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# JOB DESCRIPTION

PREPARED FOR

Attn: Kristoffer Hinskey

Novi, Michigan 48377

Generated 5/31/2023 9:51:00 AM

ARCADIS US Inc 28550 Cabot Drive

Suite 500

**ANALYTICAL REPORT** 

Ford LTP - Off Site

# **JOB NUMBER**

240-185629-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

# **Eurofins Cleveland**

# **Job Notes**

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# **Authorization**

Generated 5/31/2023 9:51:00 AM

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Client: ARCADIS US Inc Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-185629-1

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# **Definitions/Glossary**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

# **Qualifiers**

# **GC/MS VOA**

Qualifier Qualifier Description

U Indicates the analyte was analyzed for but not detected.

# **Glossary**

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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
51	D 4 11 11 11 (P D (DOS))

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

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

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

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

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

TNTC Too Numerous To Count

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# **Case Narrative**

Client: ARCADIS US Inc

Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

Job ID: 240-185629-1

**Laboratory: Eurofins Cleveland** 

Narrative

Job Narrative 240-185629-1

#### Receipt

The samples were received on 5/19/2023~8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were  $0.8^{\circ}$ C and  $1.8^{\circ}$ 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
Project/Site: Ford LTP - Off Site

Job ID: 240-185629-1

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

### **Protocol References:**

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

#### Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

# **Sample Summary**

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

Job ID: 240-185629-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-185629-1	TRIP BLANK_124	Water	05/17/23 00:00	05/19/23 08:00
240-185629-2	MW-172S_051723	Water	05/17/23 11:40	05/19/23 08:00

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# **Detection Summary**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_124 Lab Sample ID: 240-185629-1

No Detections.

Client Sample ID: MW-172S\_051723 Lab Sample ID: 240-185629-2

No Detections.

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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

Date Received: 05/19/23 08:00

Client Sample ID: TRIP BLANK\_124

Lab Sample ID: 240-185629-1 Date Collected: 05/17/23 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			05/26/23 21:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 21:02	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 21:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 21:02	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 21:02	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 21:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		70 - 128					05/26/23 21:02	1
Dibromofluoromethane (Surr)	103		77 - 124					05/26/23 21:02	1
Toluene-d8 (Surr)	102		80 - 120					05/26/23 21:02	1
4-Bromofluorobenzene	100		76 - 120					05/26/23 21:02	1

# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

**Client Sample ID: MW-172S\_051723** 

Date Collected: 05/17/23 11:40

Lab Sample ID: 240-185629-2 **Matrix: Water** 

Date Received: 05/19/23 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			05/23/23 21:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene			75 - 133			_		05/23/23 21:26	1

_									-
Method: SW846 8260D - Volati	le Organic Comp	ounds by G	SC/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/27/23 01:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/27/23 01:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 01:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/27/23 01:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/27/23 01:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/27/23 01:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		70 - 128			-		05/27/23 01:57	1
Dibromofluoromethane (Surr)	102		77 - 124					05/27/23 01:57	1
Toluene-d8 (Surr)	100		80 - 120					05/27/23 01:57	1
4-Bromofluorobenzene	98		76 - 120					05/27/23 01:57	1

# **Surrogate Summary**

Client: ARCADIS US Inc

Project/Site: Ford LTP - Off Site

Job ID: 240-185629-1

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

Matrix: Water Prep Type: Total/NA

				Percent Sur	rogate Reco
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(70-128)	(77-124)	(80-120)	(76-120)
240-185545-A-2 MS	Matrix Spike	101	95	103	99
240-185545-A-2 MSD	Matrix Spike Duplicate	99	94	101	93
240-185629-1	TRIP BLANK_124	108	103	102	100
240-185629-2	MW-172S_051723	107	102	100	98
LCS 460-911732/3	Lab Control Sample	97	97	110	99
MB 460-911732/7	Method Blank	104	100	100	99

# Surrogate Legend

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

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene

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

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		BFB	
Lab Sample ID	Client Sample ID	(75-133)	
240-185629-2	MW-172S_051723	102	
LCS 460-910995/4	Lab Control Sample	98	
LCSD 460-910995/5	Lab Control Sample Dup	100	
MB 460-910995/8	Method Blank	99	

Surrogate Legend

BFB = 4-Bromofluorobenzene

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Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

