

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-197329-1
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:
12/6/2019 10:27:53 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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: 460-197329-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

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

Job ID: 460-197329-1

Job ID: 460-197329-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 460-197329-1

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, Edison 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 11/21/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples TRIP BLANK (460-197329-1), MW-4_111919 (460-197329-2), MW-10_111919 (460-197329-3) and MW-3_111919 (460-197329-4) were analyzed for volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 11/30/2019.

The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-4_111919 (460-197329-2) [100x] and MW-10_111919 (460-197329-3) [10x]. Elevated reporting limits (RLs) are provided.

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

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples MW-4_111919 (460-197329-2), MW-10_111919 (460-197329-3) and MW-3_111919 (460-197329-4) were analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The samples were analyzed on 11/26/2019 and 12/02/2019.

The following sample was diluted due to the abundance of non-target analytes: MW-4_111919 (460-197329-2) [5x]. Elevated reporting

Case Narrative

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

Job ID: 460-197329-1

Job ID: 460-197329-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

limit (RL) is provided.

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

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Detection Summary

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

Job ID: 460-197329-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197329-1

No Detections.

Client Sample ID: MW-4_111919

Lab Sample ID: 460-197329-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	18000		100	22	ug/L	100		8260C	Total/NA
trans-1,2-Dichloroethene	790		100	24	ug/L	100		8260C	Total/NA
Trichloroethene	35000		100	31	ug/L	100		8260C	Total/NA
Vinyl chloride	870		100	17	ug/L	100		8260C	Total/NA

Client Sample ID: MW-10_111919

Lab Sample ID: 460-197329-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.6		2.0	0.33	ug/L	1		8260C SIM	Total/NA
cis-1,2-Dichloroethene	6.4	J	10	2.2	ug/L	10		8260C	Total/NA
Vinyl chloride	2700		10	1.7	ug/L	10		8260C	Total/NA

Client Sample ID: MW-3_111919

Lab Sample ID: 460-197329-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J	2.0	0.33	ug/L	1		8260C SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

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

Job ID: 460-197329-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197329-1

Date Collected: 11/19/19 13:47

Matrix: Water

Date Received: 11/21/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		11/30/19 05:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/30/19 05:05	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/30/19 05:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/30/19 05:05	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/30/19 05:05	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/30/19 05:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		74 - 132		11/30/19 05:05	1
Toluene-d8 (Surr)	100		80 - 120		11/30/19 05:05	1
Dibromofluoromethane (Surr)	101		72 - 131		11/30/19 05:05	1
4-Bromofluorobenzene	106		77 - 124		11/30/19 05:05	1

Client Sample ID: MW-4_111919

Lab Sample ID: 460-197329-2

Date Collected: 11/19/19 11:32

Matrix: Water

Date Received: 11/21/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	10	U	10	1.7	ug/L	-		12/02/19 14:37	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	74		72 - 133		12/02/19 14:37	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	26	ug/L	-		11/30/19 17:02	100
cis-1,2-Dichloroethene	18000		100	22	ug/L	-		11/30/19 17:02	100
Tetrachloroethene	100	U	100	25	ug/L	-		11/30/19 17:02	100
trans-1,2-Dichloroethene	790		100	24	ug/L	-		11/30/19 17:02	100
Trichloroethene	35000		100	31	ug/L	-		11/30/19 17:02	100
Vinyl chloride	870		100	17	ug/L	-		11/30/19 17:02	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		74 - 132		11/30/19 17:02	100
Toluene-d8 (Surr)	97		80 - 120		11/30/19 17:02	100
Dibromofluoromethane (Surr)	102		72 - 131		11/30/19 17:02	100
4-Bromofluorobenzene	109		77 - 124		11/30/19 17:02	100

Client Sample ID: MW-10_111919

Lab Sample ID: 460-197329-3

Date Collected: 11/19/19 12:37

Matrix: Water

Date Received: 11/21/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.6		2.0	0.33	ug/L	-		11/26/19 03:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		72 - 133		11/26/19 03:43	1

Client Sample Results

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

Job ID: 460-197329-1

Client Sample ID: MW-10_111919

Lab Sample ID: 460-197329-3

Date Collected: 11/19/19 12:37

Matrix: Water

Date Received: 11/21/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	10	U	10	2.6	ug/L			11/30/19 16:08	10
cis-1,2-Dichloroethene	6.4	J	10	2.2	ug/L			11/30/19 16:08	10
Tetrachloroethene	10	U	10	2.5	ug/L			11/30/19 16:08	10
trans-1,2-Dichloroethene	10	U	10	2.4	ug/L			11/30/19 16:08	10
Trichloroethene	10	U	10	3.1	ug/L			11/30/19 16:08	10
Vinyl chloride	2700		10	1.7	ug/L			11/30/19 16:08	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		74 - 132		11/30/19 16:08	10
Toluene-d8 (Surr)	97		80 - 120		11/30/19 16:08	10
Dibromofluoromethane (Surr)	101		72 - 131		11/30/19 16:08	10
4-Bromofluorobenzene	107		77 - 124		11/30/19 16:08	10

Client Sample ID: MW-3_111919

Lab Sample ID: 460-197329-4

Date Collected: 11/19/19 13:47

Matrix: Water

Date Received: 11/21/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.1	J	2.0	0.33	ug/L			11/26/19 04:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	91		72 - 133		11/26/19 04:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			11/30/19 15:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/30/19 15:42	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/30/19 15:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/30/19 15:42	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/30/19 15:42	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/30/19 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		74 - 132		11/30/19 15:42	1
Toluene-d8 (Surr)	98		80 - 120		11/30/19 15:42	1
Dibromofluoromethane (Surr)	102		72 - 131		11/30/19 15:42	1
4-Bromofluorobenzene	108		77 - 124		11/30/19 15:42	1

Surrogate Summary

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

Job ID: 460-197329-1

Method: 8260C - Volatile Organic Compounds by 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 (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-197329-1	TRIP BLANK	96	100	101	106
460-197329-2	MW-4_111919	93	97	102	109
460-197329-3	MW-10_111919	94	97	101	107
460-197329-4	MW-3_111919	95	98	102	108
460-197329-4 MS	MW-3_111919	93	97	99	108
460-197329-4 MSD	MW-3_111919	97	97	99	109
LCS 460-659169/3	Lab Control Sample	99	101	100	107
LCS 460-659223/4	Lab Control Sample	96	97	100	109
LCSD 460-659169/4	Lab Control Sample Dup	96	98	99	105
MB 460-659169/7	Method Blank	95	98	101	106
MB 460-659223/9	Method Blank	95	97	104	107

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
		(72-133)
240-122568-K-1 MS	Matrix Spike	100
240-122568-K-1 MSD	Matrix Spike Duplicate	96
460-197329-2	MW-4_111919	74
460-197329-3	MW-10_111919	93
460-197329-4	MW-3_111919	91
LCS 460-658256/4	Lab Control Sample	93
LCS 460-659423/4	Lab Control Sample	102
LCSD 460-659423/5	Lab Control Sample Dup	103
MB 460-658256/9	Method Blank	91
MB 460-659423/8	Method Blank	99

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

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

Job ID: 460-197329-1

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

Lab Sample ID: MB 460-659169/7
Matrix: Water
Analysis Batch: 659169

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	0.26	ug/L			11/30/19 02:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/30/19 02:26	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/30/19 02:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/30/19 02:26	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/30/19 02:26	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/30/19 02:26	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	95		74 - 132		11/30/19 02:26	1
Toluene-d8 (Surr)	98		80 - 120		11/30/19 02:26	1
Dibromofluoromethane (Surr)	101		72 - 131		11/30/19 02:26	1
4-Bromofluorobenzene	106		77 - 124		11/30/19 02:26	1

Lab Sample ID: LCS 460-659169/3
Matrix: Water
Analysis Batch: 659169

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	20.9		ug/L		104	74 - 123
cis-1,2-Dichloroethene	20.0	20.4		ug/L		102	80 - 120
Tetrachloroethene	20.0	20.4		ug/L		102	78 - 122
trans-1,2-Dichloroethene	20.0	20.8		ug/L		104	79 - 120
Trichloroethene	20.0	20.8		ug/L		104	77 - 120
Vinyl chloride	20.0	19.4		ug/L		97	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		74 - 132
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	100		72 - 131
4-Bromofluorobenzene	107		77 - 124

Lab Sample ID: LCSD 460-659169/4
Matrix: Water
Analysis Batch: 659169

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

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
1,1-Dichloroethene	20.0	21.8		ug/L		109	74 - 123	4	30
cis-1,2-Dichloroethene	20.0	21.2		ug/L		106	80 - 120	4	30
Tetrachloroethene	20.0	21.5		ug/L		107	78 - 122	5	30
trans-1,2-Dichloroethene	20.0	21.9		ug/L		109	79 - 120	5	30
Trichloroethene	20.0	22.3		ug/L		112	77 - 120	7	30
Vinyl chloride	20.0	21.2		ug/L		106	62 - 138	9	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	99		72 - 131

