

ANALYTICAL REPORT

PREPARED FOR

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Generated 8/22/2023 7:47:25 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-189875-1

Eurofins Cleveland

Job Notes

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Authorization



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Definitions/Glossary

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

Job ID: 240-189875-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
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.
α	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
Project/Site: Ford LTP - On Site

Job ID: 240-189875-1

Job ID: 240-189875-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative
240-189875-1

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.

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Method Summary

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

Job ID: 240-189875-1

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: 240-189875-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-189875-1	TRIP BLANK_88	Water	08/08/23 00:00	08/10/23 08:00
240-189875-2	MW-47_080823	Water	08/08/23 10:15	08/10/23 08:00
240-189875-3	MW-46_080823	Water	08/08/23 11:40	08/10/23 08:00
240-189875-4	MW-70_080823	Water	08/08/23 13:00	08/10/23 08:00
240-189875-5	MW-45_080823	Water	08/08/23 14:25	08/10/23 08:00
240-189875-6	DUP-03	Water	08/08/23 00:00	08/10/23 08:00

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Detection Summary

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

Job ID: 240-189875-1

Client Sample ID: TRIP BLANK_88

Lab Sample ID: 240-189875-1

No Detections.

Client Sample ID: MW-47_080823

Lab Sample ID: 240-189875-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	11		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	2.2		1.0	0.51	ug/L	1		8260D	Total/NA
Vinyl chloride	32		1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-46_080823

Lab Sample ID: 240-189875-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.60	J	1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	0.87	J	1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-70_080823

Lab Sample ID: 240-189875-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.4		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	140		10	4.6	ug/L	10		8260D	Total/NA
Vinyl chloride	420		10	4.5	ug/L	10		8260D	Total/NA

Client Sample ID: MW-45_080823

Lab Sample ID: 240-189875-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	36		10	4.6	ug/L	10		8260D	Total/NA
Vinyl chloride	240		10	4.5	ug/L	10		8260D	Total/NA

Client Sample ID: DUP-03

Lab Sample ID: 240-189875-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	38		1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	240		5.0	2.3	ug/L	5		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 240-189875-1

Client Sample ID: TRIP BLANK_88

Lab Sample ID: 240-189875-1

Date Collected: 08/08/23 00:00

Matrix: Water

Date Received: 08/10/23 08:00

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			08/14/23 20:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/23 20:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 20:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 20:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 20:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/14/23 20:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		08/14/23 20:09	1
4-Bromofluorobenzene (Surr)	91		56 - 136		08/14/23 20:09	1
Toluene-d8 (Surr)	93		78 - 122		08/14/23 20:09	1
Dibromofluoromethane (Surr)	117		73 - 120		08/14/23 20:09	1

Client Sample Results

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

Job ID: 240-189875-1

Client Sample ID: MW-47_080823

Lab Sample ID: 240-189875-2

Date Collected: 08/08/23 10:15

Matrix: Water

Date Received: 08/10/23 08:00

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			08/16/23 14:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 120					08/16/23 14:16	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			08/14/23 20:32	1
cis-1,2-Dichloroethene	11		1.0	0.46	ug/L			08/14/23 20:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 20:32	1
trans-1,2-Dichloroethene	2.2		1.0	0.51	ug/L			08/14/23 20:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 20:32	1
Vinyl chloride	32		1.0	0.45	ug/L			08/14/23 20:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137					08/14/23 20:32	1
4-Bromofluorobenzene (Surr)	89		56 - 136					08/14/23 20:32	1
Toluene-d8 (Surr)	94		78 - 122					08/14/23 20:32	1
Dibromofluoromethane (Surr)	118		73 - 120					08/14/23 20:32	1

