

ANALYTICAL REPORT

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North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-160447-1
Client Project/Site: Ford LTP - Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/7/2021 7:35:37 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

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

Job ID: 240-160447-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery 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.
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 U.S., Inc.
Project/Site: Ford LTP - Off-Site

Job ID: 240-160447-1

Job ID: 240-160447-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-160447-1

Comments

No additional comments.

Receipt

The samples were received on 11/19/2021 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 was 1.3° C.

GC/MS VOA

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-514886 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported: TRIP BLANK_177 (240-160447-1), MW-73D_111721 (240-160447-2), MW-73SR_111721 (240-160447-3) and (LCS 240-514886/4).

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-514992 recovered outside control limits for the following analyte: Trichloroethene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: DUP-10 (240-160447-4), MW-75D_111721 (240-160447-5) and (LCS 240-514992/5).

Method 8260B SIM: The matrix spike/matrix spike duplicate (MS/MSD) for analytical batch 240-514345 is not reported due to analyst error during prep.

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

VOA Prep

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

Method Summary

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

Job ID: 240-160447-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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- 10
- 11
- 12
- 13
- 14

Sample Summary

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

Job ID: 240-160447-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-160447-1	TRIP BLANK_177	Water	11/17/21 00:00	11/19/21 09:50
240-160447-2	MW-73D_111721	Water	11/17/21 11:20	11/19/21 09:50
240-160447-3	MW-73SR_111721	Water	11/17/21 12:40	11/19/21 09:50
240-160447-4	DUP-10	Water	11/17/21 00:00	11/19/21 09:50
240-160447-5	MW-75D_111721	Water	11/17/21 15:10	11/19/21 09:50

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- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-160447-1

Client Sample ID: TRIP BLANK_177

Lab Sample ID: 240-160447-1

No Detections.

Client Sample ID: MW-73D_111721

Lab Sample ID: 240-160447-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.1		2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-73SR_111721

Lab Sample ID: 240-160447-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.4		1.0	0.46	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-10

Lab Sample ID: 240-160447-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.9		2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-75D_111721

Lab Sample ID: 240-160447-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.2		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	2.4		1.0	0.45	ug/L	1		8260B	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 - Off-Site

Job ID: 240-160447-1

Client Sample ID: TRIP BLANK_177

Lab Sample ID: 240-160447-1

Date Collected: 11/17/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/21 17:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/21 17:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 17:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 17:00	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/29/21 17:00	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 17:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		62 - 137		11/29/21 17:00	1
4-Bromofluorobenzene (Surr)	97		56 - 136		11/29/21 17:00	1
Toluene-d8 (Surr)	82		78 - 122		11/29/21 17:00	1
Dibromofluoromethane (Surr)	90		73 - 120		11/29/21 17:00	1

Client Sample Results

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

Job ID: 240-160447-1

Client Sample ID: MW-73D_111721

Lab Sample ID: 240-160447-2

Date Collected: 11/17/21 11:20

Matrix: Water

Date Received: 11/19/21 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.1		2.0	0.86	ug/L			11/23/21 23:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	71		66 - 120		11/23/21 23:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/21 17:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/21 17:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 17:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 17:22	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			11/29/21 17:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 17:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		62 - 137		11/29/21 17:22	1
4-Bromofluorobenzene (Surr)	98		56 - 136		11/29/21 17:22	1
Toluene-d8 (Surr)	84		78 - 122		11/29/21 17:22	1
Dibromofluoromethane (Surr)	91		73 - 120		11/29/21 17:22	1

Client Sample Results

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

Job ID: 240-160447-1

Client Sample ID: MW-73SR_111721

Lab Sample ID: 240-160447-3

Date Collected: 11/17/21 12:40

Matrix: Water

Date Received: 11/19/21 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/23/21 23:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	72		66 - 120					11/23/21 23:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/29/21 17:45	1
cis-1,2-Dichloroethene	2.4		1.0	0.46	ug/L			11/29/21 17:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 17:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 17:45	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			11/29/21 17:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		62 - 137					11/29/21 17:45	1
4-Bromofluorobenzene (Surr)	95		56 - 136					11/29/21 17:45	1
Toluene-d8 (Surr)	82		78 - 122					11/29/21 17:45	1
Dibromofluoromethane (Surr)	92		73 - 120					11/29/21 17:45	1

Client Sample Results

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

Job ID: 240-160447-1

Client Sample ID: DUP-10

Lab Sample ID: 240-160447-4

Date Collected: 11/17/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.9		2.0	0.86	ug/L			11/24/21 00:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	73		66 - 120		11/24/21 00:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/30/21 14:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/21 14:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 14:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/21 14:57	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			11/30/21 14:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/21 14:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		62 - 137		11/30/21 14:57	1
4-Bromofluorobenzene (Surr)	92		56 - 136		11/30/21 14:57	1
Toluene-d8 (Surr)	84		78 - 122		11/30/21 14:57	1
Dibromofluoromethane (Surr)	85		73 - 120		11/30/21 14:57	1

Client Sample Results

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

Job ID: 240-160447-1

Client Sample ID: MW-75D_111721

Lab Sample ID: 240-160447-5

Date Collected: 11/17/21 15:10

Matrix: Water

Date Received: 11/19/21 09:50

Method: 8260B 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			11/24/21 00:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		66 - 120		11/24/21 00:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/30/21 15:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/21 15:20	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 15:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/21 15:20	1
Trichloroethene	1.0	U *	1.0	0.44	ug/L			11/30/21 15:20	1
Vinyl chloride	2.4		1.0	0.45	ug/L			11/30/21 15:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		62 - 137		11/30/21 15:20	1
4-Bromofluorobenzene (Surr)	96		56 - 136		11/30/21 15:20	1
Toluene-d8 (Surr)	87		78 - 122		11/30/21 15:20	1
Dibromofluoromethane (Surr)	86		73 - 120		11/30/21 15:20	1

Surrogate Summary

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

Job ID: 240-160447-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-160447-1	TRIP BLANK_177	84	97	82	90
240-160447-2	MW-73D_111721	81	98	84	91
240-160447-3	MW-73SR_111721	82	95	82	92
240-160447-4	DUP-10	86	92	84	85
240-160447-5	MW-75D_111721	87	96	87	86
240-160449-B-4 MS	Matrix Spike	81	100	82	96
240-160449-B-4 MSD	Matrix Spike Duplicate	80	98	82	97
240-160449-E-4 MS	Matrix Spike	88	99	87	90
240-160449-E-4 MSD	Matrix Spike Duplicate	85	95	83	90
LCS 240-514886/4	Lab Control Sample	80	99	82	95
LCS 240-514992/5	Lab Control Sample	89	101	89	94
MB 240-514886/7	Method Blank	77	91	78	84
MB 240-514992/8	Method Blank	88	96	86	87

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(66-120)
240-160447-2	MW-73D_111721	71
240-160447-3	MW-73SR_111721	72
240-160447-4	DUP-10	73
240-160447-5	MW-75D_111721	77
LCS 240-514345/4	Lab Control Sample	75
MB 240-514345/5	Method Blank	76

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-160447-1

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

Lab Sample ID: MB 240-514886/7
Matrix: Water
Analysis Batch: 514886

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			11/29/21 15:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/21 15:16	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 15:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/21 15:16	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/21 15:16	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/21 15:16	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	77		62 - 137		11/29/21 15:16	1
4-Bromofluorobenzene (Surr)	91		56 - 136		11/29/21 15:16	1
Toluene-d8 (Surr)	78		78 - 122		11/29/21 15:16	1
Dibromofluoromethane (Surr)	84		73 - 120		11/29/21 15:16	1

Lab Sample ID: LCS 240-514886/4
Matrix: Water
Analysis Batch: 514886

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	20.0	19.1		ug/L		96	63 - 134
cis-1,2-Dichloroethene	20.0	22.3		ug/L		111	77 - 123
Tetrachloroethene	20.0	23.1		ug/L		116	76 - 123
trans-1,2-Dichloroethene	20.0	21.4		ug/L		107	75 - 124
Trichloroethene	20.0	27.9	*+	ug/L		140	70 - 122
Vinyl chloride	20.0	19.4		ug/L		97	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	80		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	82		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120

Lab Sample ID: 240-160449-B-4 MS
Matrix: Water
Analysis Batch: 514886

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	50	U	1000	827		ug/L		83	56 - 135
cis-1,2-Dichloroethene	100		1000	1090		ug/L		99	66 - 128
Tetrachloroethene	50	U	1000	981		ug/L		98	62 - 131
trans-1,2-Dichloroethene	50	U	1000	913		ug/L		91	56 - 136
Trichloroethene	50	U F1 *+	1000	1230		ug/L		123	61 - 124
Vinyl chloride	200		1000	963		ug/L		76	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	81		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	82		78 - 122