Eurofins TestAmerica, Edison

QC Sample Results

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

Job ID: 460-197329-1

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

Lab Sample ID: LCSD 460-659169/4
Matrix: Water
Analysis Batch: 659169

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

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	105		77 - 124

Lab Sample ID: MB 460-659223/9
Matrix: Water
Analysis Batch: 659223

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	0.26	ug/L			11/30/19 15:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/30/19 15:15	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/30/19 15:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/30/19 15:15	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/30/19 15:15	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/30/19 15:15	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	95		74 - 132		11/30/19 15:15	1
Toluene-d8 (Surr)	97		80 - 120		11/30/19 15:15	1
Dibromofluoromethane (Surr)	104		72 - 131		11/30/19 15:15	1
4-Bromofluorobenzene	107		77 - 124		11/30/19 15:15	1

Lab Sample ID: LCS 460-659223/4
Matrix: Water
Analysis Batch: 659223

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	19.5		ug/L		98	74 - 123
cis-1,2-Dichloroethene	20.0	20.1		ug/L		100	80 - 120
Tetrachloroethene	20.0	19.8		ug/L		99	78 - 122
trans-1,2-Dichloroethene	20.0	20.3		ug/L		101	79 - 120
Trichloroethene	20.0	20.7		ug/L		103	77 - 120
Vinyl chloride	20.0	18.9		ug/L		95	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	100		72 - 131
4-Bromofluorobenzene	109		77 - 124

Lab Sample ID: 460-197329-4 MS
Matrix: Water
Analysis Batch: 659223

Client Sample ID: MW-3_111919
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	200	213		ug/L		107	74 - 123
cis-1,2-Dichloroethene	1.0	U	200	210		ug/L		105	80 - 120
Tetrachloroethene	1.0	U	200	211		ug/L		105	78 - 122
trans-1,2-Dichloroethene	1.0	U	200	213		ug/L		107	79 - 120
Trichloroethene	1.0	U	200	229		ug/L		115	77 - 120

Eurofins TestAmerica, Edison

QC Sample Results

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

Job ID: 460-197329-1

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

Lab Sample ID: 460-197329-4 MS

Client Sample ID: MW-3_111919

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 659223

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	1.0	U	200	188		ug/L		94	62 - 138
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	93		74 - 132						
Toluene-d8 (Surr)	97		80 - 120						
Dibromofluoromethane (Surr)	99		72 - 131						
4-Bromofluorobenzene	108		77 - 124						

Lab Sample ID: 460-197329-4 MSD

Client Sample ID: MW-3_111919

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 659223

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	200	206		ug/L		103	74 - 123	4	30
cis-1,2-Dichloroethene	1.0	U	200	208		ug/L		104	80 - 120	1	30
Tetrachloroethene	1.0	U	200	199		ug/L		100	78 - 122	6	30
trans-1,2-Dichloroethene	1.0	U	200	208		ug/L		104	79 - 120	2	30
Trichloroethene	1.0	U	200	216		ug/L		108	77 - 120	6	30
Vinyl chloride	1.0	U	200	186		ug/L		93	62 - 138	1	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	97		74 - 132								
Toluene-d8 (Surr)	97		80 - 120								
Dibromofluoromethane (Surr)	99		72 - 131								
4-Bromofluorobenzene	109		77 - 124								

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

Lab Sample ID: MB 460-658256/9

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 658256

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.33	ug/L			11/26/19 01:02	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	91		72 - 133					11/26/19 01:02	1

Lab Sample ID: LCS 460-658256/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 658256

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	5.00	5.16		ug/L		103	66 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene	93		72 - 133				

Eurofins TestAmerica, Edison

QC Sample Results

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

Job ID: 460-197329-1

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

Lab Sample ID: 240-122568-K-1 MS

Matrix: Water

Analysis Batch: 658256

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	5.00	4.04		ug/L		81	66 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene	100		72 - 133						

Lab Sample ID: 240-122568-K-1 MSD

Matrix: Water

Analysis Batch: 658256

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	2.0	U	5.00	3.93		ug/L		79	66 - 135	3	30
Surrogate	%Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene	96		72 - 133								

Lab Sample ID: MB 460-659423/8

Matrix: Water

Analysis Batch: 659423

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	0.33	ug/L			12/02/19 12:56	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		72 - 133					12/02/19 12:56	1

Lab Sample ID: LCS 460-659423/4

Matrix: Water

Analysis Batch: 659423

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	5.00	4.39		ug/L		88	66 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene	102		72 - 133				

Lab Sample ID: LCSD 460-659423/5

Matrix: Water

Analysis Batch: 659423

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	5.00	4.02		ug/L		80	66 - 135	9	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	103		72 - 133						

QC Association Summary

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

Job ID: 460-197329-1

GC/MS VOA

Analysis Batch: 658256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197329-3	MW-10_111919	Total/NA	Water	8260C SIM	
460-197329-4	MW-3_111919	Total/NA	Water	8260C SIM	
MB 460-658256/9	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-658256/4	Lab Control Sample	Total/NA	Water	8260C SIM	
240-122568-K-1 MS	Matrix Spike	Total/NA	Water	8260C SIM	
240-122568-K-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C SIM	

Analysis Batch: 659169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197329-1	TRIP BLANK	Total/NA	Water	8260C	
MB 460-659169/7	Method Blank	Total/NA	Water	8260C	
LCS 460-659169/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-659169/4	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 659223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197329-2	MW-4_111919	Total/NA	Water	8260C	
460-197329-3	MW-10_111919	Total/NA	Water	8260C	
460-197329-4	MW-3_111919	Total/NA	Water	8260C	
MB 460-659223/9	Method Blank	Total/NA	Water	8260C	
LCS 460-659223/4	Lab Control Sample	Total/NA	Water	8260C	
460-197329-4 MS	MW-3_111919	Total/NA	Water	8260C	
460-197329-4 MSD	MW-3_111919	Total/NA	Water	8260C	

Analysis Batch: 659423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197329-2	MW-4_111919	Total/NA	Water	8260C SIM	
MB 460-659423/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-659423/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-659423/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Lab Chronicle

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

Job ID: 460-197329-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-197329-1

Date Collected: 11/19/19 13:47

Matrix: Water

Date Received: 11/21/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659169	11/30/19 05:05	MZS	TAL EDI

Client Sample ID: MW-4_111919

Lab Sample ID: 460-197329-2

Date Collected: 11/19/19 11:32

Matrix: Water

Date Received: 11/21/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	659223	11/30/19 17:02	KLB	TAL EDI
Total/NA	Analysis	8260C SIM		5	659423	12/02/19 14:37	KLB	TAL EDI

Client Sample ID: MW-10_111919

Lab Sample ID: 460-197329-3

Date Collected: 11/19/19 12:37

Matrix: Water

Date Received: 11/21/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		10	659223	11/30/19 16:08	KLB	TAL EDI
Total/NA	Analysis	8260C SIM		1	658256	11/26/19 03:43	KLB	TAL EDI

Client Sample ID: MW-3_111919

Lab Sample ID: 460-197329-4

Date Collected: 11/19/19 13:47

Matrix: Water

Date Received: 11/21/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	659223	11/30/19 15:42	KLB	TAL EDI
Total/NA	Analysis	8260C SIM		1	658256	11/26/19 04:08	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

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

Job ID: 460-197329-1

Laboratory: Eurofins TestAmerica, Edison

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

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State	M-NJ312	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

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	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

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

Job ID: 460-197329-1

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

Protocol References:

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

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

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

Job ID: 460-197329-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-197329-1	TRIP BLANK	Water	11/19/19 13:47	11/21/19 09:30	
460-197329-2	MW-4_111919	Water	11/19/19 11:32	11/21/19 09:30	
460-197329-3	MW-10_111919	Water	11/19/19 12:37	11/21/19 09:30	
460-197329-4	MW-3_111919	Water	11/19/19 13:47	11/21/19 09:30	

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TestAmerica Laboratory location: Brighton — 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2783

Regulatory program: DW NPDES RCRA Other

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

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

Site Contact: Rachel Bielak
Telephone: 248-946-6331

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

TestAmerica Laboratories, Inc.
COC No: _____
of _____ COCs

Sampler Name: Heather Woodson
Method of Shipment/Carrier: _____
Shipping/Tracking No: _____

Analysis turnaround time:
TAT if different from below:
10 day 3 weeks
 2 weeks 1 week
 2 days 1 day

Sample Identification	Sample Date	Sample Time	Mark				Container & Preservatives							Filtered Sample (Y/N)	Composites C/Grab-C	Analyses						Sample Specific Notes / Special Instructions:		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	NaOH	Ultraps			Other:	1,1-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B		1,4-Dioxane 8260B SIM	
TRIP BLANK	—	—	X																					Trip Blank
MW-4-111919	11/19/19	1132	X																					3 VOA for 8260B 3 VOA for 8260B/4
MW-10-111919	—	1237	X																					—
MW-3-111919	—	1347	X																					—



460-197329 Chain of Custody

Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Heather Woodson	Arcadis	11/19/19 1500	Molly Haxson	Arcadis	11/19/19 1500
Molly Haxson	Arcadis	11/19/19 1640	Novi Cold Storage	Arcadis	11/19/19 1640
Rachel Bielak, Paul Finella	ARCADIS	11/20/19 1200	Molly Haxson	ETAL-MI	11/20/19 1200

ETAL-MI 11/21/19 TA Edison
Angela Finella 11/21/19 TA Edison
Molly Haxson via FedEx 9:30



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-197329-1

Login Number: 197329

List Number: 1

Creator: Jara, Kelly D

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	CS #1055355
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