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

MD MD

Lab Sample ID: MB 460-911732/7

**Matrix: Water** 

Analysis Batch: 911732

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MR							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			05/26/23 19:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 19:31	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 19:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 19:31	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 19:31	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 19:31	1

MB MB Qualifier %Recovery Prepared Dil Fac Surrogate Limits Analyzed 1,2-Dichloroethane-d4 (Surr) 70 - 128 05/26/23 19:31 104 100 Dibromofluoromethane (Surr) 77 - 124 05/26/23 19:31 100 Toluene-d8 (Surr) 80 - 120 05/26/23 19:31 4-Bromofluorobenzene 99 76 - 120 05/26/23 19:31

Lab Sample ID: LCS 460-911732/3

**Matrix: Water** 

Analysis Batch: 911732

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits 94 68 - 133 1,1-Dichloroethene 20.0 18.8 ug/L 20.0 cis-1,2-Dichloroethene 19.5 ug/L 97 78 - 121 20.0 Tetrachloroethene 20.2 ug/L 101 70 - 127 74 - 126 trans-1,2-Dichloroethene 20.0 18.3 ug/L 92 Trichloroethene 20.0 99 19.8 ug/L 71 - 121 Vinyl chloride 20.0 20.0 ug/L 100 55 - 144

LCS LCS Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 97 70 - 128 97 Dibromofluoromethane (Surr) 77 - 124 80 - 120 Toluene-d8 (Surr) 110 4-Bromofluorobenzene 76 - 120 99

Lab Sample ID: 240-185545-A-2 MS

**Matrix: Water** 

Analysis Batch: 911732

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

Sample	Sample	Spike	MS	MS				%Rec	
Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1.0	U	20.0	17.6		ug/L		88	68 - 133	
1.0	U	20.0	19.0		ug/L		95	78 - 121	
1.0	U	20.0	17.9		ug/L		89	70 - 127	
1.0	U	20.0	17.8		ug/L		89	74 - 126	
1.0	U	20.0	18.4		ug/L		92	71 - 121	
1.0	U	20.0	19.7		ug/L		99	55 - 144	
	Result 1.0 1.0 1.0 1.0 1.0 1.0	Sample         Sample           Result         Qualifier           1.0         U           1.0         U           1.0         U           1.0         U           1.0         U           1.0         U	Result         Qualifier         Added           1.0         U         20.0           1.0         U         20.0           1.0         U         20.0           1.0         U         20.0           1.0         U         20.0	Result         Qualifier         Added         Result           1.0         U         20.0         17.6           1.0         U         20.0         19.0           1.0         U         20.0         17.9           1.0         U         20.0         17.8           1.0         U         20.0         18.4	Result         Qualifier         Added         Result         Qualifier           1.0         U         20.0         17.6           1.0         U         20.0         19.0           1.0         U         20.0         17.9           1.0         U         20.0         17.8           1.0         U         20.0         18.4	Result         Qualifier         Added         Result         Qualifier         Unit           1.0         U         20.0         17.6         ug/L           1.0         U         20.0         19.0         ug/L           1.0         U         20.0         17.9         ug/L           1.0         U         20.0         17.8         ug/L           1.0         U         20.0         18.4         ug/L	Result         Qualifier         Added         Result         Qualifier         Unit         D           1.0         U         20.0         17.6         ug/L         ug/L           1.0         U         20.0         19.0         ug/L           1.0         U         20.0         17.9         ug/L           1.0         U         20.0         17.8         ug/L           1.0         U         20.0         18.4         ug/L	Result         Qualifier         Added         Result         Qualifier         Unit         D         %Rec           1.0         U         20.0         17.6         ug/L         88           1.0         U         20.0         19.0         ug/L         95           1.0         U         20.0         17.9         ug/L         89           1.0         U         20.0         17.8         ug/L         89           1.0         U         20.0         18.4         ug/L         92	Result         Qualifier         Added         Result         Qualifier         Unit         D         %Rec         Limits           1.0         U         20.0         17.6         ug/L         88         68 - 133           1.0         U         20.0         19.0         ug/L         95         78 - 121           1.0         U         20.0         17.9         ug/L         89         70 - 127           1.0         U         20.0         17.8         ug/L         89         74 - 126           1.0         U         20.0         18.4         ug/L         92         71 - 121

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 128
Dibromofluoromethane (Surr)	95		77 - 124
Toluene-d8 (Surr)	103		80 - 120