Client Sample Results

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

Job ID: 240-189875-1

Client Sample ID: MW-46_080823

Lab Sample ID: 240-189875-3

Date Collected: 08/08/23 11:40

Matrix: Water

Date Received: 08/10/23 08:00

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			08/16/23 14:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		66 - 120					08/16/23 14:40	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			08/14/23 20:56	1
cis-1,2-Dichloroethene	0.60	J	1.0	0.46	ug/L			08/14/23 20:56	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 20:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 20:56	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 20:56	1
Vinyl chloride	0.87	J	1.0	0.45	ug/L			08/14/23 20:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					08/14/23 20:56	1
4-Bromofluorobenzene (Surr)	90		56 - 136					08/14/23 20:56	1
Toluene-d8 (Surr)	95		78 - 122					08/14/23 20:56	1
Dibromofluoromethane (Surr)	112		73 - 120					08/14/23 20:56	1

Client Sample Results

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

Job ID: 240-189875-1

Client Sample ID: MW-70_080823

Lab Sample ID: 240-189875-4

Date Collected: 08/08/23 13:00

Matrix: Water

Date Received: 08/10/23 08:00

Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.4		2.0	0.86	ug/L			08/16/23 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					08/16/23 15:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	10	U	10	4.9	ug/L			08/14/23 21:19	10
cis-1,2-Dichloroethene	140		10	4.6	ug/L			08/14/23 21:19	10
Tetrachloroethene	10	U	10	4.4	ug/L			08/14/23 21:19	10
trans-1,2-Dichloroethene	10	U	10	5.1	ug/L			08/14/23 21:19	10
Trichloroethene	10	U	10	4.4	ug/L			08/14/23 21:19	10
Vinyl chloride	420		10	4.5	ug/L			08/14/23 21:19	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137					08/14/23 21:19	10
4-Bromofluorobenzene (Surr)	89		56 - 136					08/14/23 21:19	10
Toluene-d8 (Surr)	94		78 - 122					08/14/23 21:19	10
Dibromofluoromethane (Surr)	114		73 - 120					08/14/23 21:19	10

Client Sample Results

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

Job ID: 240-189875-1

Client Sample ID: MW-45_080823

Lab Sample ID: 240-189875-5

Date Collected: 08/08/23 14:25

Matrix: Water

Date Received: 08/10/23 08:00

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			08/16/23 15:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		66 - 120		08/16/23 15:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	10	U	10	4.9	ug/L			08/14/23 21:42	10
cis-1,2-Dichloroethene	36		10	4.6	ug/L			08/14/23 21:42	10
Tetrachloroethene	10	U	10	4.4	ug/L			08/14/23 21:42	10
trans-1,2-Dichloroethene	10	U	10	5.1	ug/L			08/14/23 21:42	10
Trichloroethene	10	U	10	4.4	ug/L			08/14/23 21:42	10
Vinyl chloride	240		10	4.5	ug/L			08/14/23 21:42	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		08/14/23 21:42	10
4-Bromofluorobenzene (Surr)	91		56 - 136		08/14/23 21:42	10
Toluene-d8 (Surr)	89		78 - 122		08/14/23 21:42	10
Dibromofluoromethane (Surr)	112		73 - 120		08/14/23 21:42	10

Client Sample Results

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

Job ID: 240-189875-1

Client Sample ID: DUP-03

Lab Sample ID: 240-189875-6

Date Collected: 08/08/23 00:00

Matrix: Water

Date Received: 08/10/23 08:00

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			08/16/23 15:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		66 - 120		08/16/23 15:52	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			08/16/23 22:17	1
cis-1,2-Dichloroethene	38		1.0	0.46	ug/L			08/16/23 22:17	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/16/23 22:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/16/23 22:17	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/16/23 22:17	1
Vinyl chloride	240		5.0	2.3	ug/L			08/17/23 14:44	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		08/16/23 22:17	1
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		08/17/23 14:44	5
4-Bromofluorobenzene (Surr)	88		56 - 136		08/16/23 22:17	1
4-Bromofluorobenzene (Surr)	95		56 - 136		08/17/23 14:44	5
Toluene-d8 (Surr)	88		78 - 122		08/16/23 22:17	1
Toluene-d8 (Surr)	95		78 - 122		08/17/23 14:44	5
Dibromofluoromethane (Surr)	89		73 - 120		08/16/23 22:17	1
Dibromofluoromethane (Surr)	92		73 - 120		08/17/23 14:44	5

Surrogate Summary

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

Job ID: 240-189875-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-189694-F-4 MS	Matrix Spike	93	93	91	88
240-189694-F-4 MSD	Matrix Spike Duplicate	91	91	89	87
240-189875-1	TRIP BLANK_88	100	91	93	117
240-189875-2	MW-47_080823	106	89	94	118
240-189875-3	MW-46_080823	100	90	95	112
240-189875-4	MW-70_080823	102	89	94	114
240-189875-5	MW-45_080823	101	91	89	112
240-189875-5 MS	MW-45_080823	96	91	95	106
240-189875-5 MSD	MW-45_080823	96	90	91	103
240-189875-6	DUP-03	92	88	88	89
240-189875-6	DUP-03	98	95	95	92
240-189938-E-11 MS	Matrix Spike	91	92	91	88
240-189938-H-11 MSD	Matrix Spike Duplicate	92	93	91	89
LCS 240-583793/4	Lab Control Sample	93	89	94	104
LCS 240-584102/5	Lab Control Sample	97	97	96	95
LCS 240-584219/5	Lab Control Sample	98	100	98	95
MB 240-583793/7	Method Blank	100	91	93	108
MB 240-584102/8	Method Blank	97	96	96	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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-189875-2	MW-47_080823	95
240-189875-3	MW-46_080823	94
240-189875-4	MW-70_080823	98
240-189875-5	MW-45_080823	94
240-189875-6	DUP-03	81
240-189878-C-2 MS	Matrix Spike	95
240-189878-C-2 MSD	Matrix Spike Duplicate	86
LCS 240-584028/5	Lab Control Sample	96
MB 240-584028/7	Method Blank	97

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-189875-1

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

Lab Sample ID: MB 240-583793/7
Matrix: Water
Analysis Batch: 583793

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/14/23 13:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/14/23 13:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 13:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/14/23 13:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/14/23 13:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/14/23 13:33	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		08/14/23 13:33	1
4-Bromofluorobenzene (Surr)	91		56 - 136		08/14/23 13:33	1
Toluene-d8 (Surr)	93		78 - 122		08/14/23 13:33	1
Dibromofluoromethane (Surr)	108		73 - 120		08/14/23 13:33	1

Lab Sample ID: LCS 240-583793/4
Matrix: Water
Analysis Batch: 583793

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1-Dichloroethene	25.0	27.1		ug/L		108	63 - 134
cis-1,2-Dichloroethene	25.0	23.7		ug/L		95	77 - 123
Tetrachloroethene	25.0	27.7		ug/L		111	76 - 123
trans-1,2-Dichloroethene	25.0	24.8		ug/L		99	75 - 124
Trichloroethene	25.0	28.2		ug/L		113	70 - 122
Vinyl chloride	12.5	13.7		ug/L		110	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	89		56 - 136
Toluene-d8 (Surr)	94		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120

Lab Sample ID: 240-189875-5 MS
Matrix: Water
Analysis Batch: 583793

Client Sample ID: MW-45_080823
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	10	U	250	242		ug/L		97	56 - 135
cis-1,2-Dichloroethene	36		250	267		ug/L		92	66 - 128
Tetrachloroethene	10	U	250	255		ug/L		102	62 - 131
trans-1,2-Dichloroethene	10	U	250	232		ug/L		93	56 - 136
Trichloroethene	10	U	250	267		ug/L		107	61 - 124
Vinyl chloride	240		125	381		ug/L		109	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	91		56 - 136
Toluene-d8 (Surr)	95		78 - 122

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-189875-1

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

Lab Sample ID: 240-189875-5 MS
Matrix: Water
Analysis Batch: 583793

Client Sample ID: MW-45_080823
Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	106		73 - 120

Lab Sample ID: 240-189875-5 MSD
Matrix: Water
Analysis Batch: 583793

Client Sample ID: MW-45_080823
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,1-Dichloroethene	10	U	250	256		ug/L		103	56 - 135	6	26
cis-1,2-Dichloroethene	36		250	279		ug/L		97	66 - 128	4	14
Tetrachloroethene	10	U	250	258		ug/L		103	62 - 131	1	20
trans-1,2-Dichloroethene	10	U	250	251		ug/L		100	56 - 136	8	15
Trichloroethene	10	U	250	285		ug/L		114	61 - 124	6	15
Vinyl chloride	240		125	373		ug/L		102	43 - 157	2	24

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	96		62 - 137
<i>4-Bromofluorobenzene (Surr)</i>	90		56 - 136
<i>Toluene-d8 (Surr)</i>	91		78 - 122
<i>Dibromofluoromethane (Surr)</i>	103		73 - 120

Lab Sample ID: MB 240-584102/8
Matrix: Water
Analysis Batch: 584102

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

<i>Analyte</i>	<i>MB MB Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			08/16/23 14:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/16/23 14:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			08/16/23 14:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			08/16/23 14:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			08/16/23 14:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			08/16/23 14:22	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	97		62 - 137		08/16/23 14:22	1
<i>4-Bromofluorobenzene (Surr)</i>	96		56 - 136		08/16/23 14:22	1
<i>Toluene-d8 (Surr)</i>	96		78 - 122		08/16/23 14:22	1
<i>Dibromofluoromethane (Surr)</i>	92		73 - 120		08/16/23 14:22	1

Lab Sample ID: LCS 240-584102/5
Matrix: Water
Analysis Batch: 584102

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,1-Dichloroethene	25.0	27.2		ug/L		109	63 - 134
cis-1,2-Dichloroethene	25.0	24.6		ug/L		98	77 - 123
Tetrachloroethene	25.0	26.0		ug/L		104	76 - 123
trans-1,2-Dichloroethene	25.0	25.4		ug/L		102	75 - 124
Trichloroethene	25.0	25.3		ug/L		101	70 - 122

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-189875-1

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

Lab Sample ID: LCS 240-584102/5

Matrix: Water

Analysis Batch: 584102

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	10.9		ug/L		88	60 - 144
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		62 - 137				
4-Bromofluorobenzene (Surr)	97		56 - 136				
Toluene-d8 (Surr)	96		78 - 122				
Dibromofluoromethane (Surr)	95		73 - 120				

Lab Sample ID: 240-189694-F-4 MS

Matrix: Water

Analysis Batch: 584102

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	7.7	J	250	260		ug/L		101	56 - 135
cis-1,2-Dichloroethene	9.5	J	250	252		ug/L		97	66 - 128
Tetrachloroethene	10	U	250	244		ug/L		98	62 - 131
trans-1,2-Dichloroethene	10	U	250	243		ug/L		97	56 - 136
Trichloroethene	540		250	719	E	ug/L		73	61 - 124
Vinyl chloride	10	U	125	109		ug/L		87	43 - 157
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	93		62 - 137						
4-Bromofluorobenzene (Surr)	93		56 - 136						
Toluene-d8 (Surr)	91		78 - 122						
Dibromofluoromethane (Surr)	88		73 - 120						

Lab Sample ID: 240-189694-F-4 MSD

Matrix: Water

Analysis Batch: 584102

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	7.7	J	250	255		ug/L		99	56 - 135	2	26
cis-1,2-Dichloroethene	9.5	J	250	244		ug/L		94	66 - 128	3	14
Tetrachloroethene	10	U	250	234		ug/L		94	62 - 131	4	20
trans-1,2-Dichloroethene	10	U	250	236		ug/L		94	56 - 136	3	15
Trichloroethene	540		250	694	E	ug/L		64	61 - 124	3	15
Vinyl chloride	10	U	125	104		ug/L		83	43 - 157	4	24
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	91		62 - 137								
4-Bromofluorobenzene (Surr)	91		56 - 136								
Toluene-d8 (Surr)	89		78 - 122								
Dibromofluoromethane (Surr)	87		73 - 120								

QC Sample Results

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

Job ID: 240-189875-1

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

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

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
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	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
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
Vinyl chloride	12.5	10.4		ug/L		83	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
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	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
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	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	91		62 - 137
4-Bromofluorobenzene (Surr)	92		56 - 136
Toluene-d8 (Surr)	91		78 - 122

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QC Sample Results

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

Job ID: 240-189875-1

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

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

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

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
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	Sample	Spike	MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
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		Limits
	%Recovery	Qualifier	
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 MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L		08/16/23 10:39	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
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	LCS		Unit	D	%Rec	%Rec
		Result	Qualifier				
1,4-Dioxane	10.0	9.17		ug/L		92	80 - 122

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

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

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

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

Eurofins Cleveland

QC Sample Results

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

Job ID: 240-189875-1

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

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	95		66 - 120

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

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

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

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	86		66 - 120

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QC Association Summary

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

Job ID: 240-189875-1

GC/MS VOA

Analysis Batch: 583793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189875-1	TRIP BLANK_88	Total/NA	Water	8260D	
240-189875-2	MW-47_080823	Total/NA	Water	8260D	
240-189875-3	MW-46_080823	Total/NA	Water	8260D	
240-189875-4	MW-70_080823	Total/NA	Water	8260D	
240-189875-5	MW-45_080823	Total/NA	Water	8260D	
MB 240-583793/7	Method Blank	Total/NA	Water	8260D	
LCS 240-583793/4	Lab Control Sample	Total/NA	Water	8260D	
240-189875-5 MS	MW-45_080823	Total/NA	Water	8260D	
240-189875-5 MSD	MW-45_080823	Total/NA	Water	8260D	

Analysis Batch: 584028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189875-2	MW-47_080823	Total/NA	Water	8260D SIM	
240-189875-3	MW-46_080823	Total/NA	Water	8260D SIM	
240-189875-4	MW-70_080823	Total/NA	Water	8260D SIM	
240-189875-5	MW-45_080823	Total/NA	Water	8260D SIM	
240-189875-6	DUP-03	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-C-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-189878-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 584102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189875-6	DUP-03	Total/NA	Water	8260D	
MB 240-584102/8	Method Blank	Total/NA	Water	8260D	
LCS 240-584102/5	Lab Control Sample	Total/NA	Water	8260D	
240-189694-F-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-189694-F-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 584219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-189875-6	DUP-03	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
Project/Site: Ford LTP - On Site

Job ID: 240-189875-1

Client Sample ID: TRIP BLANK_88

Lab Sample ID: 240-189875-1

Date Collected: 08/08/23 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	583793	LEE	EET CLE	08/14/23 20:09

Client Sample ID: MW-47_080823

Lab Sample ID: 240-189875-2

Date Collected: 08/08/23 10:15

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	583793	LEE	EET CLE	08/14/23 20:32
Total/NA	Analysis	8260D SIM		1	584028	MRL	EET CLE	08/16/23 14:16

Client Sample ID: MW-46_080823

Lab Sample ID: 240-189875-3

Date Collected: 08/08/23 11:40

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	583793	LEE	EET CLE	08/14/23 20:56
Total/NA	Analysis	8260D SIM		1	584028	MRL	EET CLE	08/16/23 14:40

Client Sample ID: MW-70_080823

Lab Sample ID: 240-189875-4

Date Collected: 08/08/23 13:00

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		10	583793	LEE	EET CLE	08/14/23 21:19
Total/NA	Analysis	8260D SIM		1	584028	MRL	EET CLE	08/16/23 15:04

Client Sample ID: MW-45_080823

Lab Sample ID: 240-189875-5

Date Collected: 08/08/23 14:25

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		10	583793	LEE	EET CLE	08/14/23 21:42
Total/NA	Analysis	8260D SIM		1	584028	MRL	EET CLE	08/16/23 15:28

Client Sample ID: DUP-03

Lab Sample ID: 240-189875-6

Date Collected: 08/08/23 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	584102	CDG	EET CLE	08/16/23 22:17
Total/NA	Analysis	8260D		5	584219	CDG	EET CLE	08/17/23 14:44
Total/NA	Analysis	8260D SIM		1	584028	MRL	EET CLE	08/16/23 15:52

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
Project/Site: Ford LTP - On Site

Job ID: 240-189875-1

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP On-Site Project Number: 30167538-401.03 PO # 30167538-401.03		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com Sampler Name: <i>Garrett Link</i> Method of Shipment/Carrier: Shipping/Tracking No:		Site Contact: Mike DeMonico Telephone: 330-497-9396	
Analysis turnaround time: TAT if different from below: 10 day <input checked="" type="checkbox"/> 3 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 weeks <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>		Analyses 1-1-DCE 8260D Trans-1,2-DCE 8260D PCE 8260D TCE 8260D Vinyl Chloride 8260D 1-4-Dioxane 8260D SIM	
Matrix Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH <input type="checkbox"/> Other:	
Sample Identification Sample Date Sample Time TRIP BLANK_88 MW-47-080823 MW-46-080823 MW-70-080823 MW-45-080823 DUP-03		Filtered Sample (Y/N) Composite C/Grab <input type="checkbox"/> 1-1-DCE 8260D Trans-1,2-DCE 8260D PCE 8260D TCE 8260D Vinyl Chloride 8260D 1-4-Dioxane 8260D SIM	
Sample Specific Notes / Special Instructions: 1 Trip Blank 3 VOAs for 8260D 3 VOAs for 8260D SIM MICHIGAN 190		Date/Time 08/08/23 10:15 08/08/23 11:40 08/04/23 13:00 08/08/23 14:25 08/08/23	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		sample disposal (X fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jromalia@cadenaco.com. Cadena #E203728 Level IV Reporting requested.		Received by: <i>Novi cold storage</i> Received by: <i>EEEA</i> Received Laboratory by: <i>EEEA</i>	

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Eurofins - Cleveland Sample Receipt Form/Narrative

Login # : _____

Barberton Facility

Client Arcadis Site Name _____

Cooler unpacked by:

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

CMH

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 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 NA

-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

14. Were VOAs on the COC? Yes No NA

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

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

8-15-23 pH Strip Lot# 10BDH4321
HC312502

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: MDU-102-080823 (4 bottles) - 8-10-23
Dup-09 (3 bottles)

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: _____

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Eurofins - Canton Sample Receipt Multiple Cooler Form						
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
<input checked="checked" type="checkbox"/> Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: <u>22</u>	<u>0.5</u>	<u>0.4</u>	<input checked="checked" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
<input checked="checked" type="checkbox"/> Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: <u>22</u>	<u>0.3</u>	<u>0.2</u>	<input checked="checked" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
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				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	
EC Client <input type="checkbox"/> Box <input type="checkbox"/> Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
				<input type="radio"/> Water	<input type="radio"/> None	

See Temperature Excursion Form

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: 189875-1

Sample date: 2023-08-08

Report received by CADENA: 2023-08-22

Initial Data Verification completed by CADENA: 2023-08-22

Number of Samples:6

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 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, 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 contaminants) 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 contaminants) 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: 189875-1

Analyte	Cas No.	Sample Name: TRIP BLANK_88				MW-47_080823				MW-46_080823				MW-70_080823				MW-45_080823				DUP-03			
		Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier
GC/MS VOC																									
<u>OSW-8260D</u>																									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	10	ug/l	---	ND	10	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	11	1.0	ug/l	---	0.60	1.0	ug/l	J	140	10	ug/l	---	36	10	ug/l	---	38	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	10	ug/l	---	ND	10	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	2.2	1.0	ug/l	---	ND	1.0	ug/l	---	ND	10	ug/l	---	ND	10	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	10	ug/l	---	ND	10	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	32	1.0	ug/l	---	0.87	1.0	ug/l	J	420	10	ug/l	---	240	10	ug/l	---	240	5.0	ug/l	---
<u>OSW-8260DSIM</u>																									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---	2.4	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---