

ANALYTICAL REPORT

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

Laboratory Job ID: 240-149852-1
Client Project/Site: Ford LTP On-Site

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

Attn: Kristoffer Hinskey



Authorized for release by:
6/7/2021 2:20:45 PM

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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: 240-149852-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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: 240-149852-1

Job ID: 240-149852-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-149852-1

Comments

No additional comments.

Receipt

The samples were received on 5/21/2021 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 1.0° C.

GC/MS VOA

Method 8260B: The MSD for batch 488315 is outside of the 12 hour QC tune time limit but is reported: TRIP BLANK_110 (240-149852-1).

Method 8260B: The continuing calibration verification (CCV) associated with batch 488142 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: MW-36_051921 (240-149852-2), MW-222S_051921 (240-149852-3), MW-24_051921 (240-149852-4) and MW-218S_051921 (240-149852-5).

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: 240-149852-1

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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- 12
- 13
- 14

Sample Summary

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

Job ID: 240-149852-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-149852-1	TRIP BLANK_110	Water	05/19/21 00:00	05/21/21 08:00	
240-149852-2	MW-36_051921	Water	05/19/21 10:22	05/21/21 08:00	
240-149852-3	MW-222S_051921	Water	05/19/21 11:45	05/21/21 08:00	
240-149852-4	MW-24_051921	Water	05/19/21 13:50	05/21/21 08:00	
240-149852-5	MW-218S_051921	Water	05/19/21 15:22	05/21/21 08:00	

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- 2
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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: 240-149852-1

Client Sample ID: TRIP BLANK_110

Lab Sample ID: 240-149852-1

No Detections.

Client Sample ID: MW-36_051921

Lab Sample ID: 240-149852-2

No Detections.

Client Sample ID: MW-222S_051921

Lab Sample ID: 240-149852-3

No Detections.

Client Sample ID: MW-24_051921

Lab Sample ID: 240-149852-4

No Detections.

Client Sample ID: MW-218S_051921

Lab Sample ID: 240-149852-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton



Client Sample Results

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

Job ID: 240-149852-1

Client Sample ID: TRIP BLANK_110

Lab Sample ID: 240-149852-1

Date Collected: 05/19/21 00:00

Matrix: Water

Date Received: 05/21/21 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	0.19	ug/L			06/01/21 19:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/21 19:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/21 19:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/21 19:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/21 19:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/21 19:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/01/21 19:17	1
4-Bromofluorobenzene (Surr)	85		47 - 134		06/01/21 19:17	1
Toluene-d8 (Surr)	97		69 - 122		06/01/21 19:17	1
Dibromofluoromethane (Surr)	86		78 - 129		06/01/21 19:17	1

Client Sample Results

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

Job ID: 240-149852-1

Client Sample ID: MW-36_051921

Lab Sample ID: 240-149852-2

Date Collected: 05/19/21 10:22

Matrix: Water

Date Received: 05/21/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/27/21 21:20	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 133					05/27/21 21:20	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	0.19	ug/L			05/29/21 03:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/21 03:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/21 03:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/21 03:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/21 03:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/21 03:05	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130					05/29/21 03:05	1
4-Bromofluorobenzene (Surr)	81		47 - 134					05/29/21 03:05	1
Toluene-d8 (Surr)	97		69 - 122					05/29/21 03:05	1
Dibromofluoromethane (Surr)	85		78 - 129					05/29/21 03:05	1

Client Sample Results

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

Job ID: 240-149852-1

Client Sample ID: MW-222S_051921

Lab Sample ID: 240-149852-3

Date Collected: 05/19/21 11:45

Matrix: Water

Date Received: 05/21/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/28/21 00:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133					05/28/21 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	0.19	ug/L			05/29/21 04:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/21 04:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/21 04:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/21 04:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/21 04:12	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/21 04:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130					05/29/21 04:12	1
4-Bromofluorobenzene (Surr)	86		47 - 134					05/29/21 04:12	1
Toluene-d8 (Surr)	101		69 - 122					05/29/21 04:12	1
Dibromofluoromethane (Surr)	88		78 - 129					05/29/21 04:12	1