Client: ARCADIS US Inc Job ID: 240-185629-1 Project/Site: Ford LTP - Off Site

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

Lab Sample ID: 240-185545-A-2 MS

**Matrix: Water** 

Analysis Batch: 911732

Client Sample ID: Matrix Spike

Prep Type: Total/NA

MS MS Surrogate %Recovery Qualifier

99

MR MR

Limits 76 - 120

Lab Sample ID: 240-185545-A-2 MSD

**Matrix: Water** 

4-Bromofluorobenzene

Analysis Batch: 911732

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,1-Dichloroethene	1.0	U	20.0	17.9		ug/L		89	68 - 133	1	30
cis-1,2-Dichloroethene	1.0	U	20.0	19.4		ug/L		97	78 - 121	2	30
Tetrachloroethene	1.0	U	20.0	18.8		ug/L		94	70 - 127	5	30
trans-1,2-Dichloroethene	1.0	U	20.0	18.5		ug/L		92	74 - 126	4	30
Trichloroethene	1.0	U	20.0	18.8		ug/L		94	71 - 121	2	30
Vinyl chloride	1.0	U	20.0	20.4		ug/L		102	55 - 144	4	30

MSD MSD Qualifier Surrogate %Recovery Limits 1,2-Dichloroethane-d4 (Surr) 99 70 - 128 Dibromofluoromethane (Surr) 94 77 - 124 Toluene-d8 (Surr) 101 80 - 120 4-Bromofluorobenzene 93 76 - 120

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

Lab Sample ID: MB 460-910995/8

**Matrix: Water** 

Analysis Batch: 910995

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

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

Dil Fac Analyzed

Analyte Result Qualifier RL **MDL** Unit Prepared 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 05/23/23 21:05

MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 4-Bromofluorobenzene 99 75 - 133 05/23/23 21:05

Lab Sample ID: LCS 460-910995/4

**Matrix: Water** Prep Type: Total/NA Analysis Batch: 910995 Spike LCS LCS %Rec

Analyte Added Result Qualifier Unit D %Rec Limits 1,4-Dioxane 5.00 5.25 ug/L 105 57 - 124

LCS LCS %Recovery Qualifier Surrogate Limits 75 - 133 4-Bromofluorobenzene 98

Lab Sample ID: LCSD 460-910995/5

**Matrix: Water** 

Analysis Ratch: 910995

Allalysis Batch: 910995									
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	5.00	5.02		ug/L		100	57 - 124	5	30

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Prep Type: Total/NA

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# **QC Sample Results**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

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

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	100		75 - 133

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# **QC Association Summary**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

**GC/MS VOA** 

# Analysis Batch: 910995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185629-2	MW-172S_051723	Total/NA	Water	8260D SIM	
MB 460-910995/8	Method Blank	Total/NA	Water	8260D SIM	
LCS 460-910995/4	Lab Control Sample	Total/NA	Water	8260D SIM	
LCSD 460-910995/5	Lab Control Sample Dup	Total/NA	Water	8260D SIM	

# Analysis Batch: 911732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185629-1	TRIP BLANK_124	Total/NA	Water	8260D	
240-185629-2	MW-172S_051723	Total/NA	Water	8260D	
MB 460-911732/7	Method Blank	Total/NA	Water	8260D	
LCS 460-911732/3	Lab Control Sample	Total/NA	Water	8260D	
240-185545-A-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-185545-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

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# **Lab Chronicle**

Client: ARCADIS US Inc Job ID: 240-185629-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_124

Lab Sample ID: 240-185629-1 Date Collected: 05/17/23 00:00

Matrix: Water

Date Received: 05/19/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	911732	SZD	EET EDI	05/26/23 21:02

Client Sample ID: MW-172S\_051723 Lab Sample ID: 240-185629-2

Date Collected: 05/17/23 11:40 Matrix: Water

Date Received: 05/19/23 08:00

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8260D		1	911732	SZD	EET EDI	05/27/23 01:57
Total/NA	Analysis	8260D SIM		1	910995	KLB	EET EDI	05/23/23 21:26

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

**Eurofins Cleveland** 

# **Accreditation/Certification Summary**

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

Job ID: 240-185629-1

# **Laboratory: Eurofins Edison**

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

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0818	01-30-24
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	01-01-24
Georgia	State	12028 (NJ)	06-30-23
Massachusetts	State	M-NJ312	06-30-23
New Jersey	NELAP	12028	06-30-23
New York	NELAP	11452	04-01-24
Pennsylvania	NELAP	68-00522	03-01-24
Rhode Island	State	LAO00376	12-30-23
USDA	US Federal Programs	P330-20-00244	11-03-23

