14	Total/NA	Water	8260D SIM	
MB 240-594170/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-594170/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-194709-B-1 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-194709-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

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12

112

Job ID: 240-194773-1

Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_1

Lab Sample ID: 240-194773-1 Date Collected: 10/30/23 00:00

Matrix: Water

Date Received: 11/03/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	593723	LEE	EET CLE	11/07/23 17:16

Lab Sample ID: 240-194773-2 Client Sample ID: MW-102_103023

Date Collected: 10/30/23 11:13

Matrix: Water

Date Received: 11/03/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	593723	LEE	EET CLE	11/07/23 17:39
Total/NA	Analysis	8260D SIM		1	594170	CS	EET CLE	11/10/23 15:41

Lab Sample ID: 240-194773-3 Client Sample ID: MW-102S_103023

Date Collected: 10/30/23 12:36 **Matrix: Water**

Date Received: 11/03/23 08:00

Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor **Number Analyst** or Analyzed Lab 11/07/23 18:02 8260D Total/NA Analysis 593723 LEE EET CLE 594170 CS 11/10/23 16:05 Total/NA Analysis 8260D SIM EET CLE 1

Client Sample ID: MW-105S 103023 Lab Sample ID: 240-194773-4

Date Collected: 10/30/23 14:22 **Matrix: Water**

Date Received: 11/03/23 08:00

_	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	593723	LEE	EET CLE	11/07/23 18:26
Total/NA	Analysis	8260D SIM		1	594170	CS	EET CLE	11/10/23 16:29

Client Sample ID: DUP_14 Lab Sample ID: 240-194773-5

Date Collected: 10/30/23 00:00 **Matrix: Water**

Date Received: 11/03/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	593723	LEE	EET CLE	11/07/23 18:49
Total/NA	Analysis	8260D SIM		1	594170	CS	EET CLE	11/10/23 16:52

Laboratory References:

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

Eurofins Cleveland

Accreditation/Certification Summary

Client: ARCADIS US Inc Job ID: 240-194773-1 Project/Site: Ford LTP - Off Site

Laboratory: Eurofins Cleveland

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24
Georgia	State	4062	02-27-24
Illinois	NELAP	200004	07-31-24
lowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23 *
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-02-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-27-24
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-23

Eurofins Cleveland

 $^{^{\}star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$

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L SU Client Contact	Regulatory program:	Wd -	NPDES RCRA	Other	2007		THE LEADE	ER IN ENVIHONMENTAL YESTING
Company Name: Arcadis	Client Project Manager: Kris Hinskey	ıskey	Site Contact: Christina Weaver		Lab Contact:	ab Contact: Mike DelMonico	TestAme COC No:	TestAmerica Laboratories, Inc. COC No:
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240		Telephone: 248-994-2240		Telephone: 330-497-9396	0-497-9396		
City/State/Zip: Novi, Mt, 48377			Angles Turnoround Teno					1 of 1 COCs
Phone: 248-994-2240	E-mail: Kristofier-ninskey@arcadis.com	IIS.COM	Charles Luther Count Link			Analyses	For lab	For lab use only
Project Name: Ford LTP Off-Site	Sampler Name:		cot from b				Walk-i	Walk-in client
Project Number: 30167538.402.04	Method of Shipment/Carrier:		10 day 2 weeks 1 week	_	٥		Lab san	Lab sampling
PO## 30167538.402.04	Shipping/Tracking No:		c day	Grab.			Job/SDG No:	NG No:
		Matrix	Containers & Preservatives)=a	-DCE	D		
Sample Identification	Sample Date Sample Time	Air Aqueous Sediment Solid Other:	Orper: Copress	Filtered S Composite 1,1-DCE 8	7.1.2-DC-5.1-2.0 Trans-1.2-	TCE 8260	3.	Sample Specific Notes / Special Instructions:
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Possible Hazard Identification Non-Hazard Flammable Skin Irritant	ritant Poison B	Unknown	Sample Disposal (A fee may be assessed if samples are retained longer than I Return to Client	e assessed if samp	oles are retained	1	-	
ons/OC Requirements & Commensss: RoSati Ave 1 lits through Cadena at jtomaliae ting requested.) aco.com. Cadena #E203631			Taboad by Ital		Months		
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Eurofins - Cleveland Sample Receipt Form/Narrative Login Barberton Facility	#: 194773
Client Arcadis Site Name Cooler Received on 11-3-23 Opened on 11-3-23	Cooler unpacked by:
FedEx: 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier	Other
Receipt After-hours: Drop-off Date/Time Storage Location	
Eurofins Cooler # Foom Box Client Cooler Box Other	
Packing material used: Probble Wap Foam Plastic Bag None Other COOLANT: Wet Ice Blue Ice Dry Ice Water None	
1. Cooler temperature upon receipt IR GUN # (CF	Form Corrected Cooler Temp°С
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity CCC Yere the seals on the outside of the cooler(s) signed & dated? -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? -Were tamper/custody seals intact and uncompromised? 3. Shippers' packing slip attached to the cooler(s)? 4. Did custody papers accompany the sample(s)? 5. Were the custody papers relinquished & signed in the appropriate place? 6. Was/were the person(s) who collected the samples clearly identified on the COC? 7. Did all bottles arrive in good condition (Unbroken)? 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? 9. For each sample, does the COC specify preservatives (YN), # of containers (YN), and 10. Were correct bottle(s) used for the test(s) indicated? 11. Sufficient quantity received to perform indicated analyses? 12. Are these work share samples and all listed on the COC? If yes, Questions 13-17 have been checked at the originating laboratory. 13. Were all preserved sample(s) at the correct pH upon receipt? 14. Were VOAs on the COC? 15. Were air bubbles >6 mm in any VOA vials? 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Tests that are not checked for pH by Receiving: No NA es No NA pH Strip Lot# HC316719 es No es
Contacted PM by via Verbal	Voice Mail Other
Concerning	
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by:
19. SAMPLE CONDITION	
Sample(s) were received after the recommended hold	
Sample(s) were received with bubble >6 mm	
20. SAMPLE PRESERVATION	
Sample(s) were fu	orther preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):	ittle preserved in the laboratory.
preserved	

₩<u>1</u>1₩1392023

VOA Sample Preservation - Date/Time VOAs Frozen:

Login #: 194773

Cooler Description IR Gun st Collect Temp °C Collect Collect Exp Collect Temp °C Collect Exp Collect			· · · · · · · · · · · · · · · · · · ·	Eurofins - Canto	on Sample Receipt N	Multiple Cooler Form	
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						See Temp	erature Excursion Form

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

DATA VERIFICATION REPORT



November 17, 2023

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

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30167538.402.04 off-site

Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 194773-1 Sample date: 2023-10-30

Report received by CADENA: 2023-11-16

Initial Data Verification completed by CADENA: 2023-11-17

Number of Samples:5 Sample Matrices:Water Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC SIM QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

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 http://clms.cadenaco.com/index.cfm.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI $48108\ 517\text{-}819\text{-}0356$

CADENA Valid Qualifiers

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

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 194773-1

		Sample Name:	TRIP BLA	ANK_1			MW-10	2_10302	3		MW-10	2S_1030	23		MW-10	5S_1030	23		DUP_14			
		Lab Sample ID:	2401947	7731			240194	7732			240194	7733			240194	7734			2401947	/735		
		Sample Date:	10/30/2	023			10/30/2	2023			10/30/2	023			10/30/2	023			10/30/2	023		
				Report		Valid		Report		Valid		Report		Valid		Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC																						
OSW-8260	<u>)D</u>																					
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		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		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		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		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l	
	Vinyl chloride	75-01-4	ND	1.0	ug/l		1.6	1.0	ug/l		ND	1.0	ug/l		ND	1.0	ug/l		2.6	1.0	ug/l	
OSW-8260	<u>DDSIM</u>																					
	1,4-Dioxane	123-91-1					ND	2.0	ug/l		ND	2.0	ug/l		ND	2.0	ug/l		ND	2.0	ug/l	