Client Sample Results

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

Job ID: 240-149852-1

Client Sample ID: MW-24_051921

Lab Sample ID: 240-149852-4

Date Collected: 05/19/21 13:50

Matrix: Water

Date Received: 05/21/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/28/21 01:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 133		05/28/21 01:05	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	0.19	ug/L			05/29/21 04:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/21 04:34	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/21 04:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/21 04:34	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/21 04:34	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/21 04:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130		05/29/21 04:34	1
4-Bromofluorobenzene (Surr)	86		47 - 134		05/29/21 04:34	1
Toluene-d8 (Surr)	107		69 - 122		05/29/21 04:34	1
Dibromofluoromethane (Surr)	90		78 - 129		05/29/21 04:34	1

Client Sample Results

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

Job ID: 240-149852-1

Client Sample ID: MW-218S_051921

Lab Sample ID: 240-149852-5

Date Collected: 05/19/21 15:22

Matrix: Water

Date Received: 05/21/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			05/28/21 01:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		05/28/21 01:30	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	0.19	ug/L			05/29/21 04:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/21 04:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/21 04:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/21 04:57	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/21 04:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/21 04:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		05/29/21 04:57	1
4-Bromofluorobenzene (Surr)	84		47 - 134		05/29/21 04:57	1
Toluene-d8 (Surr)	98		69 - 122		05/29/21 04:57	1
Dibromofluoromethane (Surr)	90		78 - 129		05/29/21 04:57	1

Surrogate Summary

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

Job ID: 240-149852-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-149798-C-8 MS	Matrix Spike	89	87	96	86
240-149798-C-8 MSD	Matrix Spike Duplicate	85	88	96	83
240-149852-1	TRIP BLANK_110	92	85	97	86
240-149852-2	MW-36_051921	90	81	97	85
240-149852-2 MS	MW-36-MS_051921	89	89	98	87
240-149852-2 MSD	MW-36-MSD_051921	89	84	95	87
240-149852-3	MW-222S_051921	91	86	101	88
240-149852-4	MW-24_051921	94	86	107	90
240-149852-5	MW-218S_051921	91	84	98	90
LCS 240-488142/4	Lab Control Sample	88	89	99	88
LCS 240-488315/4	Lab Control Sample	87	89	99	86
MB 240-488142/6	Method Blank	91	82	97	89
MB 240-488315/6	Method Blank	88	80	96	85

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (70-133)
240-149852-2	MW-36_051921	99
240-149852-2 MS	MW-36-MS_051921	93
240-149852-2 MSD	MW-36-MSD_051921	94
240-149852-3	MW-222S_051921	95
240-149852-4	MW-24_051921	92
240-149852-5	MW-218S_051921	95
LCS 240-487909/4	Lab Control Sample	93
MB 240-487909/5	Method Blank	98

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-149852-1

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

Lab Sample ID: MB 240-488142/6
Matrix: Water
Analysis Batch: 488142

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	0.19	ug/L			05/29/21 01:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			05/29/21 01:13	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			05/29/21 01:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			05/29/21 01:13	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			05/29/21 01:13	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			05/29/21 01:13	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		05/29/21 01:13	1
4-Bromofluorobenzene (Surr)	82		47 - 134		05/29/21 01:13	1
Toluene-d8 (Surr)	97		69 - 122		05/29/21 01:13	1
Dibromofluoromethane (Surr)	89		78 - 129		05/29/21 01:13	1

Lab Sample ID: LCS 240-488142/4
Matrix: Water
Analysis Batch: 488142

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	10.0	8.35		ug/L		84	73 - 129
cis-1,2-Dichloroethene	10.0	9.32		ug/L		93	75 - 124
Tetrachloroethene	10.0	8.34		ug/L		83	70 - 125
trans-1,2-Dichloroethene	10.0	8.87		ug/L		89	74 - 130
Trichloroethene	10.0	8.42		ug/L		84	71 - 121
Vinyl chloride	10.0	11.5		ug/L		115	61 - 134

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		75 - 130
4-Bromofluorobenzene (Surr)	89		47 - 134
Toluene-d8 (Surr)	99		69 - 122
Dibromofluoromethane (Surr)	88		78 - 129

Lab Sample ID: 240-149852-2 MS
Matrix: Water
Analysis Batch: 488142

Client Sample ID: MW-36-MS_051921
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	8.30		ug/L		83	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	8.79		ug/L		88	68 - 121
Tetrachloroethene	1.0	U	10.0	7.57		ug/L		76	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.38		ug/L		84	69 - 126
Trichloroethene	1.0	U	10.0	7.73		ug/L		77	56 - 124
Vinyl chloride	1.0	U	10.0	10.3		ug/L		103	49 - 136

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	89		75 - 130
4-Bromofluorobenzene (Surr)	89		47 - 134
Toluene-d8 (Surr)	98		69 - 122

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QC Sample Results

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

Job ID: 240-149852-1

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

Lab Sample ID: 240-149852-2 MS
Matrix: Water
Analysis Batch: 488142

Client Sample ID: MW-36-MS_051921
Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	87		78 - 129

Lab Sample ID: 240-149852-2 MSD
Matrix: Water
Analysis Batch: 488142

Client Sample ID: MW-36-MSD_051921
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	1.0	U	10.0	8.30		ug/L		83	64 - 132	0	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.01		ug/L		90	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	7.78		ug/L		78	52 - 129	3	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.66		ug/L		87	69 - 126	3	35
Trichloroethene	1.0	U	10.0	7.55		ug/L		76	56 - 124	2	35
Vinyl chloride	1.0	U	10.0	10.5		ug/L		105	49 - 136	2	35

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	89		75 - 130
<i>4-Bromofluorobenzene (Surr)</i>	84		47 - 134
<i>Toluene-d8 (Surr)</i>	95		69 - 122
<i>Dibromofluoromethane (Surr)</i>	87		78 - 129

Lab Sample ID: MB 240-488315/6
Matrix: Water
Analysis Batch: 488315

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	0.19	ug/L			06/01/21 11:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/21 11:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/21 11:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/21 11:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/21 11:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/21 11:24	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		75 - 130		06/01/21 11:24	1
<i>4-Bromofluorobenzene (Surr)</i>	80		47 - 134		06/01/21 11:24	1
<i>Toluene-d8 (Surr)</i>	96		69 - 122		06/01/21 11:24	1
<i>Dibromofluoromethane (Surr)</i>	85		78 - 129		06/01/21 11:24	1

Lab Sample ID: LCS 240-488315/4
Matrix: Water
Analysis Batch: 488315

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	10.0	10.3		ug/L		103	73 - 129
cis-1,2-Dichloroethene	10.0	10.5		ug/L		105	75 - 124
Tetrachloroethene	10.0	10.7		ug/L		107	70 - 125
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	74 - 130
Trichloroethene	10.0	9.84		ug/L		98	71 - 121

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-149852-1

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

Lab Sample ID: LCS 240-488315/4
Matrix: Water
Analysis Batch: 488315

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	10.9		ug/L		109	61 - 134
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	87		75 - 130				
4-Bromofluorobenzene (Surr)	89		47 - 134				
Toluene-d8 (Surr)	99		69 - 122				
Dibromofluoromethane (Surr)	86		78 - 129				

Lab Sample ID: 240-149798-C-8 MS
Matrix: Water
Analysis Batch: 488315

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	1000	U	10000	6790		ug/L		68	64 - 132
cis-1,2-Dichloroethene	1000	U	10000	8660		ug/L		87	68 - 121
Tetrachloroethene	860	J	10000	8100		ug/L		72	52 - 129
trans-1,2-Dichloroethene	1000	U	10000	7650		ug/L		77	69 - 126
Trichloroethene	1000	U	10000	7590		ug/L		76	56 - 124
Vinyl chloride	1000	U	10000	11100		ug/L		111	49 - 136
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	89		75 - 130						
4-Bromofluorobenzene (Surr)	87		47 - 134						
Toluene-d8 (Surr)	96		69 - 122						
Dibromofluoromethane (Surr)	86		78 - 129						

Lab Sample ID: 240-149798-C-8 MSD
Matrix: Water
Analysis Batch: 488315

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	1000	U	10000	7460		ug/L		75	64 - 132	9	35
cis-1,2-Dichloroethene	1000	U	10000	8780		ug/L		88	68 - 121	1	35
Tetrachloroethene	860	J	10000	9330		ug/L		85	52 - 129	14	35
trans-1,2-Dichloroethene	1000	U	10000	8020		ug/L		80	69 - 126	5	35
Trichloroethene	1000	U	10000	8190		ug/L		82	56 - 124	8	35
Vinyl chloride	1000	U	10000	11900		ug/L		119	49 - 136	7	35
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		75 - 130								
4-Bromofluorobenzene (Surr)	88		47 - 134								
Toluene-d8 (Surr)	96		69 - 122								
Dibromofluoromethane (Surr)	83		78 - 129								

QC Sample Results

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

Job ID: 240-149852-1

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

Lab Sample ID: MB 240-487909/5
Matrix: Water
Analysis Batch: 487909

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			05/27/21 16:20	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 133					05/27/21 16:20	1

Lab Sample ID: LCS 240-487909/4
Matrix: Water
Analysis Batch: 487909

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	10.3		ug/L		103	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	93		70 - 133				

Lab Sample ID: 240-149852-2 MS
Matrix: Water
Analysis Batch: 487909

Client Sample ID: MW-36-MS_051921
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	10.9		ug/L		109	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	93		70 - 133						

Lab Sample ID: 240-149852-2 MSD
Matrix: Water
Analysis Batch: 487909

Client Sample ID: MW-36-MSD_051921
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	10.4		ug/L		104	46 - 170	4	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	94		70 - 133								

QC Association Summary

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

Job ID: 240-149852-1

GC/MS VOA

Analysis Batch: 487909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-149852-2	MW-36_051921	Total/NA	Water	8260B SIM	
240-149852-3	MW-222S_051921	Total/NA	Water	8260B SIM	
240-149852-4	MW-24_051921	Total/NA	Water	8260B SIM	
240-149852-5	MW-218S_051921	Total/NA	Water	8260B SIM	
MB 240-487909/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-487909/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-149852-2 MS	MW-36-MS_051921	Total/NA	Water	8260B SIM	
240-149852-2 MSD	MW-36-MSD_051921	Total/NA	Water	8260B SIM	

Analysis Batch: 488142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-149852-2	MW-36_051921	Total/NA	Water	8260B	
240-149852-3	MW-222S_051921	Total/NA	Water	8260B	
240-149852-4	MW-24_051921	Total/NA	Water	8260B	
240-149852-5	MW-218S_051921	Total/NA	Water	8260B	
MB 240-488142/6	Method Blank	Total/NA	Water	8260B	
LCS 240-488142/4	Lab Control Sample	Total/NA	Water	8260B	
240-149852-2 MS	MW-36-MS_051921	Total/NA	Water	8260B	
240-149852-2 MSD	MW-36-MSD_051921	Total/NA	Water	8260B	

Analysis Batch: 488315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-149852-1	TRIP BLANK_110	Total/NA	Water	8260B	
MB 240-488315/6	Method Blank	Total/NA	Water	8260B	
LCS 240-488315/4	Lab Control Sample	Total/NA	Water	8260B	
240-149798-C-8 MS	Matrix Spike	Total/NA	Water	8260B	
240-149798-C-8 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-149852-1

Client Sample ID: TRIP BLANK_110

Lab Sample ID: 240-149852-1

Date Collected: 05/19/21 00:00

Matrix: Water

Date Received: 05/21/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	488315	06/01/21 19:17	LEE	TAL CAN

Client Sample ID: MW-36_051921

Lab Sample ID: 240-149852-2

Date Collected: 05/19/21 10:22

Matrix: Water

Date Received: 05/21/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	488142	05/29/21 03:05	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	487909	05/27/21 21:20	CS	TAL CAN

Client Sample ID: MW-222S_051921

Lab Sample ID: 240-149852-3

Date Collected: 05/19/21 11:45

Matrix: Water

Date Received: 05/21/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	488142	05/29/21 04:12	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	487909	05/28/21 00:40	CS	TAL CAN

Client Sample ID: MW-24_051921

Lab Sample ID: 240-149852-4

Date Collected: 05/19/21 13:50

Matrix: Water

Date Received: 05/21/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	488142	05/29/21 04:34	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	487909	05/28/21 01:05	CS	TAL CAN

Client Sample ID: MW-218S_051921

Lab Sample ID: 240-149852-5

Date Collected: 05/19/21 15:22

Matrix: Water

Date Received: 05/21/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	488142	05/29/21 04:57	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	487909	05/28/21 01:30	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: 240-149852-1

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	06-30-21
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21 *
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

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

Eurofins TestAmerica, Canton

09/10

Chain of Custody Record

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

Regulatory program: DW NPDES RCRA Other
 Client Project Manager: Kris Hinskey
 Telephone: 248-994-2240
 E-mail: kristoffer.hinskey@arcadis.com
 Project Name: Ford LTP On-Site
 Project Number: 30880642-401.03
 PO # 30880642-401.03

Company Name: Arcadis
 Address: 28559 Cabot Drive, Suite 500
 City/State/Zip: Novi, MI, 48377
 Phone: 248-994-2240
 Site Contact: Julia McClafferty
 Telephone: 734-644-5131

Lab Contact: Mike DelMonico
 Telephone: 330-497-9396
 Analysis Turnaround Time:
 TAT if diff. ent from below:
 10 day
 3 w eks
 1 w ek
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Matrix						Filtered Sample (Y/N)	Composite=C/Grab-Q	Analyses						Sample Specific Notes / Special Instructions:			
			Air	Aqueous	Sediment	Solid	Other	H2SO4			HNO3	HCl	NaOH	ZnAc	Other	1-DCE 8260B		Cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B
TRIP BLANK - 110	---	---	X									X	X	X	X	X	X	X	X	1 Trip Blank
MW-36-MS-051921	5/19/21	1022	X	X	X	X	X					X	X	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260B SIM RUV MS
MW-36-MS-051921	---	1022	X	X	X	X	X					X	X	X	X	X	X	X	X	RUV MS
MW-36-MS-051921	---	1022	X	X	X	X	X					X	X	X	X	X	X	X	X	
MW-24-051921	---	145	X	X	X	X	X					X	X	X	X	X	X	X	X	
MW-24-051921	---	1350	X	X	X	X	X					X	X	X	X	X	X	X	X	
MW-218S-051921	---	1502	X	X	X	X	X					X	X	X	X	X	X	X	X	

Possible Hazard Identification: Non-Hazard
 Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at tomalia@cadenaco.com. Cadena #E203728
 Level IV Reporting requested.

Sample Disposal (A fee may be assessed if samples are re-returned to Client) Disposed By Lab

Relinquished by	Company	Date/Time	Received by	Company	Date/Time	Relinquished by	Company	Date/Time
<i>[Signature]</i>	ARCADIS	5/19/21 1645	<i>[Signature]</i>	ARCADIS	5/19/21 1645	<i>[Signature]</i>	ARCADIS	5/20/21
<i>[Signature]</i>	ARCADIS	5/20/21	<i>[Signature]</i>	ARCADIS	5/20/21 1408	<i>[Signature]</i>	ARCADIS	5/20/21 1408
<i>[Signature]</i>	ARCADIS	5/20/21 1408	<i>[Signature]</i>	ARCADIS	5/20/21 1408	<i>[Signature]</i>	ARCADIS	5/20/21 1408

Barcode: 240-149852 Chain of Custody

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # 149852
Canton Facility

Client Accadis Site Name _____ Cooler unpacked by COLM G
 Cooler Received on 5-21-21 Opened on 5-21-21
 FedEx. 1st Grd UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # VA 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-11 (CF +0.1 °C) Observed Cooler Temp 09 °C Corrected Cooler Temp. 10 °C
 IR GUN #IR-12 (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)? Yes No
 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# HC022887
 14 Were VOAs on the COC? Yes No
 15 Were air bubbles >6 mm in any VOA vials? Larger than this NA
 16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A Yes No
 17 Was a LL Hg or Me Hg trip blank present? Yes No

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

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 _____

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