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3	DIOS: EuroIIIIS Festament Testing	240 Jake Relational Laboratories, Inc. d/b/a Eurofins TestAmerica	COC No:	Colert of cocs	Sampler: For Lab Use Only:	Walk-in Client:	Lab Sampling:	Job / SDG No.:		Sample Specific Notes:												samples are retained longer than 1 month)	Archive for Months		Therm ID No.:	J	Date/Time: 05-14-23 95-0	Section 1997	Form No. CA-C-WI-UUZ, Rev. 4.21, dated 4/4/2019
	Frand Ray	240508	Date: 5-18-23	Can						24	0-185	629	Chair	of C	ustoc	dy			- - - - - -			assessed if	Disposal by Lab			Company. Lin	Company NC	.	
of Custody Record	Grand Rapids Curonns	RCRA Other:	Site Contact: Olinik, Matt	Lab Contact: DelMonico, Michael		(N.	(A)	A - Q		Perfo	×		*		×		×					Sample Disposal ( A fee may be	Return to Client		Cooler Temp. (°C): Obs'd	_	Received by: M. J. D. M. H.		1
					Turnaround Time	rom Below Standard	2 weeks 1 week		Sample Type	(C=Comp, # of G=Grab) Matrix Cont.		G Water	G Water <b>[-50,</b>	G Water	G Water 1-50m	G Water	G Water  -500	G Water				ste Codes for the sample in the	Unknown			46064 S18-33 (0.%	S / Pade/Jime:		
7261	5579846 9.6/4.6	Regulatory Program:	Project Manager: Keith Aragona	Tel/Fax:	Analysis CALENDAR DAYS	TAT if different from Below			_	Sample Sample Date Time	5-15-23 11:45		51523 11:30		5.623 11:15		5.15-23 11:00				4=HNO3; 5=NaOH; 6= Other	Please List any EPA Was	ant Poison B		Custody Seal No.:	Company	Company		
Eurofins TestAmerica, Canton	3 1/	North Canton, OH 44720-6900 phone 330-497-9396 fax 330-497-0772	Client Contact	Company: Haley & Aldrich	Address 455 E Eisenhower Parkway Suite 210	Phone: 734-454-1100	Email: Karagona@haleyaldrich.com Project Name: Motor Wheel	Site: Motor Wheel	10-200-0	Sample Identification	Outfall 1 Effluent	Outfall 1 Influent	Diversion 2 Effluent	Diversion 2 Influent	Diversion 3 Effluent	Diversion 3 Influent	SEW-5 Effluent	SEW-5 Influent			HCI; 3= H2SO4;	Possible Hazard identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.	Flammable Skin Irritant	Special Instructions/QC Requirements & Comments:	Custody Seals Intact: Yes No	2 Block	23/29		3

16(1)
Eurofins - Canton Sample Receipt Form/Narrative  Barberton Facility  Login #: 1000
Client Haley B Aldrich Site Name Cooler unpacked by:
Cooler Received on 95-19-23 Opened on 05-19-23 Leah M. Smith
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other
Receipt After-hours: Drop-off Date/Time Storage Location
Eurofins Cooler # E C Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other  COOLANT: Wet Ice Blue Ice Dry Ice Water None  1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # 15 (CF +O · L °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity  -Were the seals on the outside of the cooler(s) signed & 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 (N), # of containers (Y/V), and sample type of grab/comp(V/N)?  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 #  Yes No  17. Was a LL Hg or Me Hg trip blank present?  18. VOAs on the COC?  Yes No  Your Condition (Unbroken)?  19. VOAs On the Coc No  No  VOAs  Oil and Grease  TOC  VOA  No  VOA  VOA  No  VOA  VOA  No  No  VOA  No  No  VOA  No  VOA  No  VOA  No  VOA  No  VOA  No  No  No  VOA  No  No  No  No  No  No  No  No  No  N
Contacted PM Date by via Verbal Voice Mail Other
Concerning
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES
19. SAMPLE CONDITION
Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)
20. SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory
Sample(s) were further preserved in the laboratory.  Time preserved: Preservative(s) added/Lot number(s):
VOA Sample Preservation - Date/Time VOAs Frozen:

**SEW-5 EFFLUENT** 

# **Login Container Summary Report**

240-185627

Temperature readings: \_ Container **Preservative** Client Sample ID Container Type pН Lab ID Temp Added (mls) Lot # **OUTFALL 1 EFFLUENT** Plastic 500ml - with Sulfuric Acid 240-185627-A-1 <2 **DIVERSION 2 EFFLUENT** 240-185627-A-2 Plastic 500ml - with Sulfuric Acid <2 **DIVERSION 3 EFFLUENT** 240-185627-A-3 Plastic 500ml - with Sulfuric Acid <2

Plastic 500ml - with Sulfuric Acid

<2

240-185627-A-4

3

4

6

9

10

11

12

14

Client Contact	Regulatory program: DW	NPDES RCRA Other		
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Confact: Christina Weaver	l ah Cuntant: Mile DalMonico	TestAmerica Laboratories, Inc.
Address: 28550 Cabot Drive, Suite 500	Current of the curren	SHE COHECH CHISHIB WEBYE	COLLECT: VIINC DELVIONICO	COL No.
City/State/Zip: Novi, MI, 48377	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396	1 of 1
Dhorace 748 004 3740	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	nly
Project Name: Ford L/TP Off-Site	Sampler Name: Lent Kunner	TAT it different from below  3 weeks  10 day   2 weeks		Walk-in client Lab sampling
Project Number: 30167538.402.04	Method of Shipment/Carrier	_	8	
PO # 30167538.402.04	Shipping/Tracking No:	nple (Y /	CE 8560B	Job/SDG No:
Sample Identification	Sample Date Sample Time Aducous Solid Officer:	HZSO4 HZSO4 HZSO4 HZSO4 HZSO4 HZSO4	cis-1,2-D Trans-1,2-D TCE 8260B Vinyl Chlorid	Sample Specific Notes / Special Instructions:
TRIP BLANK $/24$	5/7/52 11	1 N	× × ×	1 Trip Blank
6 WW-1725-051723	5/7/23 1140 6	X 9 M	メンスンスンスススス	3 VOAs for 8260B 3 VOAs for 8260B SIM
Page:				
21 of :				
25				
		240-185629 Chain of Custody	W	HIGAN
Identification		Sample Disposal ( A fee may be assessed [ sam	Des are retained Invest han I mouth)	
Special Instructions/OC Requirements & Comments:	ant Poison B Unknown	Return to Client P Disposal By Lab Archive For Mo	D Archive For Months	
Sample Address: 17 701 Scorp Must Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.	0.com. Cadena #E203631			
Relinguished by:  Kent ((0.50))	rdi)	1618 Received by	Conpany Coll	Date/Tipe:
Relinquished by	Company RCACES 5/18/23	1245 Received by.	Company:	Date/Tyme; 5/12/1245
Keinquished by:	EFTH SIR 12 12 50	12 S Lescived in Laboratory by:	Company + NC	Date/Time:
C COTON Tractables and properties for All restrict reservoir				

TestAmerica

Chain of Custody Record

			105635
Eurofins - Canton Sample Receip Barberton Facility	ot Form/Narrative	Login #:	182691
Client Arcadis	Site Name		Cooler unpacked by:
Cooler Received on 05-11-23	Opened on 05-	19-23	Leah M. Smith
FedEx: 1st Grd Exp UPS FAS			
Receipt After-hours: Drop-off Date		Storage Location	
Eurofins Cooler # E C F	oam Box Client Cooler I	Box Other	
Packing material used: Subble COOLANT: Wet Ice	Blue Ice Dry Ice Water	None	
1. Cooler temperature upon receipt		See Multiple Cooler Fo	rm
IR GUN # (CF_	°C) Observed Coole	er Temp°C (	Corrected Cooler Temp°C
	of the cooler(s) signed & dated? the bottle(s) or bottle kits (LLH act and uncompromised? the cooler(s)? the sample(s)? shed & signed in the appropriate ected the samples clearly identification (Unbroken)? Time) be reconciled with the CO- pecify preservatives (Y/N), # of the test(s) indicated? If or indicated analyses? If all listed on the COC? In checked at the originating laborate correct pH upon receipt?  WOA vials?  Larger to	g/MeHg)? Yes Yes Yes P place? ied on the COC? C? Containers (YN), and se Yes Oratory. Yes Containers Yes Oratory. Yes	No NA No NA No NA No N
Contacted PM Date	eby	via Verbal V	oice Mail Other
Concerning			
18. CHAIN OF CUSTODY & SAN	APLE DISCREPANCIES [	additional next page	Samples processed by:
19. SAMPLE CONDITION			
Sample(s)	were received after	r the recommended hold	ing time had expired.
Sample(s)			in a broken container.
Sample(s)			
20. SAMPLE PRESERVATION			
Sample(s)		wan for	rther preserved in the laboratory.
Sample(s) Prese	ervative(s) added/Lot number(s)	: were lu	The preserved in the faboratory.
VOA Sample Preservation - Date/Tir			

Login #: 185629

0 1000	Eurofins - Canton			Caplant
Cooler Description		Observed	Corrected	Coolant
(Circle)	(Circle)	Temp °C	Temp °C	(Circle)
EC Client Box Oth	er IR GUN #:	0.8,	0.8	Wet ice Blue ice Dr
EC Client Box Oth	IR GUN #:	1. 8	1.8	Wet ice Blue ice Dr Water None
EC Client Box Oth	IR GUN #:	10	7 0	Wet ice Blue ice Dry
	IR GIIN #:			Wet ice Blue Ice Dry
	IP GHM #-			Water None Wet Ice Blue Ice Dry
EC Client Box Oth				Water None
EC Client Box Offs			<u></u>	Wet ice Blue ice Dry Water None
EC Client Box Oth	IR GUN 4:			Wet Ice Blue Ice Dry Water None
EC Client Box Oth	IR GUN #:			Wet Ice Blue Ice Dry Water None
EC Client Box Oth	IR GUN #:			Wellce Blue Ice Dry
EC Client Box Oth	R GUN #:			Water None Wetice Blue ice Dry
	D GIIN A-			Water None Wet Ice Blue Ice Dry
EC Client Box Oth	ID GHM 4-			Water None Wet Ice Blue Ice Dry
EC Client Box Oth				Water None
EC Client Box Oth				Water None
EC Client Box Oth	R GUN #:			Wet ice Blue ice Dry Water None
EC Client Box Oth	IR GUN #:			Wet ice Sive ice Dry Water None
EC Client Box Oth	IR GUN #:			Wellce Blue Ice Dry Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry
EC Client Box Other	ID GUN A			Water None Wet ice Sive Ice Dry
	IP GUM 4-			Water None Wetice Sive Ice Dry
EC Client Box Oth	IR GUN #:			Water Mone Wet Ice Blue Ice Dry
EC Client Box Other				Water None
EC Client Box Other	IR GUN #:			Wet ice Blue ice Dry Water None
EC Client Box Othe	IR GUN #:			Wet ice Stue Ice Dry Water None
EC Client Box Other	R GUN #:			Wet Ice Blue Ice Dry Water Hone
EC Client Box Other	IR GUN #:			Wet ice Sive ice Dry
EC Client Box Other	D CIM A			Water None Wet ice Sive ice Dry
	ID CHM A.			Water None Wetice Blue Ice Dry
EC Client Box Othe				Water None Wet Ice Blue Ice Dry
EC Client Box Other				Water None
EC Client Box Othe	IR GUN #:			Wet ice Blue ice Dry i Water None
EC Client Box Othe	R GUN #:			Wet ice Blue ice Dry i Water None
EC Client Box Othe	IR GUN #:			Wet ice Blue ice Dry i
EC Client Box Othe	ID GUN 4:			Water None Wet Ice Blue Ice Dry Ic
	IR GUM 4:			Water None Wet Ice Blue Ice Dry k
EC Client Box Othe	IN CIMI 4:			Water None Wet Ice Blue Ice Dry Ic
EC Client Box Othe				Water None
EC Client Box Othe	IR GUN #:			Wet ice Blue ice Dry ic Water None

