

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-181870-1

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Job Notes

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Authorization



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Definitions/Glossary

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

Job ID: 240-181870-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
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.
▫	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 U.S., Inc.
Project/Site: Ford LTP - On Site

Job ID: 240-181870-1

Job ID: 240-181870-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-181870-1

Receipt

The samples were received on 3/14/2023 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C

GC/MS VOA

Method 8260D: The MSD for batch 566003 was analyzed outside of the tune time, due to an instrument fault. This is a batch QC sample; therefore, the data have been reported.

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



Method Summary

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

Job ID: 240-181870-1

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

Protocol References:

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

Laboratory References:

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

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Sample Summary

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

Job ID: 240-181870-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181870-1	TRIP BLANK_58	Water	03/13/23 00:00	03/14/23 09:50
240-181870-2	MW-68_031323	Water	03/13/23 10:25	03/14/23 09:50
240-181870-3	MW-46_031323	Water	03/13/23 12:55	03/14/23 09:50

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- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-181870-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-181870-1

No Detections.

Client Sample ID: MW-68_031323

Lab Sample ID: 240-181870-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.1		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	8.6		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	1.4		1.0	0.51	ug/L	1		8260D	Total/NA
Vinyl chloride	52		1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-46_031323

Lab Sample ID: 240-181870-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.2		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	0.77	J	1.0	0.46	ug/L	1		8260D	Total/NA
Vinyl chloride	19		1.0	0.45	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 240-181870-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-181870-1

Date Collected: 03/13/23 00:00

Matrix: Water

Date Received: 03/14/23 09:50

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			03/20/23 17:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/20/23 17:54	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 17:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/20/23 17:54	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 17:54	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/20/23 17:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		03/20/23 17:54	1
4-Bromofluorobenzene (Surr)	96		56 - 136		03/20/23 17:54	1
Toluene-d8 (Surr)	89		78 - 122		03/20/23 17:54	1
Dibromofluoromethane (Surr)	90		73 - 120		03/20/23 17:54	1

Client Sample Results

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

Job ID: 240-181870-1

Client Sample ID: MW-68_031323

Lab Sample ID: 240-181870-2

Date Collected: 03/13/23 10:25

Matrix: Water

Date Received: 03/14/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.1		2.0	0.86	ug/L			03/17/23 13:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		66 - 120					03/17/23 13:30	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			03/20/23 18:18	1
cis-1,2-Dichloroethene	8.6		1.0	0.46	ug/L			03/20/23 18:18	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 18:18	1
trans-1,2-Dichloroethene	1.4		1.0	0.51	ug/L			03/20/23 18:18	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 18:18	1
Vinyl chloride	52		1.0	0.45	ug/L			03/20/23 18:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		62 - 137					03/20/23 18:18	1
4-Bromofluorobenzene (Surr)	103		56 - 136					03/20/23 18:18	1
Toluene-d8 (Surr)	92		78 - 122					03/20/23 18:18	1
Dibromofluoromethane (Surr)	90		73 - 120					03/20/23 18:18	1

Client Sample Results

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

Job ID: 240-181870-1

Client Sample ID: MW-46_031323

Lab Sample ID: 240-181870-3

Date Collected: 03/13/23 12:55

Matrix: Water

Date Received: 03/14/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.2		2.0	0.86	ug/L			03/18/23 11:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		66 - 120					03/18/23 11:07	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			03/20/23 18:41	1
cis-1,2-Dichloroethene	0.77	J	1.0	0.46	ug/L			03/20/23 18:41	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 18:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/20/23 18:41	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 18:41	1
Vinyl chloride	19		1.0	0.45	ug/L			03/20/23 18:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		62 - 137					03/20/23 18:41	1
4-Bromofluorobenzene (Surr)	102		56 - 136					03/20/23 18:41	1
Toluene-d8 (Surr)	91		78 - 122					03/20/23 18:41	1
Dibromofluoromethane (Surr)	93		73 - 120					03/20/23 18:41	1

Surrogate Summary

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

Job ID: 240-181870-1

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)
240-181870-1	TRIP BLANK_58	95	96	89	90
240-181870-2	MW-68_031323	99	103	92	90
240-181870-3	MW-46_031323	97	102	91	93
240-181911-C-16 MS	Matrix Spike	95	103	89	90
240-181911-C-16 MSD	Matrix Spike Duplicate	98	105	95	98
LCS 240-566003/5	Lab Control Sample	93	95	87	89
MB 240-566003/9	Method Blank	98	106	94	96

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)
240-181763-H-4 MSD	Matrix Spike Duplicate	91
240-181763-K-4 MS	Matrix Spike	83
240-181766-L-4 MS	Matrix Spike	84
240-181766-O-4 MSD	Matrix Spike Duplicate	82
240-181870-2	MW-68_031323	81
240-181870-3	MW-46_031323	81
LCS 240-565819/4	Lab Control Sample	83
LCS 240-565901/4	Lab Control Sample	83
MB 240-565819/6	Method Blank	85
MB 240-565901/6	Method Blank	89

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-181870-1

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

Lab Sample ID: MB 240-566003/9

Matrix: Water

Analysis Batch: 566003

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			03/20/23 12:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/20/23 12:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 12:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/20/23 12:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/20/23 12:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/20/23 12:16	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		03/20/23 12:16	1
4-Bromofluorobenzene (Surr)	106		56 - 136		03/20/23 12:16	1
Toluene-d8 (Surr)	94		78 - 122		03/20/23 12:16	1
Dibromofluoromethane (Surr)	96		73 - 120		03/20/23 12:16	1

Lab Sample ID: LCS 240-566003/5

Matrix: Water

Analysis Batch: 566003

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	20.0	20.3		ug/L		101	77 - 123
Tetrachloroethene	20.0	18.9		ug/L		95	76 - 123
trans-1,2-Dichloroethene	20.0	19.8		ug/L		99	75 - 124
Trichloroethene	20.0	19.5		ug/L		97	70 - 122
Vinyl chloride	20.0	17.1		ug/L		86	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	95		56 - 136
Toluene-d8 (Surr)	87		78 - 122
Dibromofluoromethane (Surr)	89		73 - 120

Lab Sample ID: 240-181911-C-16 MS

Matrix: Water

Analysis Batch: 566003

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result	Qualifier							
1,1-Dichloroethene	13	U	250	214		ug/L		85	56 - 135
cis-1,2-Dichloroethene	1400	E	250	1490	E 4	ug/L		27	66 - 128
Tetrachloroethene	13	U	250	216		ug/L		86	62 - 131
trans-1,2-Dichloroethene	12	J	250	226		ug/L		86	56 - 136
Trichloroethene	13	U	250	231		ug/L		92	61 - 124
Vinyl chloride	41		250	222		ug/L		72	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	89		78 - 122

QC Sample Results

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

Job ID: 240-181870-1

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

Lab Sample ID: 240-181911-C-16 MS
Matrix: Water
Analysis Batch: 566003

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	90		73 - 120

Lab Sample ID: 240-181911-C-16 MSD
Matrix: Water
Analysis Batch: 566003

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1-Dichloroethene	13	U	250	229		ug/L		92	56 - 135	7	26
cis-1,2-Dichloroethene	1400	E	250	1620	E 4	ug/L		80	66 - 128	9	14
Tetrachloroethene	13	U	250	221		ug/L		88	62 - 131	2	20
trans-1,2-Dichloroethene	12	J	250	243		ug/L		93	56 - 136	7	15
Trichloroethene	13	U	250	224		ug/L		90	61 - 124	3	15
Vinyl chloride	41		250	234		ug/L		77	43 - 157	6	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	105		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	98		73 - 120

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

Lab Sample ID: MB 240-565819/6
Matrix: Water
Analysis Batch: 565819

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			03/17/23 13:06	1

	MB	MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	85		66 - 120		03/17/23 13:06	1			

Lab Sample ID: LCS 240-565819/4
Matrix: Water
Analysis Batch: 565819

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,4-Dioxane	10.0	10.9		ug/L		109	80 - 122

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		66 - 120

Lab Sample ID: 240-181763-H-4 MSD
Matrix: Water
Analysis Batch: 565819

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,4-Dioxane	2.0	U	10.0	11.4		ug/L		114	51 - 153	7	16

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QC Sample Results

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

Job ID: 240-181870-1

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	91		66 - 120

Lab Sample ID: 240-181763-K-4 MS
Matrix: Water
Analysis Batch: 565819

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
1,4-Dioxane	2.0	U	10.0	10.7		ug/L		107	51 - 153

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		66 - 120

Lab Sample ID: MB 240-565901/6
Matrix: Water
Analysis Batch: 565901

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			03/18/23 09:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		66 - 120		03/18/23 09:54	1

Lab Sample ID: LCS 240-565901/4
Matrix: Water
Analysis Batch: 565901

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	9.37		ug/L		94	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		66 - 120

Lab Sample ID: 240-181766-L-4 MS
Matrix: Water
Analysis Batch: 565901

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
1,4-Dioxane	0.92	J	10.0	13.8		ug/L		129	51 - 153

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	84		66 - 120

Lab Sample ID: 240-181766-O-4 MSD
Matrix: Water
Analysis Batch: 565901

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
1,4-Dioxane	0.92	J	10.0	13.3		ug/L		124	51 - 153	4	16

QC Sample Results

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

Job ID: 240-181870-1

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

Lab Sample ID: 240-181766-O-4 MSD

Matrix: Water

Analysis Batch: 565901

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	82		66 - 120

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- 7
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- 10
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- 12
- 13
- 14

QC Association Summary

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

Job ID: 240-181870-1

GC/MS VOA

Analysis Batch: 565819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181870-2	MW-68_031323	Total/NA	Water	8260D SIM	
MB 240-565819/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-565819/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-181763-H-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	
240-181763-K-4 MS	Matrix Spike	Total/NA	Water	8260D SIM	

Analysis Batch: 565901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181870-3	MW-46_031323	Total/NA	Water	8260D SIM	
MB 240-565901/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-565901/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-181766-L-4 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-181766-O-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 566003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181870-1	TRIP BLANK_58	Total/NA	Water	8260D	
240-181870-2	MW-68_031323	Total/NA	Water	8260D	
240-181870-3	MW-46_031323	Total/NA	Water	8260D	
MB 240-566003/9	Method Blank	Total/NA	Water	8260D	
LCS 240-566003/5	Lab Control Sample	Total/NA	Water	8260D	
240-181911-C-16 MS	Matrix Spike	Total/NA	Water	8260D	
240-181911-C-16 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-181870-1

Client Sample ID: TRIP BLANK_58

Lab Sample ID: 240-181870-1

Date Collected: 03/13/23 00:00

Matrix: Water

Date Received: 03/14/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566003	TJL1	EET CAN	03/20/23 17:54

Client Sample ID: MW-68_031323

Lab Sample ID: 240-181870-2

Date Collected: 03/13/23 10:25

Matrix: Water

Date Received: 03/14/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566003	TJL1	EET CAN	03/20/23 18:18
Total/NA	Analysis	8260D SIM		1	565819	BAJ	EET CAN	03/17/23 13:30

Client Sample ID: MW-46_031323

Lab Sample ID: 240-181870-3

Date Collected: 03/13/23 12:55

Matrix: Water

Date Received: 03/14/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	566003	TJL1	EET CAN	03/20/23 18:41
Total/NA	Analysis	8260D SIM		1	565901	BAJ	EET CAN	03/18/23 11:07

Laboratory References:

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



Accreditation/Certification Summary

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

Job ID: 240-181870-1

Laboratory: Eurofins Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	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.



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

Regulatory program: DW NPDES RCRA Other

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

Client Project Manager: Kris Hinskey
Site Contact: Christina Weaver
Telephone: 248-994-2240
Email: kristoffer.hinskey@arcadis.com

Lab Contact: Mike DeMonico
Telephone: 330-497-9396

Sample Name: Sommer Guy
Method of Shipment/Carrier:
Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Composite=C / Grab=Q	Analyses						Special Specific Notes / Special Instructions:						
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl			NaOH	ZnAc/NaOH	Uppers	Other:	1-DCE 8260B	cis-1,2-DCE 8260B		Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	
			1	1	1	1	1	1	1	1			1	1	1	1	1	1		1	1	1	1	1	1
TRIP BLANK_58	---	---																						1 Trip Blank	
MW-68-031323	3/13/23	1025																							3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-46-031323	3/13/23	1255																							

240-181870 Chain of Custody

Sample Disposal (A fee may be assessed if samples are not returned): Return to Client Disposal By Lab

Possible Hazard Identification: Non-Hazard Irritant Flammable Poison B Unknown

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	3/13/23 1425	Judy Mar	FEA	3/13/23 1405
Judy Mar	FEA	3/13/23 1405	M.A.A.	FEC	3/14/23 9:50



Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : 181870

Client ARCADIS

Site Name _____

Cooler unpacked by:

Cooler Received on 3/14/23

Opened on 3/14/23

M. S. S.

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC 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 # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. 1.5 °C Corrected Cooler Temp. 1.4 °C
 - IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C


- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 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

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

- 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# HC293086
- 14. Were VOAs on the COC? Yes No
- 15. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01042016 Yes No
- 17. Was a LL Hg or Me Hg trip blank present? Yes No

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

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

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: _____

DATA VERIFICATION REPORT



March 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 - Barberton

Laboratory submittal: 181870-1

Sample date: 2023-03-13

Report received by CADENA: 2023-03-22

Initial Data Verification completed by CADENA: 2023-03-22

Number of Samples:3

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, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

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

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <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 - Barberton

Laboratory Submittal: 181870-1

Sample Name:	TRIP BLANK_58	MW-68_031323	MW-46_031323
Lab Sample ID:	2401818701	2401818702	2401818703
Sample Date:	3/13/2023	3/13/2023	3/13/2023

Analyte	Cas No.	TRIP BLANK_58				MW-68_031323				MW-46_031323			
		Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report 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	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	8.6	1.0	ug/l	---	0.77	1.0	ug/l	J
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	1.4	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	52	1.0	ug/l	---	19	1.0	ug/l	---
<u>OSW-8260DSIM</u>													
1,4-Dioxane	123-91-1					5.1	2.0	ug/l	---	2.2	2.0	ug/l	---