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QC Sample Results

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

Job ID: 240-160447-1

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

Lab Sample ID: 240-160449-B-4 MS
Matrix: Water
Analysis Batch: 514886

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	96		73 - 120

Lab Sample ID: 240-160449-B-4 MSD
Matrix: Water
Analysis Batch: 514886

Client Sample ID: Matrix Spike Duplicate
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	50	U	1000	879		ug/L		88	56 - 135	6	26
cis-1,2-Dichloroethene	100		1000	1170		ug/L		107	66 - 128	8	14
Tetrachloroethene	50	U	1000	1010		ug/L		101	62 - 131	3	20
trans-1,2-Dichloroethene	50	U	1000	1010		ug/L		101	56 - 136	10	15
Trichloroethene	50	U F1 **	1000	1310	F1	ug/L		131	61 - 124	7	15
Vinyl chloride	200		1000	1040		ug/L		84	43 - 157	8	24

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	80		62 - 137
<i>4-Bromofluorobenzene (Surr)</i>	98		56 - 136
<i>Toluene-d8 (Surr)</i>	82		78 - 122
<i>Dibromofluoromethane (Surr)</i>	97		73 - 120

Lab Sample ID: MB 240-514992/8
Matrix: Water
Analysis Batch: 514992

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB 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			11/30/21 12:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/21 12:45	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 12:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/21 12:45	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 12:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/21 12:45	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>	88		62 - 137		11/30/21 12:45	1
<i>4-Bromofluorobenzene (Surr)</i>	96		56 - 136		11/30/21 12:45	1
<i>Toluene-d8 (Surr)</i>	86		78 - 122		11/30/21 12:45	1
<i>Dibromofluoromethane (Surr)</i>	87		73 - 120		11/30/21 12:45	1

Lab Sample ID: LCS 240-514992/5
Matrix: Water
Analysis Batch: 514992

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	20.0	21.8		ug/L		109	63 - 134
cis-1,2-Dichloroethene	20.0	23.0		ug/L		115	77 - 123
Tetrachloroethene	20.0	21.5		ug/L		108	76 - 123
trans-1,2-Dichloroethene	20.0	23.9		ug/L		119	75 - 124
Trichloroethene	20.0	27.0	*+	ug/L		135	70 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-160447-1

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

Lab Sample ID: LCS 240-514992/5
Matrix: Water
Analysis Batch: 514992

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	20.0	22.6		ug/L		113	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	89		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

Lab Sample ID: 240-160449-E-4 MS
Matrix: Water
Analysis Batch: 514992

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	5.0	U	100	96.4		ug/L		96	56 - 135
cis-1,2-Dichloroethene	87		100	186		ug/L		99	66 - 128
Tetrachloroethene	5.0	U	100	90.9		ug/L		91	62 - 131
trans-1,2-Dichloroethene	5.0	U	100	106		ug/L		106	56 - 136
Trichloroethene	5.0	U *+	100	117		ug/L		117	61 - 124
Vinyl chloride	250		100	334	E	ug/L		87	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	87		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

Lab Sample ID: 240-160449-E-4 MSD
Matrix: Water
Analysis Batch: 514992

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	5.0	U	100	100		ug/L		100	56 - 135	4	26
cis-1,2-Dichloroethene	87		100	185		ug/L		99	66 - 128	0	14
Tetrachloroethene	5.0	U	100	91.7		ug/L		92	62 - 131	1	20
trans-1,2-Dichloroethene	5.0	U	100	109		ug/L		109	56 - 136	3	15
Trichloroethene	5.0	U *+	100	120		ug/L		120	61 - 124	2	15
Vinyl chloride	250		100	324	E	ug/L		76	43 - 157	3	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		62 - 137
4-Bromofluorobenzene (Surr)	95		56 - 136
Toluene-d8 (Surr)	83		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

QC Sample Results

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

Job ID: 240-160447-1

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

Lab Sample ID: MB 240-514345/5
Matrix: Water
Analysis Batch: 514345

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			11/23/21 15:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		66 - 120					11/23/21 15:10	1

Lab Sample ID: LCS 240-514345/4
Matrix: Water
Analysis Batch: 514345

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	10.2		ug/L		102	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	75		66 - 120				

QC Association Summary

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

Job ID: 240-160447-1

GC/MS VOA

Analysis Batch: 514345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160447-2	MW-73D_111721	Total/NA	Water	8260B SIM	
240-160447-3	MW-73SR_111721	Total/NA	Water	8260B SIM	
240-160447-4	DUP-10	Total/NA	Water	8260B SIM	
240-160447-5	MW-75D_111721	Total/NA	Water	8260B SIM	
MB 240-514345/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-514345/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Analysis Batch: 514886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160447-1	TRIP BLANK_177	Total/NA	Water	8260B	
240-160447-2	MW-73D_111721	Total/NA	Water	8260B	
240-160447-3	MW-73SR_111721	Total/NA	Water	8260B	
MB 240-514886/7	Method Blank	Total/NA	Water	8260B	
LCS 240-514886/4	Lab Control Sample	Total/NA	Water	8260B	
240-160449-B-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-160449-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 514992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160447-4	DUP-10	Total/NA	Water	8260B	
240-160447-5	MW-75D_111721	Total/NA	Water	8260B	
MB 240-514992/8	Method Blank	Total/NA	Water	8260B	
LCS 240-514992/5	Lab Control Sample	Total/NA	Water	8260B	
240-160449-E-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-160449-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-160447-1

Client Sample ID: TRIP BLANK_177

Lab Sample ID: 240-160447-1

Date Collected: 11/17/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514886	11/29/21 17:00	HMB	TAL CAN

Client Sample ID: MW-73D_111721

Lab Sample ID: 240-160447-2

Date Collected: 11/17/21 11:20

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514886	11/29/21 17:22	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514345	11/23/21 23:25	CS	TAL CAN

Client Sample ID: MW-73SR_111721

Lab Sample ID: 240-160447-3

Date Collected: 11/17/21 12:40

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514886	11/29/21 17:45	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514345	11/23/21 23:50	CS	TAL CAN

Client Sample ID: DUP-10

Lab Sample ID: 240-160447-4

Date Collected: 11/17/21 00:00

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514992	11/30/21 14:57	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514345	11/24/21 00:15	CS	TAL CAN

Client Sample ID: MW-75D_111721

Lab Sample ID: 240-160447-5

Date Collected: 11/17/21 15:10

Matrix: Water

Date Received: 11/19/21 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514992	11/30/21 15:20	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	514345	11/24/21 00:40	CS	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

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

Job ID: 240-160447-1

Laboratory: Eurofins TestAmerica, 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	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

1-2/13

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 Off-Site Project Number: 30080642-402-04 PO # 30080642-402-04		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		Site Contact: Julia McClafferty Telephone: 734-644-5131	
Sampler Name: SARA ANTONIA HICUOCE Collector: CHRISTIANA WEAVER Method of Shipment/Carrier: Shipping/Tracking No:		Analysis Turnaround Time TAT in different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day 10 day	
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 checked="" type="checkbox"/> NaOH <input type="checkbox"/> Other:	
Sample Identification TRIP BLANK_177 MW-73D-111721 MW-73SR-111721 DUP-10 MW-75D-111721		Filtered Sample (Y/N) Composite C/Grab G 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	
Sample Date 11/17/21 11/17/21 11/17/21 11/17/21		Sample Time --- 1120 1210 --- 1510	
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 (A 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 jtomalia@cadenaco.com, Cadena #E203631 Level IV Reporting requested.		Barcode: 240-160447 Chain of Custody	
Relinquished by: SA I Oprea Relinquished by: Christina Relinquished by: Jen Hoe		Received by: NONE COLD STORAGE Received by: Jen Hoe Received in Laboratory by: Jimmy Wynn	
Company: ARCADIS Company: ARCADIS Company: ETA		Company: ARCADIS Company: ETA Company: ETA	
Date/Time: 11/17/21 / 1620 Date/Time: 11/18/21 / 1038 Date/Time: 11/18/21 / 1040		Date/Time: 11/17/21 / 1620 Date/Time: 11/18/21 / 1039 Date/Time: 11-19-21 950	

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login #: 160447

Canton Facility

Client: ARCADIS Site Name: Cooler Received on: 11-19-21 Opened on: 11-19-21

Cooler unpacked by: Nancy Payer

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

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

TestAmerica Cooler # TA 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 IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.3 °C IR GUN #IR-15 (CF +0.2°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 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 pH Strip Lot# HC157842

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 # 59072 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:

No SIM on TB per corrected COC, 11/19/21

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: