

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-140741-1
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:
12/3/2020 11:12:48 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

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



Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Method Summary	6
Sample Summary	7
Detection Summary	8
Client Sample Results	9
Surrogate Summary	14
QC Sample Results	15
QC Association Summary	18
Lab Chronicle	19
Certification Summary	20
Chain of Custody	21

Definitions/Glossary

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

Job ID: 240-140741-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

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

Job ID: 240-140741-1

Job ID: 240-140741-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - On Site

Report Number: 240-140741-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/20/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 3.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-140741-1), MW-03_111820 (240-140741-2), MW-05_111820 (240-140741-3), LMW-20-12_111820 (240-140741-4) and LMW-20-13_111820 (240-140741-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/29/2020.

The pH of sample LMW-20-12_111820 (240-140741-4) was greater than 2. The sample was analyzed within the normal 14 day holding time; however, experimental evidence suggests that some aromatic compounds in wastewater samples, notably, Benzene, Toluene, and Ethylbenzene are susceptible to biological degradation if samples are not preserved to a pH of 2.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-03_111820 (240-140741-2), MW-05_111820 (240-140741-3), LMW-20-12_111820 (240-140741-4) and LMW-20-13_111820 (240-140741-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/25/2020.

Case Narrative

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

Job ID: 240-140741-1

Job ID: 240-140741-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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

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

Method Summary

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

Job ID: 240-140741-1

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



Sample Summary

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

Job ID: 240-140741-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-140741-1	TRIP BLANK	Water	11/18/20 00:00	11/20/20 09:20	
240-140741-2	MW-03_111820	Water	11/18/20 11:17	11/20/20 09:20	
240-140741-3	MW-05_111820	Water	11/18/20 12:23	11/20/20 09:20	
240-140741-4	LMW-20-12_111820	Water	11/18/20 13:52	11/20/20 09:20	
240-140741-5	LMW-20-13_111820	Water	11/18/20 15:22	11/20/20 09:20	

- 1
- 2
- 3
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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: 240-140741-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140741-1

No Detections.

Client Sample ID: MW-03_111820

Lab Sample ID: 240-140741-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.97	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-05_111820

Lab Sample ID: 240-140741-3

No Detections.

Client Sample ID: LMW-20-12_111820

Lab Sample ID: 240-140741-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.98	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	2.6		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: LMW-20-13_111820

Lab Sample ID: 240-140741-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.6	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.19	J	1.0	0.16	ug/L	1		8260B	Total/NA

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: 240-140741-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140741-1

Date Collected: 11/18/20 00:00

Matrix: Water

Date Received: 11/20/20 09:20

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			11/29/20 12:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 12:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 12:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 12:47	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 12:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 12:47	1
2-Methylnaphthalene	5.0	U	5.0	2.4	ug/L			11/29/20 12:47	1
Naphthalene	1.0	U	1.0	0.32	ug/L			11/29/20 12:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 130					11/29/20 12:47	1
4-Bromofluorobenzene (Surr)	102		47 - 134					11/29/20 12:47	1
Toluene-d8 (Surr)	101		69 - 122					11/29/20 12:47	1
Dibromofluoromethane (Surr)	95		78 - 129					11/29/20 12:47	1

Client Sample Results

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

Job ID: 240-140741-1

Client Sample ID: MW-03_111820

Lab Sample ID: 240-140741-2

Date Collected: 11/18/20 11:17

Matrix: Water

Date Received: 11/20/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.97	J	2.0	0.86	ug/L			11/25/20 21:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 133					11/25/20 21:46	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			11/29/20 13:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 13:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 13:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 13:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 13:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 13:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130					11/29/20 13:11	1
4-Bromofluorobenzene (Surr)	105		47 - 134					11/29/20 13:11	1
Toluene-d8 (Surr)	104		69 - 122					11/29/20 13:11	1
Dibromofluoromethane (Surr)	93		78 - 129					11/29/20 13:11	1

Client Sample Results

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

Job ID: 240-140741-1

Client Sample ID: MW-05_111820

Lab Sample ID: 240-140741-3

Date Collected: 11/18/20 12:23

Matrix: Water

Date Received: 11/20/20 09:20

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			11/25/20 22:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		70 - 133		11/25/20 22:10	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			11/29/20 13:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 13:36	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 13:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 13:36	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 13:36	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 13:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/29/20 13:36	1
4-Bromofluorobenzene (Surr)	102		47 - 134		11/29/20 13:36	1
Toluene-d8 (Surr)	99		69 - 122		11/29/20 13:36	1
Dibromofluoromethane (Surr)	93		78 - 129		11/29/20 13:36	1

Client Sample Results

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

Job ID: 240-140741-1

Client Sample ID: LMW-20-12_111820

Lab Sample ID: 240-140741-4

Date Collected: 11/18/20 13:52

Matrix: Water

Date Received: 11/20/20 09:20

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			11/25/20 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		70 - 133		11/25/20 22:35	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			11/29/20 14:01	1
cis-1,2-Dichloroethene	0.98	J	1.0	0.16	ug/L			11/29/20 14:01	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 14:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 14:01	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 14:01	1
Vinyl chloride	2.6		1.0	0.20	ug/L			11/29/20 14:01	1
2-Methylnaphthalene	5.0	U	5.0	2.4	ug/L			11/29/20 14:01	1
Naphthalene	1.0	U	1.0	0.32	ug/L			11/29/20 14:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 130		11/29/20 14:01	1
4-Bromofluorobenzene (Surr)	101		47 - 134		11/29/20 14:01	1
Toluene-d8 (Surr)	101		69 - 122		11/29/20 14:01	1
Dibromofluoromethane (Surr)	93		78 - 129		11/29/20 14:01	1

Client Sample Results

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

Job ID: 240-140741-1

Client Sample ID: LMW-20-13_111820

Lab Sample ID: 240-140741-5

Date Collected: 11/18/20 15:22

Matrix: Water

Date Received: 11/20/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.6	J	2.0	0.86	ug/L			11/25/20 23:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		70 - 133		11/25/20 23:00	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			11/29/20 14:26	1
cis-1,2-Dichloroethene	0.19	J	1.0	0.16	ug/L			11/29/20 14:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 14:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 14:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 14:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 14:26	1
2-Methylnaphthalene	5.0	U	5.0	2.4	ug/L			11/29/20 14:26	1
Naphthalene	1.0	U	1.0	0.32	ug/L			11/29/20 14:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130		11/29/20 14:26	1
4-Bromofluorobenzene (Surr)	105		47 - 134		11/29/20 14:26	1
Toluene-d8 (Surr)	102		69 - 122		11/29/20 14:26	1
Dibromofluoromethane (Surr)	96		78 - 129		11/29/20 14:26	1

Surrogate Summary

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

Job ID: 240-140741-1

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 (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-140741-1	TRIP BLANK	112	102	101	95
240-140741-2	MW-03_111820	113	105	104	93
240-140741-3	MW-05_111820	110	102	99	93
240-140741-4	LMW-20-12_111820	112	101	101	93
240-140741-5	LMW-20-13_111820	113	105	102	96
240-140742-D-2 MSD	Matrix Spike Duplicate	94	104	102	83
240-140742-E-2 MS	Matrix Spike	96	106	104	87
LCS 240-463144/5	Lab Control Sample	101	108	103	84
MB 240-463144/8	Method Blank	112	103	99	95

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
		(70-133)
240-140735-D-4 MS	Matrix Spike	113
240-140735-D-4 MSD	Matrix Spike Duplicate	111
240-140741-2	MW-03_111820	118
240-140741-3	MW-05_111820	119
240-140741-4	LMW-20-12_111820	120
240-140741-5	LMW-20-13_111820	119
LCS 240-462863/4	Lab Control Sample	108
MB 240-462863/5	Method Blank	109

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-140741-1

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

Lab Sample ID: MB 240-463144/8
Matrix: Water
Analysis Batch: 463144

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			11/29/20 11:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/29/20 11:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/29/20 11:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/29/20 11:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/29/20 11:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/29/20 11:08	1
2-Methylnaphthalene	5.0	U	5.0	2.4	ug/L			11/29/20 11:08	1
Naphthalene	1.0	U	1.0	0.32	ug/L			11/29/20 11:08	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	112		75 - 130		11/29/20 11:08	1
4-Bromofluorobenzene (Surr)	103		47 - 134		11/29/20 11:08	1
Toluene-d8 (Surr)	99		69 - 122		11/29/20 11:08	1
Dibromofluoromethane (Surr)	95		78 - 129		11/29/20 11:08	1

Lab Sample ID: LCS 240-463144/5
Matrix: Water
Analysis Batch: 463144

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	19.2		ug/L		96	73 - 129
cis-1,2-Dichloroethene	20.0	19.0		ug/L		95	75 - 124
Tetrachloroethene	20.0	17.1		ug/L		86	70 - 125
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	74 - 130
Trichloroethene	20.0	16.1		ug/L		80	71 - 121
Vinyl chloride	20.0	18.2		ug/L		91	61 - 134
Naphthalene	20.0	17.8		ug/L		89	28 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		75 - 130
4-Bromofluorobenzene (Surr)	108		47 - 134
Toluene-d8 (Surr)	103		69 - 122
Dibromofluoromethane (Surr)	84		78 - 129

Lab Sample ID: 240-140742-D-2 MSD
Matrix: Water
Analysis Batch: 463144

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

Analyte	Sample Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
1,1-Dichloroethene	1.0	U	20.0	22.1		ug/L		110	64 - 132	3	35
cis-1,2-Dichloroethene	1.0	U	20.0	21.0		ug/L		105	68 - 121	3	35
Tetrachloroethene	1.0	U	20.0	20.0		ug/L		100	52 - 129	3	35
trans-1,2-Dichloroethene	1.0	U	20.0	20.9		ug/L		105	69 - 126	2	35
Trichloroethene	1.0	U	20.0	18.5		ug/L		92	56 - 124	2	35
Vinyl chloride	1.0	U	20.0	15.6		ug/L		78	49 - 136	4	35

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-140741-1

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

Lab Sample ID: 240-140742-D-2 MSD
Matrix: Water
Analysis Batch: 463144

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

<u>Surrogate</u>	<u>MSD</u> <u>%Recovery</u>	<u>MSD</u> <u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	104		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

Lab Sample ID: 240-140742-E-2 MS
Matrix: Water
Analysis Batch: 463144

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

<u>Analyte</u>	<u>Sample</u> <u>Result</u>	<u>Sample</u> <u>Qualifier</u>	<u>Spike</u> <u>Added</u>	<u>MS</u> <u>Result</u>	<u>MS</u> <u>Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec.</u> <u>Limits</u>
1,1-Dichloroethene	1.0	U	20.0	21.4		ug/L		107	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	20.4		ug/L		102	68 - 121
Tetrachloroethene	1.0	U	20.0	19.4		ug/L		97	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	20.5		ug/L		103	69 - 126
Trichloroethene	1.0	U	20.0	18.0		ug/L		90	56 - 124
Vinyl chloride	1.0	U	20.0	15.0		ug/L		75	49 - 136

<u>Surrogate</u>	<u>MS</u> <u>%Recovery</u>	<u>MS</u> <u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	96		75 - 130
4-Bromofluorobenzene (Surr)	106		47 - 134
Toluene-d8 (Surr)	104		69 - 122
Dibromofluoromethane (Surr)	87		78 - 129

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

Lab Sample ID: MB 240-462863/5
Matrix: Water
Analysis Batch: 462863

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

<u>Analyte</u>	<u>MB</u> <u>Result</u>	<u>MB</u> <u>Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/25/20 15:57	1

<u>Surrogate</u>	<u>MB</u> <u>%Recovery</u>	<u>MB</u> <u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
1,2-Dichloroethane-d4 (Surr)	109		70 - 133		11/25/20 15:57	1

Lab Sample ID: LCS 240-462863/4
Matrix: Water
Analysis Batch: 462863

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

<u>Analyte</u>	<u>Spike</u> <u>Added</u>	<u>LCS</u> <u>Result</u>	<u>LCS</u> <u>Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec.</u> <u>Limits</u>
1,4-Dioxane	10.0	10.4		ug/L		104	80 - 135

<u>Surrogate</u>	<u>LCS</u> <u>%Recovery</u>	<u>LCS</u> <u>Qualifier</u>	<u>Limits</u>
1,2-Dichloroethane-d4 (Surr)	108		70 - 133

QC Sample Results

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

Job ID: 240-140741-1

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

Lab Sample ID: 240-140735-D-4 MS
Matrix: Water
Analysis Batch: 462863

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	49		10.0	57.1	4	ug/L		84	46 - 170
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	113		70 - 133						

Lab Sample ID: 240-140735-D-4 MSD
Matrix: Water
Analysis Batch: 462863

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	49		10.0	58.1	4	ug/L		94	46 - 170	2	26
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	111		70 - 133								

QC Association Summary

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

Job ID: 240-140741-1

GC/MS VOA

Analysis Batch: 462863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140741-2	MW-03_111820	Total/NA	Water	8260B SIM	
240-140741-3	MW-05_111820	Total/NA	Water	8260B SIM	
240-140741-4	LMW-20-12_111820	Total/NA	Water	8260B SIM	
240-140741-5	LMW-20-13_111820	Total/NA	Water	8260B SIM	
MB 240-462863/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-462863/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140735-D-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-140735-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 463144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140741-1	TRIP BLANK	Total/NA	Water	8260B	
240-140741-2	MW-03_111820	Total/NA	Water	8260B	
240-140741-3	MW-05_111820	Total/NA	Water	8260B	
240-140741-4	LMW-20-12_111820	Total/NA	Water	8260B	
240-140741-5	LMW-20-13_111820	Total/NA	Water	8260B	
MB 240-463144/8	Method Blank	Total/NA	Water	8260B	
LCS 240-463144/5	Lab Control Sample	Total/NA	Water	8260B	
240-140742-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-140742-E-2 MS	Matrix Spike	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-140741-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140741-1

Date Collected: 11/18/20 00:00

Matrix: Water

Date Received: 11/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 12:47	HMB	TAL CAN

Client Sample ID: MW-03_111820

Lab Sample ID: 240-140741-2

Date Collected: 11/18/20 11:17

Matrix: Water

Date Received: 11/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 13:11	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462863	11/25/20 21:46	SAM	TAL CAN

Client Sample ID: MW-05_111820

Lab Sample ID: 240-140741-3

Date Collected: 11/18/20 12:23

Matrix: Water

Date Received: 11/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 13:36	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462863	11/25/20 22:10	SAM	TAL CAN

Client Sample ID: LMW-20-12_111820

Lab Sample ID: 240-140741-4

Date Collected: 11/18/20 13:52

Matrix: Water

Date Received: 11/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 14:01	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462863	11/25/20 22:35	SAM	TAL CAN

Client Sample ID: LMW-20-13_111820

Lab Sample ID: 240-140741-5

Date Collected: 11/18/20 15:22

Matrix: Water

Date Received: 11/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	463144	11/29/20 14:26	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462863	11/25/20 23:00	SAM	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: 240-140741-1

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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
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	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

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

Regulatory program: DW NPDES RCRA Other

Client Contact: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Client Project Manager: Kris Himskey
Telephone: 248-994-2240
Email: kristoffer.himskey@arcadis.com

Site Contact: Julia McClafferty
Telephone: 734-644-5131

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

Project Name: Ford LTP On-Site
Project Number: 30050315-401.03
PO #: 30050315-401.03

Sampler Name: *Krista Donahue*
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	ZnAc/NaOH			Tap	TAT if different from below	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B		Vinyl Chloride 8260B SIM	1,4-Dioxane 8260B SIM	Naphthalene	2-methylnaphthalene
TRIP BLANK																										1 Trip Blank
MW-03-111820	11/18/20	1117																								3 Vials for 8260B 3 Vials for 8260B SIM
MW-05-111820	11/18/20	1223																								
LMW-20-12-111820	11/18/20	1352																								
LMW-20-13-111820	11/18/20	1522																								



Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>Krista Donahue</i>	Arcadis	11/18/20 1723	<i>Non-Cold Storage</i>	Arcadis	11/18/20 1723
<i>Christine Himskey</i>	ARCADIS	11/19/20/1055	<i>Janell Cam</i>	ETA	11/19/20/1055
<i>Janell Cam</i>	ETA	11/19/20/1700	<i>Janell Cam</i>	ETA	11/20/20 970

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Client Arcodis Site Name _____ Cooler unpacked by: Matthew Snyder
 Cooler Received on 11-20-20 Opened on 11-21-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # 11 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 +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
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
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA
 Larger than this. Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ 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: _____

