

ANALYTICAL REPORT

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Laboratory Job ID: 240-160448-1
Client Project/Site: Ford LTP - On-Site

For:
ARCADIS U.S., Inc.
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Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
12/7/2021 7:36:10 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 - On-Site

Job ID: 240-160448-1

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 - On-Site

Job ID: 240-160448-1

Job ID: 240-160448-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-160448-1

Comments

No additional comments.

Receipt

The samples were received on 11/19/2021 8:00 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 240-514992 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: TRIP BLANK_179 (240-160448-1), MW-122_111721 (240-160448-2) 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.

Method 8260B SIM: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-122_111721 (240-160448-2), MW-55_111721 (240-160448-3), MW-55D_111721 (240-160448-4) and MW-56_111721 (240-160448-5). Elevated reporting limits (RLs) are provided.

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 - On-Site

Job ID: 240-160448-1

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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- 2
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- 9
- 10
- 11
- 12
- 13
- 14

Sample Summary

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

Job ID: 240-160448-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-160448-1	TRIP BLANK_179	Water	11/17/21 00:00	11/19/21 08:00
240-160448-2	MW-122_111721	Water	11/17/21 10:56	11/19/21 08:00
240-160448-3	MW-55_111721	Water	11/17/21 12:11	11/19/21 08:00
240-160448-4	MW-55D_111721	Water	11/17/21 13:26	11/19/21 08:00
240-160448-5	MW-56_111721	Water	11/17/21 14:41	11/19/21 08:00

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

Detection Summary

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

Job ID: 240-160448-1

Client Sample ID: TRIP BLANK_179

Lab Sample ID: 240-160448-1

No Detections.

Client Sample ID: MW-122_111721

Lab Sample ID: 240-160448-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.3		1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: MW-55_111721

Lab Sample ID: 240-160448-3

No Detections.

Client Sample ID: MW-55D_111721

Lab Sample ID: 240-160448-4

No Detections.

Client Sample ID: MW-56_111721

Lab Sample ID: 240-160448-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.1		1.0	0.46	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 - On-Site

Job ID: 240-160448-1

Client Sample ID: TRIP BLANK_179

Lab Sample ID: 240-160448-1

Date Collected: 11/17/21 00:00

Matrix: Water

Date Received: 11/19/21 08:00

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 15:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/21 15:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 15:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/21 15:42	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/30/21 15:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/21 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		62 - 137		11/30/21 15:42	1
4-Bromofluorobenzene (Surr)	94		56 - 136		11/30/21 15:42	1
Toluene-d8 (Surr)	85		78 - 122		11/30/21 15:42	1
Dibromofluoromethane (Surr)	85		73 - 120		11/30/21 15:42	1

Client Sample Results

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

Job ID: 240-160448-1

Client Sample ID: MW-122_111721

Lab Sample ID: 240-160448-2

Date Collected: 11/17/21 10:56

Matrix: Water

Date Received: 11/19/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			11/24/21 01:05	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		66 - 120		11/24/21 01:05	2

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 16:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/21 16:05	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/21 16:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/21 16:05	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/30/21 16:05	1
Vinyl chloride	2.3		1.0	0.45	ug/L			11/30/21 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		11/30/21 16:05	1
4-Bromofluorobenzene (Surr)	97		56 - 136		11/30/21 16:05	1
Toluene-d8 (Surr)	86		78 - 122		11/30/21 16:05	1
Dibromofluoromethane (Surr)	89		73 - 120		11/30/21 16:05	1

Client Sample Results

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

Job ID: 240-160448-1

Client Sample ID: MW-55_111721

Lab Sample ID: 240-160448-3

Date Collected: 11/17/21 12:11

Matrix: Water

Date Received: 11/19/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			11/24/21 01:30	2
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	76		66 - 120					11/24/21 01:30	2

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			12/01/21 14:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/21 14:24	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 14:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/21 14:24	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 14:24	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/21 14:24	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		62 - 137					12/01/21 14:24	1
4-Bromofluorobenzene (Surr)	97		56 - 136					12/01/21 14:24	1
Toluene-d8 (Surr)	92		78 - 122					12/01/21 14:24	1
Dibromofluoromethane (Surr)	105		73 - 120					12/01/21 14:24	1

Client Sample Results

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

Job ID: 240-160448-1

Client Sample ID: MW-55D_111721

Lab Sample ID: 240-160448-4

Date Collected: 11/17/21 13:26

Matrix: Water

Date Received: 11/19/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			11/23/21 17:33	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		66 - 120		11/23/21 17:33	2

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			12/01/21 14:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/21 14:48	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 14:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/21 14:48	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 14:48	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/21 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		12/01/21 14:48	1
4-Bromofluorobenzene (Surr)	95		56 - 136		12/01/21 14:48	1
Toluene-d8 (Surr)	92		78 - 122		12/01/21 14:48	1
Dibromofluoromethane (Surr)	106		73 - 120		12/01/21 14:48	1

Client Sample Results

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

Job ID: 240-160448-1

Client Sample ID: MW-56_111721

Lab Sample ID: 240-160448-5

Date Collected: 11/17/21 14:41

Matrix: Water

Date Received: 11/19/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0	U	4.0	1.7	ug/L			11/23/21 17:57	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120		11/23/21 17:57	2

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			12/01/21 15:13	1
cis-1,2-Dichloroethene	1.1		1.0	0.46	ug/L			12/01/21 15:13	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 15:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/21 15:13	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 15:13	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/21 15:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		12/01/21 15:13	1
4-Bromofluorobenzene (Surr)	97		56 - 136		12/01/21 15:13	1
Toluene-d8 (Surr)	94		78 - 122		12/01/21 15:13	1
Dibromofluoromethane (Surr)	109		73 - 120		12/01/21 15:13	1

Surrogate Summary

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

Job ID: 240-160448-1

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)
240-160405-A-1 MS	Matrix Spike	96	96	97	92
240-160405-A-1 MSD	Matrix Spike Duplicate	98	99	98	93
240-160448-1	TRIP BLANK_179	85	94	85	85
240-160448-2	MW-122_111721	90	97	86	89
240-160448-3	MW-55_111721	106	97	92	105
240-160448-4	MW-55D_111721	105	95	92	106
240-160448-5	MW-56_111721	108	97	94	109
240-160449-E-4 MS	Matrix Spike	88	99	87	90
240-160449-E-4 MSD	Matrix Spike Duplicate	85	95	83	90
LCS 240-514992/5	Lab Control Sample	89	101	89	94
LCS 240-515222/5	Lab Control Sample	93	95	95	92
MB 240-514992/8	Method Blank	88	96	86	87
MB 240-515222/8	Method Blank	101	96	93	97

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)
240-160448-2	MW-122_111721	76
240-160448-3	MW-55_111721	76
240-160448-4	MW-55D_111721	97
240-160448-5	MW-56_111721	98
240-160508-G-2 MS	Matrix Spike	100
240-160508-O-2 MSD	Matrix Spike Duplicate	100
LCS 240-514345/4	Lab Control Sample	75
LCS 240-514346/3	Lab Control Sample	97
MB 240-514345/5	Method Blank	76
MB 240-514346/4	Method Blank	96

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-160448-1

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

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

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			11/30/21 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

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	88		62 - 137		11/30/21 12:45	1
4-Bromofluorobenzene (Surr)	96		56 - 136		11/30/21 12:45	1
Toluene-d8 (Surr)	86		78 - 122		11/30/21 12:45	1
Dibromofluoromethane (Surr)	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

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

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
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	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
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	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	87		78 - 122

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QC Sample Results

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

Job ID: 240-160448-1

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

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

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>	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

<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	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