Ford Motor Company – Livonia Transmission Project

Data Review

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-194773-1

CADENA Verification Report: 2023-11-17

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 52116R Review Level: Tier III Project: 30167538.402.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-194773-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Parent Sample	Ana	lysis
Sample ID	Labib	Wallix	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_1	240-194773-1	Water	10/30/2023		Х	
MW-102_103023	240-194773-2	Water	10/30/2023		Х	Х
MW-102S_103023	240-194773-3	Water	10/30/2023		Х	X
MW-105S_103023	240-194773-4	Water	10/30/2023		Х	X
DUP_14	240-194773-5	Water	10/30/2023	MW-102_103023	Х	X

ANALYTICAL DATA PACKAGE DOCUMENTATION

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

Items Reviewed	Rep	orted	Perfor Accep		Not Required
	No	Yes	No	Yes	Required
Sample receipt condition		Х		Х	
2. Requested analyses and sample results		Х		Х	
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		X		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
Narrative summary of Quality Assurance or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D/8260D-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

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

System performance and column resolution were acceptable.

3. Calibration

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

3.1 Initial Calibration

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

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

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

3.2 Continuing Calibration

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

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

4. Internal Standard Performance

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

All internal standard responses were within control limits.

5. Field Duplicate Analysis

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

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result (µg/L)	Duplicate Result (μg/L)	RPD
MW-102_103023 / DUP_14	Vinyl chloride	1.6	2.6	AC

Note:

AC Acceptable

The results between the parent sample and field duplicate were acceptable.

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: 8260D/8260D-SIM	Rep	oorted		rmance ptable	Not Required
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	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		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Bindu Sree M B

SIGNATURE: BAShims

DATE: December 14, 2023

PEER REVIEW: Andrew Korycinski

DATE: December 15, 2023

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

MICHIGAN 100

Chain of Custody Record



TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763 Client Contact Regulatory program: DW **NPDES** Other Company Name: Arcadis TestAmerica Laboratories, Inc. Client Project Manager: Kris Hinskey Site Contact: Christina Weaver Lab Contact: Mike DelMonico Address: 28550 Cabot Drive, Suite 500 Telephone: 248-994-2240 Telephone: 248-994-2240 Telephone: 330-497-9396 City/State/Zip: Novi, MI, 48377 1 of 1 COCs Email: kristoffer.hinskey@arcadis.com Analysis Turnaround Time Analyses For lab use only Phone: 248-994-2240 TAT if different from below Walk-in client Project Name: Ford LTP Off-Site 3 weeks 10 day - 2 weeks Lab sampling Project Number: 30167538,402,04 I week SIM Composite=C / Grab=G Filtered Sample (Y / N) 2 days 1.4-Dioxane 8260D PO#30167538.402.04 Shipping/Tracking No: day Job/SDG No: Matrix Containers & Preservatives Sample Specific Notes / Sedimen H2S04 NaOH Aque HC Special Instructions: Sample Identification Sample Date Sample Time TRIP BLANK 1 Χ 1 Х Х NIG X 1 Trip Blank MW-102-103023 10/30/23 6 3 VOAs for 8260D 3 VOAs for 8260D SIM V JUNU-1025_103023 3 VOAS FCV 82601) 0 0 3 VOAS FOR 824.00 SIN MW-1055_103023 6 3 VOAS FOX 82600 6 310AS for 8260D SIM 6 6 3 VOAS for BILLOD 3 VOAS FOU BILLODS IM Possible Hazard Identification Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Non-Hazard Flammable Skin Irritant Unknown Disposal By Lab Special Instructions/QC Requirements & Comments: Sample Address: ROSati Ave ROW Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested. Relinquished by 10/30/2003 /6/5 Relinquished by Relinquished by 1023 TestAmerica Laboratories, Inc., All rights reserved, rerica & Design M are trademarks of TestAmerica Laboratories, Inc.

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_1 Lab Sample ID: 240-194773-1

Date Collected: 10/30/23 00:00 Matrix: Water

Date Received: 11/03/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 17:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 17:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 17:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 17:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 17:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/07/23 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137			-		11/07/23 17:16	1
4-Bromofluorobenzene (Surr)	97		56 ₋ 136					11/07/23 17:16	1
Toluene-d8 (Surr)	102		78 - 122					11/07/23 17:16	1
Dibromofluoromethane (Surr)	99		73 - 120					11/07/23 17:16	1

Date Collected: 10/30/23 11:13

Date Received: 11/03/23 08:00

Method: SW846 8260D SIM	l - Volatile Orga	anic Comp	ounds (GC/N	1S)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/10/23 15:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		66 - 120			•		11/10/23 15:41	1

Analyte	•	Qualifier	by GC/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L		-	11/07/23 17:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 17:39	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 17:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 17:39	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 17:39	1
Vinyl chloride	1.6		1.0	0.45	ug/L			11/07/23 17:39	1

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137	·		11/07/23 17:39	1
4-Bromofluorobenzene (Surr)	89		56 - 136			11/07/23 17:39	1
Toluene-d8 (Surr)	99		78 - 122			11/07/23 17:39	1
Dibromofluoromethane (Surr)	107		73 - 120			11/07/23 17:39	1

Date Collected: 10/30/23 12:36 Date Received: 11/03/23 08:00

Method: SW846 8260D SIM	I - Volatile Orga	anic Comp	ounds (GC/N	IS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/10/23 16:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		66 - 120					11/10/23 16:05	1

Eurofins Cleveland

11/13/2023

Matrix: Water

Matrix: Water

Client: ARCADIS US Inc Job ID: 240-194773-1

Project/Site: Ford LTP - Off Site

Date Collected: 10/30/23 12:36 Matrix: Water

Date F	Received:	11/03/23	08:00
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Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 18:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 18:02	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 18:02	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:02	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/07/23 18:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137			-		11/07/23 18:02	1
4-Bromofluorobenzene (Surr)	101		56 - 136					11/07/23 18:02	1
Toluene-d8 (Surr)	99		78 - 122					11/07/23 18:02	1
Dibromofluoromethane (Surr)	97		73 - 120					11/07/23 18:02	1

Client Sample ID: MW-105S_103023

Date Collected: 10/30/23 14:22 Date Received: 11/03/23 08:00 Lab Sample ID: 240-194773-4

Matrix: Water

	Method: SW846 8260D	SIM -	 Volatile 	Organic	Compounds	(GC/MS)
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Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L	·		11/10/23 16:29	1
Surrogate 1,2-Dichloroethane-d4 (Surr)	%Recovery	Qualifier	Limits 66 - 120				Prepared	Analyzed 11/10/23 16:29	Dil Fac

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 18:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 18:26	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 18:26	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:26	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/07/23 18:26	1

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137	_		11/07/23 18:26	1
4-Bromofluorobenzene (Surr)	81		56 - 136			11/07/23 18:26	1
Toluene-d8 (Surr)	93		78 - 122			11/07/23 18:26	1
Dibromofluoromethane (Surr)	99		73 - 120			11/07/23 18:26	1

Client Sample ID: DUP_14

Date Collected: 10/30/23 00:00 Date Received: 11/03/23 08:00 Lab Sample ID: 240-194773-5

Matrix: Water

Method: SW846 8260D SIM - Volatile Organic Compounds (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			11/10/23 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analvzed	Dil Fac
Surroyate	/orecovery	Qualifier	Lililis				riepaieu	Allalyzeu	DII Fac
1,2-Dichloroethane-d4 (Surr)	112		66 - 120					11/10/23 16:52	1

Client: ARCADIS US Inc Job ID: 240-194773-1
Project/Site: Ford LTP - Off Site

Client Sample ID: DUP_14 Lab Sample ID: 240-194773-5

Date Collected: 10/30/23 00:00 Matrix: Water Date Received: 11/03/23 08:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/07/23 18:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/07/23 18:49	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/07/23 18:49	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/07/23 18:49	1
Vinyl chloride	2.6		1.0	0.45	ug/L			11/07/23 18:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					11/07/23 18:49	1
4-Bromofluorobenzene (Surr)	106		56 ₋ 136					11/07/23 18:49	1
Toluene-d8 (Surr)	107		78 - 122					11/07/23 18:49	1
Dibromofluoromethane (Surr)	102		73 - 120					11/07/23 18:49	1