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

# Chain of Custody Record

**Eurofins Cleveland** 

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**Environment Testing** 

💸 eurofins

None
AsNado
AsNado
Na204S
Na2503
Na25203
H2504
TSP Dodecahydrate
MCAA Note: Since aboration are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyse & accreditation compliance upon our subcontract laboratory or other instructions will be provided. Any changes to aboratory does not currently maintain accreditation in the State of Origin listed above for analysis/lests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC Special Instructions/Note: other (specify) Company Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mont
Special Instructions/OC Requirements: Preservation Codes: Amchlor Ascorbic Acid COC No: 240-168358.1 240-185629-1 A HCL
B NaOH
C Zn Acetate
D Nitric Acid
E MaHSO4
F MeOH
G Amchlor
H Ascorbic Aci Page: Page 1 of 1 ice Of Water EDTA EDA Cooler Temposatural(s) °C And Othor Remarks: 3.6 °C 3.6 °C 20 Seran w Total Number of containers Date/Time: Method of Shipment Carrier Tracking No(s): State of Origin: Michigan **Analysis Requested** Michael. Del Monico@et.eurofinsus.com Accreditations Required (See note): Received by × Lab PM: DelMonico, Michael SZEOD SIM/SOSOC (MOD) Local Method × × SSEED/SOSOC (WOD) AGGS (SPORTIST) Perform MS/MSD (Yes or No) ime: (on to set) eigmet beteil biel E-Mail: Preservation Code: Water Water (Wewater, Secolid, Oewesteloil, ET=Tissue, A\*\*AIr) Company (C=comp, Sample G=grab) Type Primary Deliverable Rank: 2 Sample Eastern Eastern 11:40 Date: AT Requested (days): Due Date Requested: 6/1/2023 Sample Date 5/17/23 5/17/23 Project #: 24015353 Date/Time: \* O.V Client Information (Sub Contract Lab) Deliverable Requested: I, II, III, IV Other (specify) Custody Seal No. Sample Identification - Client ID (Lab ID) Eurofins Environment Testing Northeast 732-549-3900(Tel) 732-549-3679(Fax) MW-172S\_051723 (240-185629-2) TRIP BLANK\_124 (240-185629-1) Possible Hazard Identification Empty Kit Relinquished by Custody Seals Intact: △ Yes △ No 777 New Durham Road Shipping/Receiving Project Name: Ford LTP - Off Site Jnconfirmed linquished by: State, Zip: NJ, 08817 Edison

Phone: 330-497-9396 Fax: 330-497-0772 180 S. Van Buren Avenue Barberton, OH 44203

Page 24 of 25

5/31/2023

Client: ARCADIS US Inc

Job Number: 240-185629-1

Login Number: 185629
List Source: Eurofins Edison
List Number: 2
List Creation: 05/23/23 06:33 PM

Creator: Armbruster, Chris

Creator: Armbruster, Chris		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

**Eurofins Cleveland** 

# DATA VERIFICATION REPORT



May 31, 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: 185629-1 Sample date: 2023-05-17

Report received by CADENA: 2023-05-31

Initial Data Verification completed by CADENA: 2023-05-31

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, LCS/LCD RPD, 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 <a href="http://clms.cadenaco.com/index.cfm">http://clms.cadenaco.com/index.cfm</a>.

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.
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:** 185629-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401856 5/17/20	5291	ļ		MW-172 2401850 5/17/20	_ 6292	23	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>0D</u>									
	1,1-Dichloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	
	cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l		ND	1.0	ug/l	
	Tetrachloroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
	trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
	Trichloroethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	
	Vinyl chloride	75-01-4	ND	1.0	ug/l		ND	1.0	ug/l	
OSW-826	<u>ODSIM</u>									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	



# Ford Motor Company – Livonia Transmission Project

# **Data Review**

# Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-185629-1

CADENA Verification Report: 2023-05-31

Analyses Performed By: Eurofins North Canton, Ohio

Report # 49956R Review Level: Tier III Project: 30167538.402.02

# **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-185629-1 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	Parant Sample	Ana	lysis
Sample ID	Lab ID	Matrix	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_124	240-185629-1	Water	05/17/23		Х	
MW-172S_051723	240-185629-2	Water	05/17/23		Х	Х

# **ANALYTICAL DATA PACKAGE DOCUMENTATION**

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

Items Reviewed	Rep	orted	Perfori Accep		Not Required
	No	Yes	No	Yes	Required
Sample receipt condition		Χ		X	
2. Requested analyses and sample results		Χ		X	
Master tracking list		Χ		Х	
4. Methods of analysis		Χ		Х	
5. Reporting limits		Χ		Х	
6. Sample collection date		Χ		Х	
7. Laboratory sample received date		Χ		Х	
Sample preservation verification (as applicable)		Х		Х	
Sample preparation/extraction/analysis dates		Х		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.

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: 8260D/8260D-SIM	Rep	orted		rmance ptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation		1			
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
lon 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	

# Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE:

DATE: June 16, 2023

Curuliland

PEER REVIEW: Andrew Korycinski

DATE: June 21, 2023

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

# **Chain of Custody Record**



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

Client Contact	Regulate	ory program:	:	DW	T	NPDES		R	:RA	Г	Othe	r						-					
Company Name: Arcadis	Climat Danis at N		1 Carlos		le:		CI.					1										TestAmerica Labor	atories, Inc.
Address: 28550 Cabot Drive, Suite 500	_ Client Project N	ianager: Kris	riinskey		Site	Contact	: Cnri	istina v	eaver			ľ	Lab C	ontact	Mike	)elM	onico					COC No:	
City/State/Zip: Novi, M1, 48377	Telephone: 248-	994-2240			Tele	ohone: 2	248-99	94-2240					Telepl	one: 3	30-497	9396						1 of 1	COCs
	Email: kristoffe	r.hinskey@ar	cadis.co	m	-	nalysis	Turn	around	Time							An	lyses		-			For lab use only	COCS
Phone: 248-994-2240	Sampler Name:	11			TAT	if different	from by	elow	200000	-												Walk-in client	
Project Name: Ford LTP Off-Site	1	+ 1/10x	000				Г	3 week															Spiritely.
Project Number: 30167538.402.04	Method of Shipment/Carrier.			┤ "	day		2 week		(N)	ပူ			ω				N N				Lab sampling		
PO # 30167538.402.04	Shipping/Tracking No:			_	□ 1 day ≥ 💆					30B 8260B	E 8260B			3260E	8260B SIM				Job/SDG No:				
	1			Matrix		Contain	ers & I	Preserva	tives	du	)	8260B	E 82	DCE			nde	Je 82	1			HORIZONES	
Sample Identification	Sample Date	Sample Time	Air	Sediment Solid Other:	H2SO4	HN03	NaOH	ZnAc/ NaOH	Other:	Filtered S	Composite	1.1-DCE 8	cis-1,2-DCE	Trans-1,2-DCE	PCE 8260B	105 02000	Vinyl Chloride 8260B	1,4-Dioxane				Sample Specific Special Instruc	
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# **Client Sample Results**

Client: ARCADIS US Inc Job ID: 240-185629-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK\_124

Lab Sample ID: 240-185629-1 Date Collected: 05/17/23 00:00 **Matrix: Water** 

Date Received: 05/19/23 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			05/26/23 21:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/26/23 21:02	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 21:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/26/23 21:02	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/26/23 21:02	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/26/23 21:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		70 - 128					05/26/23 21:02	1
Dibromofluoromethane (Surr)	103		77 - 124					05/26/23 21:02	1
Toluene-d8 (Surr)	102		80 - 120					05/26/23 21:02	1
4-Bromofluorobenzene	100		76 - 120					05/26/23 21:02	1

**Client Sample ID: MW-172S\_051723** Lab Sample ID: 240-185629-2 **Matrix: Water** 

Date Collected: 05/17/23 11:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/23/23 21:26	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene	102		75 - 133			•		05/23/23 21:26	
Method: SW846 8260D -	•	Compoun Qualifier	ds by GC/MS RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Method: SW846 8260D -	•		•	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Method: SW846 8260D -	•	Qualifier	•		Unit ug/L	<u>D</u> .	Prepared	Analyzed 05/27/23 01:57	Dil Fa
Method: SW846 8260D - Analyte	Result	Qualifier U	RL	0.49		<u>D</u> .	Prepared	- <u> </u>	Dil Fa
Method: SW846 8260D - Analyte 1,1-Dichloroethene	1.0	Qualifier U U	RL 1.0	0.49	ug/L ug/L	<u>D</u> .	Prepared	05/27/23 01:57	Dil Fa
Method: SW846 8260D - Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result 1.0 1.0	Qualifier U U U	RL 1.0 1.0	0.49 0.46	ug/L ug/L ug/L	<u> </u>	Prepared	05/27/23 01:57 05/27/23 01:57	Dil Fa
Method: SW846 8260D - Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene	Result 1.0 1.0 1.0	Qualifier U U U U	RL 1.0 1.0 1.0	0.49 0.46 0.44 0.51	ug/L ug/L ug/L	<u>D</u>	Prepared	05/27/23 01:57 05/27/23 01:57 05/27/23 01:57	Dil Fa

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