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

Lab Sample ID: MB 240-515222/8
Matrix: Water
Analysis Batch: 515222

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			12/01/21 13:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			12/01/21 13:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 13:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			12/01/21 13:59	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			12/01/21 13:59	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			12/01/21 13:59	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>	101		62 - 137		12/01/21 13:59	1
<i>4-Bromofluorobenzene (Surr)</i>	96		56 - 136		12/01/21 13:59	1
<i>Toluene-d8 (Surr)</i>	93		78 - 122		12/01/21 13:59	1
<i>Dibromofluoromethane (Surr)</i>	97		73 - 120		12/01/21 13:59	1

Lab Sample ID: LCS 240-515222/5
Matrix: Water
Analysis Batch: 515222

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	21.6		ug/L		108	63 - 134
cis-1,2-Dichloroethene	20.0	20.1		ug/L		100	77 - 123
Tetrachloroethene	20.0	21.9		ug/L		109	76 - 123
trans-1,2-Dichloroethene	20.0	20.4		ug/L		102	75 - 124
Trichloroethene	20.0	21.6		ug/L		108	70 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-160448-1

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

Lab Sample ID: LCS 240-515222/5

Matrix: Water

Analysis Batch: 515222

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	16.0		ug/L		80	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
4-Bromofluorobenzene (Surr)	95		56 - 136
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

Lab Sample ID: 240-160405-A-1 MS

Matrix: Water

Analysis Batch: 515222

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	5.9	J	200	167		ug/L		81	56 - 135
cis-1,2-Dichloroethene	370	F1	200	409	F1	ug/L		20	66 - 128
Tetrachloroethene	110		200	264		ug/L		77	62 - 131
trans-1,2-Dichloroethene	10	U	200	154		ug/L		77	56 - 136
Trichloroethene	110		200	258		ug/L		74	61 - 124
Vinyl chloride	27		200	130		ug/L		51	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	96		56 - 136
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	92		73 - 120

Lab Sample ID: 240-160405-A-1 MSD

Matrix: Water

Analysis Batch: 515222

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	5.9	J	200	171		ug/L		83	56 - 135	2	26
cis-1,2-Dichloroethene	370	F1	200	409	F1	ug/L		20	66 - 128	0	14
Tetrachloroethene	110		200	256		ug/L		72	62 - 131	3	20
trans-1,2-Dichloroethene	10	U	200	163		ug/L		81	56 - 136	5	15
Trichloroethene	110		200	262		ug/L		76	61 - 124	1	15
Vinyl chloride	27		200	138		ug/L		56	43 - 157	6	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	93		73 - 120

QC Sample Results

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

Job ID: 240-160448-1

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				

Lab Sample ID: MB 240-514346/4
Matrix: Water
Analysis Batch: 514346

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 16:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		66 - 120					11/23/21 16:45	1

Lab Sample ID: LCS 240-514346/3
Matrix: Water
Analysis Batch: 514346

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	9.09		ug/L		91	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		66 - 120				

Lab Sample ID: 240-160508-G-2 MS
Matrix: Water
Analysis Batch: 514346

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	9.43		ug/L		94	51 - 153
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		66 - 120						

QC Sample Results

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

Job ID: 240-160448-1

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

Lab Sample ID: 240-160508-O-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 514346

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	9.76		ug/L		98	51 - 153	3	16
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	100		66 - 120								

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QC Association Summary

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

Job ID: 240-160448-1

GC/MS VOA

Analysis Batch: 514345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160448-2	MW-122_111721	Total/NA	Water	8260B SIM	
240-160448-3	MW-55_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: 514346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160448-4	MW-55D_111721	Total/NA	Water	8260B SIM	
240-160448-5	MW-56_111721	Total/NA	Water	8260B SIM	
MB 240-514346/4	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-514346/3	Lab Control Sample	Total/NA	Water	8260B SIM	
240-160508-G-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-160508-O-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 514992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160448-1	TRIP BLANK_179	Total/NA	Water	8260B	
240-160448-2	MW-122_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	

Analysis Batch: 515222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160448-3	MW-55_111721	Total/NA	Water	8260B	
240-160448-4	MW-55D_111721	Total/NA	Water	8260B	
240-160448-5	MW-56_111721	Total/NA	Water	8260B	
MB 240-515222/8	Method Blank	Total/NA	Water	8260B	
LCS 240-515222/5	Lab Control Sample	Total/NA	Water	8260B	
240-160405-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-160405-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-160448-1

Client Sample ID: TRIP BLANK_179

Lab Sample ID: 240-160448-1

Date Collected: 11/17/21 00:00

Matrix: Water

Date Received: 11/19/21 08:00

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 15:42	HMB	TAL CAN

Client Sample ID: MW-122_111721

Lab Sample ID: 240-160448-2

Date Collected: 11/17/21 10:56

Matrix: Water

Date Received: 11/19/21 08:00

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 16:05	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		2	514345	11/24/21 01:05	CS	TAL CAN

Client Sample ID: MW-55_111721

Lab Sample ID: 240-160448-3

Date Collected: 11/17/21 12:11

Matrix: Water

Date Received: 11/19/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	515222	12/01/21 14:24	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		2	514345	11/24/21 01:30	CS	TAL CAN

Client Sample ID: MW-55D_111721

Lab Sample ID: 240-160448-4

Date Collected: 11/17/21 13:26

Matrix: Water

Date Received: 11/19/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	515222	12/01/21 14:48	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		2	514346	11/23/21 17:33	CS	TAL CAN

Client Sample ID: MW-56_111721

Lab Sample ID: 240-160448-5

Date Collected: 11/17/21 14:41

Matrix: Water

Date Received: 11/19/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	515222	12/01/21 15:13	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		2	514346	11/23/21 17:57	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 - On-Site

Job ID: 240-160448-1

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



12113

Chain of Custody Record

TestAmerica

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

THE LEADER IN ENVIRONMENTAL TESTING

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
 Address: 28550 Cahot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Project Name: Ford LTP On-Site
 Project Number: 30080642.401.03
 PO # 30080642.401.03

Site Contact: Julia McClafferty
 Telephone: 734-644-5131
 Lab Contact: Mike DelMonico
 Telephone: 330-497-9396

Client Project Manager: Kris Hinskey
 Email: kris@hinskey.com
 Sampler Name: Gary Schaffer
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives							Filtered Sample (Y/N)	Composite=C / Grab=C	Analyses					Sample Specific Notes / Special Instructions:			
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	NaOH	NaOH			Others	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B		TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
TRIP BLANK_ 179	---	---	X																					1 Trip Blank
MW-122-111721	11/17/21	1051	X																					3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-55-110721	11/17/21	1211	X																					
MW-55D-111721	11/17/21	1324	X																					
MW-54-111721	11/17/21	1441	X																					

Barcode: 240-160448 Chain of Custody

Possible Hazard Identification: Non-Hazard Flammable Irritant

Special Instructions/QC Requirements & Comments: Submit all results through Cadena at tomalla@cadenaco.com. Cadena #E203728 Level IV Reporting requested.

Relinquished by: GARY SCHAFER
 Relinquished by: Gary Schaffer
 Relinquished by: Gary Schaffer

Received by: NOVA COLO STORAGE
 Received by: Jennifer
 Received in Laboratory by: Gary Schaffer

Date Time: 11/18/21 9:26
 Date Time: 11/18/21 / 1038
 Date Time: 11/18/21 1040

Company: ARCADIS
 Company: ARCADIS
 Company: ETA

Date Time: 11/18/21 9:26
 Date Time: 11/18/21 / 1039
 Date Time: 11-19-21 9:50

Company: ARCADIS
 Company: ETA
 Company: ETA

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login #: 160448

Canton Facility

Client ARCADIS Site Name

Cooler unpacked by: Nancy Boyer

Cooler Received on 11-19-21 Opened on 11-19-21

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

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No

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

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: