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ANALYTICAL REPORT

PREPARED FOR

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

Generated 8/22/2023 11:48:19 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-189878-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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

Table of Contents

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 240-189878-1
Project/Site: Ford LTP - On Site

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
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"
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

Case Narrative

Client: ARCADIS US Inc
Job ID: 240-189878-1
Project/Site: Ford LTP - On Site

Job ID: 240-189878-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative
240-189878-1

Receipt

The samples were received on 8/10/2023 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 0.2°C and 0.4°C

GC/MS VOA

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

Method Summary

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

Job ID: 240-189878-1

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

Sample Summary

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

Job ID: 240-189878-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-189878-1	TRIP BLANK_95	Water	08/09/23 00:00	08/10/23 08:00
240-189878-2	MW-39_080923	Water	08/09/23 09:30	08/10/23 08:00

Detection Summary

Client: ARCADIS US Inc
Job ID: 240-189878-1
Project/Site: Ford LTP - On Site

Client Sample ID: TRIP BLANK_95 — Lab Sample ID: 240-189878-1

No Detections.

Client Sample ID: MW-39_080923 — Lab Sample ID: 240-189878-2

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 240-189878-1

Client Sample ID: TRIP BLANK_95
Date Collected: 08/09/23 00:00
Date Received: 08/10/23 08:00

Lab Sample ID: 240-189878-1
Matrix: Water

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			08/17/23 15:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/17/23 15:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/17/23 15:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/17/23 15:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/17/23 15:55	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/17/23 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*62 - 137*		*08/17/23 15:55*	*1*
4-Bromofluorobenzene (Surr)	*93*		*56 - 136*		*08/17/23 15:55*	*1*
Toluene-d8 (Surr)	*93*		*78 - 122*		*08/17/23 15:55*	*1*
Dibromofluoromethane (Surr)	*92*		*73 - 120*		*08/17/23 15:55*	*1*

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

Job ID: 240-189878-1

Client Sample ID: MW-39_080923
Date Collected: 08/09/23 09:30
Date Received: 08/10/23 08:00

Lab Sample ID: 240-189878-2
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 F2	2.0	0.86	ug/L			08/16/23 11:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*66 - 120*		*08/16/23 11:06*	*1*

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			08/17/23 03:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/17/23 03:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/17/23 03:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/17/23 03:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/17/23 03:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/17/23 03:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*62 - 137*		*08/17/23 03:22*	*1*
4-Bromofluorobenzene (Surr)	*97*		*56 - 136*		*08/17/23 03:22*	*1*
Toluene-d8 (Surr)	*100*		*78 - 122*		*08/17/23 03:22*	*1*
Dibromofluoromethane (Surr)	*93*		*73 - 120*		*08/17/23 03:22*	*1*

Surrogate Summary

Client: ARCADIS US Inc
Job ID: 240-189878-1
Project/Site: Ford LTP - On Site

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)
240-189878-1	TRIP BLANK_95	97	93	93	92
240-189878-2	MW-39_080923	96	97	100	93
240-189878-2 MS	MW-39-MS_080923	101	98	98	99
240-189878-2 MSD	MW-39-MSD_080923	95	98	98	98
240-189938-E-11 MS	Matrix Spike	91	92	91	88
240-189938-H-11 MSD	Matrix Spike Duplicate	92	93	91	89
LCS 240-584135/5	Lab Control Sample	96	102	101	99
LCS 240-584219/5	Lab Control Sample	98	100	98	95
MB 240-584135/8	Method Blank	95	95	97	92
MB 240-584219/8	Method Blank	102	97	98	97

Surrogate Legend

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**

		Percent Surrogate Recovery (Acceptance Limits)
		DCA
Lab Sample ID	Client Sample ID	(66-120)
240-189878-2	MW-39_080923	94
240-189878-2 MS	MW-39-MS_080923	95
240-189878-2 MSD	MW-39-MSD_080923	86
LCS 240-584028/5	Lab Control Sample	96
MB 240-584028/7	Method Blank	97

Surrogate Legend

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

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

Lab Sample ID: MB 240-584135/8
Matrix: Water
Analysis Batch: 584135

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/16/23 19:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/16/23 19:06	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/16/23 19:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/16/23 19:06	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/16/23 19:06	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/16/23 19:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*62 - 137*		*08/16/23 19:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*56 - 136*		*08/16/23 19:06*	*1*
Toluene-d8 (Surr)	*97*		*78 - 122*		*08/16/23 19:06*	*1*
Dibromofluoromethane (Surr)	*92*		*73 - 120*		*08/16/23 19:06*	*1*

Lab Sample ID: LCS 240-584135/5
Matrix: Water
Analysis Batch: 584135

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene			25.0	27.6		ug/L		111	63 - 134		
cis-1,2-Dichloroethene			25.0	25.7		ug/L		103	77 - 123		
Tetrachloroethene			25.0	25.9		ug/L		104	76 - 123		
trans-1,2-Dichloroethene			25.0	26.7		ug/L		107	75 - 124		
Trichloroethene			25.0	26.9		ug/L		108	70 - 122		
Vinyl chloride			12.5	10.8		ug/L		86	60 - 144		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*62 - 137*
4-Bromofluorobenzene (Surr)	*102*		*56 - 136*
Toluene-d8 (Surr)	*101*		*78 - 122*
Dibromofluoromethane (Surr)	*99*		*73 - 120*

Lab Sample ID: 240-189878-2 MS
Matrix: Water
Analysis Batch: 584135

Client Sample ID: MW-39-MS_080923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene	1.0	U	25.0	27.5		ug/L		110	56 - 135		
cis-1,2-Dichloroethene	1.0	U	25.0	23.6		ug/L		95	66 - 128		
Tetrachloroethene	1.0	U	25.0	24.8		ug/L		99	62 - 131		
trans-1,2-Dichloroethene	1.0	U	25.0	24.7		ug/L		99	56 - 136		
Trichloroethene	1.0	U	25.0	25.6		ug/L		102	61 - 124		
Vinyl chloride	1.0	U	12.5	10.7		ug/L		86	43 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*62 - 137*
4-Bromofluorobenzene (Surr)	*98*		*56 - 136*
Toluene-d8 (Surr)	*98*		*78 - 122*

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

Lab Sample ID: 240-189878-2 MS
Matrix: Water
Analysis Batch: 584135

Client Sample ID: MW-39-MS_080923
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	99		73 - 120

Lab Sample ID: 240-189878-2 MSD
Matrix: Water
Analysis Batch: 584135

Client Sample ID: MW-39-MSD_080923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	25.0	27.2		ug/L		109	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	25.0	25.0		ug/L		100	66 - 128	6	14
Tetrachloroethene	1.0	U	25.0	25.4		ug/L		102	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U	25.0	26.3		ug/L		105	56 - 136	6	15
Trichloroethene	1.0	U	25.0	26.3		ug/L		105	61 - 124	3	15
Vinyl chloride	1.0	U	12.5	10.4		ug/L		83	43 - 157	4	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

Lab Sample ID: MB 240-584219/8
Matrix: Water
Analysis Batch: 584219

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/17/23 13:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/17/23 13:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/17/23 13:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/17/23 13:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/17/23 13:32	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/17/23 13:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		08/17/23 13:32	1
4-Bromofluorobenzene (Surr)	97		56 - 136		08/17/23 13:32	1
Toluene-d8 (Surr)	98		78 - 122		08/17/23 13:32	1
Dibromofluoromethane (Surr)	97		73 - 120		08/17/23 13:32	1

Lab Sample ID: LCS 240-584219/5
Matrix: Water
Analysis Batch: 584219

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	25.0	26.5		ug/L		106	63 - 134
cis-1,2-Dichloroethene	25.0	24.2		ug/L		97	77 - 123
Tetrachloroethene	25.0	25.8		ug/L		103	76 - 123
trans-1,2-Dichloroethene	25.0	24.7		ug/L		99	75 - 124
Trichloroethene	25.0	24.4		ug/L		98	70 - 122

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

Lab Sample ID: LCS 240-584219/5
Matrix: Water
Analysis Batch: 584219

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Vinyl chloride			12.5	10.4		ug/L		83	60 - 144		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*62 - 137*
4-Bromofluorobenzene (Surr)	*100*		*56 - 136*
Toluene-d8 (Surr)	*98*		*78 - 122*
Dibromofluoromethane (Surr)	*95*		*73 - 120*

Lab Sample ID: 240-189938-E-11 MS
Matrix: Water
Analysis Batch: 584219

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene	1.0	U	25.0	25.2		ug/L		101	56 - 135		
cis-1,2-Dichloroethene	1.0	U	25.0	23.3		ug/L		93	66 - 128		
Tetrachloroethene	1.0	U	25.0	24.5		ug/L		98	62 - 131		
trans-1,2-Dichloroethene	1.0	U	25.0	23.6		ug/L		94	56 - 136		
Trichloroethene	1.0	U	25.0	22.9		ug/L		92	61 - 124		
Vinyl chloride	20		12.5	30.2		ug/L		84	43 - 157		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*62 - 137*
4-Bromofluorobenzene (Surr)	*92*		*56 - 136*
Toluene-d8 (Surr)	*91*		*78 - 122*
Dibromofluoromethane (Surr)	*88*		*73 - 120*

Lab Sample ID: 240-189938-H-11 MSD
Matrix: Water
Analysis Batch: 584219

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	25.0	25.3		ug/L		101	56 - 135	1	26
cis-1,2-Dichloroethene	1.0	U	25.0	23.8		ug/L		95	66 - 128	2	14
Tetrachloroethene	1.0	U	25.0	24.0		ug/L		96	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U	25.0	23.8		ug/L		95	56 - 136	1	15
Trichloroethene	1.0	U	25.0	23.5		ug/L		94	61 - 124	3	15
Vinyl chloride	20		12.5	31.0		ug/L		90	43 - 157	3	24

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*62 - 137*
4-Bromofluorobenzene (Surr)	*93*		*56 - 136*
Toluene-d8 (Surr)	*91*		*78 - 122*
Dibromofluoromethane (Surr)	*89*		*73 - 120*

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

Lab Sample ID: MB 240-584028/7
Matrix: Water
Analysis Batch: 584028

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/16/23 10:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 120*		*08/16/23 10:39*	*1*

Lab Sample ID: LCS 240-584028/5
Matrix: Water
Analysis Batch: 584028

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			10.0	9.17		ug/L		92	80 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*66 - 120*

Lab Sample ID: 240-189878-2 MS
Matrix: Water
Analysis Batch: 584028

Client Sample ID: MW-39-MS_080923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane	2.0	U F2	10.0	10.7		ug/L		107	51 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*66 - 120*

Lab Sample ID: 240-189878-2 MSD
Matrix: Water
Analysis Batch: 584028

Client Sample ID: MW-39-MSD_080923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U F2	10.0	8.71	F2	ug/L		87	51 - 153	21	16

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*66 - 120*

QC Association Summary

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

Job ID: 240-189878-1

GC/MS VOA

Analysis Batch: 584028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189878-2	MW-39_080923	Total/NA	Water	8260D SIM	
MB 240-584028/7	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-584028/5	Lab Control Sample	Total/NA	Water	8260D SIM	
240-189878-2 MS	MW-39-MS_080923	Total/NA	Water	8260D SIM	
240-189878-2 MSD	MW-39-MSD_080923	Total/NA	Water	8260D SIM	

Analysis Batch: 584135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189878-2	MW-39_080923	Total/NA	Water	8260D	
MB 240-584135/8	Method Blank	Total/NA	Water	8260D	
LCS 240-584135/5	Lab Control Sample	Total/NA	Water	8260D	
240-189878-2 MS	MW-39-MS_080923	Total/NA	Water	8260D	
240-189878-2 MSD	MW-39-MSD_080923	Total/NA	Water	8260D	

Analysis Batch: 584219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189878-1	TRIP BLANK_95	Total/NA	Water	8260D	
MB 240-584219/8	Method Blank	Total/NA	Water	8260D	
LCS 240-584219/5	Lab Control Sample	Total/NA	Water	8260D	
240-189938-E-11 MS	Matrix Spike	Total/NA	Water	8260D	
240-189938-H-11 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 240-189878-1
Project/Site: Ford LTP - On Site

Client Sample ID: TRIP BLANK_95
Lab Sample ID: 240-189878-1
Date Collected: 08/09/23 00:00
Matrix: Water
Date Received: 08/10/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584219	CDG	EET CLE	08/17/23 15:55

Client Sample ID: MW-39_080923
Lab Sample ID: 240-189878-2
Date Collected: 08/09/23 09:30
Matrix: Water
Date Received: 08/10/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	584135	MRL	EET CLE	08/17/23 03:22
Total/NA	Analysis	8260D SIM		1	584028	MRL	EET CLE	08/16/23 11:06

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS US Inc
Job ID: 240-189878-1
Project/Site: Ford LTP - On 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
Iowa	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	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact	Client Project Manager: Kris Hinskey	Site Contact: Christina Weaver	Lab Contact: Mike DelMonico	COC No:
Company Name: Arcadis				
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 248-994-2240	Telephone: 330-497-9396	1 of 1 COCs
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time		For lab use only
Phone: 248-994-2240	Sampler Name: Sommer Guy	TAT if different from below: ☐ 3 weeks ☑ 10 day ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Walk-in client:
Project Name: Ford LTP On-Site	Method of Shipment/Carrier:			Lab sampling:
Project Number: 30167538.401.03	Shipping/Tracking No:			Job/SDG No:
PO # 30167538.401.03				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y / N)	Composite=C / Grab=G	1,1-DCE 8260D	cis-1,2-DCE 8260D	Trans-1,2-DCE 8260D	PCE 8260D	TCE 8260D	Vinyl Chloride 8260D	1,4-Dioxane 8260D SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK_95	----	-----		1						1					N	G	X	X	X	X	X	X		1 Trip Blank
MW-39_080923	8/9/23	0930		6						6					N	G	X	X	X	X	X	X	X	3 VOAs for 8260D 3 VOAs for 8260D SIM
MW-39-MS_080923	8/9/23	0930		6						6					N	G	X	X	X	X	X	X	X	Run MS/MSD
MW-39-MSD_080923	8/9/23	0930		6						6					N	G	X	X	X	X	X	X	X	Run MS/MSD

240-189878 Chain of Custody

MICHIGAN 190

Possible Hazard Identification: ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return to Client ☑ Disposal By Lab ☐ Archive For ☐ Months

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728
Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Sommer Guy	Arcadis	8/9/23 1305		EETA	8/9/23 13:00
	EETA	8/9/23 13:05		ET	8/10/23 8:00
			Received in Laboratory by:		

8/22/2023

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :_____
Barberton Facility

Client Arcadis Site Name_____ Cooler unpacked by: CMH

Cooler Received on 8/10/23 Opened on 8/10/23

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off Eurofins Courier Other_____

Receipt After-hours: Drop-off Date/Time Storage Location_____

Eurofins Cooler # _____ 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 [X] See Multiple Cooler Form

IR GUN # 22 (CF -0.1 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2	(Yes) No	
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No	NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	
-Were tamper/custody seals intact and uncompromised?	(Yes) No	NA
3. Shippers' packing slip attached to the cooler(s)?	Yes (No)	
4. Did custody papers accompany the sample(s)?	(Yes) No	
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes) No	
7. Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No	
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
11. Sufficient quantity received to perform indicated analyses?	(Yes) No	
12. Are these work share samples and all listed on the COC?	Yes (No)	
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes No (NA)	pH Strip Lot# ~~10BDH4321~~ HC312502
14. Were VOAs on the COC?	(Yes) No	
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	(Yes) No	NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 62225	(Yes) No	
17. Was a LL Hg or Me Hg trip blank present? _____	Yes (No)	

8-15-23

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

~~Air bubbles in samples: MW-102-080823 (4 bottles)~~
~~Dup-09 (3 bottles)~~] 8-10-23

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.

Time preserved: _____ Preservative(s) added/Lot number(s):_____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login # : ____________

Eurofins - Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
(EC) Client Box Other	IR GUN #: 22	0.5	0.4	(Wet Ice) Blue Ice Dry Ice Water None
(EC) Client Box Other	IR GUN #: 22	0.3	0.2	(Wet Ice) Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
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EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #:			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

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

DATA VERIFICATION REPORT

August 22, 2023

Kris Hinskey
Arcadis of Michigan
28550 Cabot Drive
Suite 500
Novi, MI US 48377

CADENA project ID: E203728
Project: Ford Livonia Transmission Plant - ON-SITE -Soil Gas, Ground water and Soil
Project number: 30167538.401.03- onsite groundwater
Event Specific Scope of Work References: Sample COC
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory submittal: 189878-1
Sample date: 2023-08-09
Report received by CADENA: 2023-08-22
Initial Data Verification completed by CADENA: 2023-08-22
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

GCMS VOC sample -002 MS or MSD recoveries but not both or RPD only were outliers for 1,4-DIOXANE so client sample results were not qualified based on this QC outlier alone.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD 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 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 517-819-0356

CADENA Valid Qualifiers

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

Analytical Results Summary

CADENA Project ID: E203728
Laboratory: Eurofins Environment Testing LLC - Cleveland
Laboratory Submittal: 189878-1

		Sample Name:	TRIP BLANK_95				MW-39_080923			
		Lab Sample ID:	2401898781				2401898782			
		Sample Date:	8/9/2023				8/9/2023			
Analyte	Cas No.	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier
GC/MS VOC									
OSW-8260D									
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-8260DSIM									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---