

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 240-109103-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

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

Attn: Kristoffer Hinskey



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Authorized for release by:  
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Michael DelMonico, Project Manager I  
(330)497-9396  
[michael.delmonico@testamericainc.com](mailto:michael.delmonico@testamericainc.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 . . . . .	15
QC Sample Results . . . . .	16
QC Association Summary . . . . .	20
Lab Chronicle . . . . .	21
Certification Summary . . . . .	22
Chain of Custody . . . . .	23

# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
X	Surrogate is outside control limits

## 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
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 Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Job ID: 240-109103-1**

**Laboratory: TestAmerica Canton**

**Narrative**

## CASE NARRATIVE

**Client: ARCADIS U.S., Inc.**

**Project: Ford LTP Livonia MI - E203728**

**Report Number: 240-109103-1**

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.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. 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 TestAmerica and its client.

### **RECEIPT**

The samples were received on 3/8/2019 8:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2° C.

### **VOLATILE ORGANIC COMPOUNDS (GCMS)**

Samples MW-15-59D\_030519 (240-109103-1), MW-15-60D\_030519 (240-109103-2) and TRIP BLANK (240-109103-3) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 03/15/2019.

Trichloroethene was detected in method blank MB 240-371753/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Toluene-d8 (Surr) failed the surrogate recovery criteria high for LCS 240-371753/35. Refer to the QC report for details.

Several analytes failed the recovery criteria high for LCS 240-371753/35. Refer to the QC report for details.

Surrogate recovery for the LCS was outside the upper control limit: (LCS 240-371753/35). The associated sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The continuing calibration verification (CCV) associated with batch 371753 recovered above the upper control limit for one or more

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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## Job ID: 240-109103-1 (Continued)

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### Laboratory: TestAmerica Canton (Continued)

analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-15-59D\_030519 (240-109103-1), MW-15-60D\_030519 (240-109103-2) and TRIP BLANK (240-109103-3).

The laboratory control sample (LCS) for 371753 recovered outside control limits for multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: MW-15-59D\_030519 (240-109103-1), MW-15-60D\_030519 (240-109103-2), TRIP BLANK (240-109103-3) and (LCS 240-371753/35).

No MS/MSD in batch 371753 due to a re-analysis needed: MW-15-59D\_030519 (240-109103-1), MW-15-60D\_030519 (240-109103-2) and TRIP BLANK (240-109103-3).

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-15-59D\_030519 (240-109103-1) and MW-15-60D\_030519 (240-109103-2) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 03/13/2019.

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



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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 = 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 Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-109103-1	MW-15-59D_030519	Water	03/05/19 10:45	03/08/19 08:00
240-109103-2	MW-15-60D_030519	Water	03/05/19 12:30	03/08/19 08:00
240-109103-3	TRIP BLANK	Water	03/05/19 00:00	03/08/19 08:00

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

## Client Sample ID: MW-15-59D\_030519

## Lab Sample ID: 240-109103-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.62	J*	1.0	0.24	ug/L	1		8260B	Total/NA
Trichloroethene	0.13	J B	1.0	0.10	ug/L	1		8260B	Total/NA
Xylenes, Total	0.28	J	2.0	0.15	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-15-60D\_030519

## Lab Sample ID: 240-109103-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.31	J*	1.0	0.20	ug/L	1		8260B	Total/NA

## Client Sample ID: TRIP BLANK

## Lab Sample ID: 240-109103-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.39	J*	1.0	0.20	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: MW-15-59D\_030519**

**Lab Sample ID: 240-109103-1**

**Date Collected: 03/05/19 10:45**

**Matrix: Water**

**Date Received: 03/08/19 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			03/13/19 14:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		63 - 125					03/13/19 14:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			03/15/19 13:59	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 13:59	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 13:59	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 13:59	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 13:59	1
2-Butanone (MEK)	10	U *	10	1.2	ug/L			03/15/19 13:59	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 13:59	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 13:59	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 13:59	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 13:59	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 13:59	1
Chloromethane	1.0	U *	1.0	0.20	ug/L			03/15/19 13:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 13:59	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 13:59	1
<b>Cyclohexane</b>	<b>0.62</b>	<b>J *</b>	1.0	0.24	ug/L			03/15/19 13:59	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 13:59	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 13:59	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 13:59	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 13:59	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 13:59	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 13:59	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 13:59	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 13:59	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 13:59	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 13:59	1
1,2-Dichloropropane	1.0	U *	1.0	0.15	ug/L			03/15/19 13:59	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 13:59	1
2-Hexanone	10	U *	10	0.54	ug/L			03/15/19 13:59	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 13:59	1
Methyl acetate	10	U *	10	1.7	ug/L			03/15/19 13:59	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 13:59	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 13:59	1
4-Methyl-2-pentanone (MIBK)	10	U *	10	0.42	ug/L			03/15/19 13:59	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 13:59	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 13:59	1
1,1,2,2-Tetrachloroethane	1.0	U *	1.0	0.13	ug/L			03/15/19 13:59	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 13:59	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 13:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 13:59	1
trans-1,3-Dichloropropene	1.0	U *	1.0	0.67	ug/L			03/15/19 13:59	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 13:59	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 13:59	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 13:59	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: MW-15-59D\_030519**

**Lab Sample ID: 240-109103-1**

**Date Collected: 03/05/19 10:45**

**Matrix: Water**

**Date Received: 03/08/19 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Trichloroethene</b>	<b>0.13</b>	<b>J B</b>	1.0	0.10	ug/L			03/15/19 13:59	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 13:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 13:59	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 13:59	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 13:59	1
1,3,5-Trimethylbenzene	1.0	U *	1.0	0.12	ug/L			03/15/19 13:59	1
Vinyl chloride	1.0	U *	1.0	0.20	ug/L			03/15/19 13:59	1
<b>Xylenes, Total</b>	<b>0.28</b>	<b>J</b>	2.0	0.15	ug/L			03/15/19 13:59	1
Diethyl ether	2.0	U *	2.0	0.19	ug/L			03/15/19 13:59	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	93		59 - 120					03/15/19 13:59	1
Dibromofluoromethane (Surr)	98		75 - 128					03/15/19 13:59	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 121					03/15/19 13:59	1
Toluene-d8 (Surr)	115		70 - 123					03/15/19 13:59	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: MW-15-60D\_030519**

**Lab Sample ID: 240-109103-2**

**Date Collected: 03/05/19 12:30**

**Matrix: Water**

**Date Received: 03/08/19 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			03/13/19 14:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		63 - 125					03/13/19 14:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			03/15/19 14:22	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 14:22	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 14:22	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 14:22	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 14:22	1
2-Butanone (MEK)	10	U *	10	1.2	ug/L			03/15/19 14:22	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 14:22	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 14:22	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 14:22	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 14:22	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 14:22	1
Chloromethane	1.0	U *	1.0	0.20	ug/L			03/15/19 14:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 14:22	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 14:22	1
Cyclohexane	1.0	U *	1.0	0.24	ug/L			03/15/19 14:22	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 14:22	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 14:22	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 14:22	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 14:22	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 14:22	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 14:22	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 14:22	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 14:22	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 14:22	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 14:22	1
1,2-Dichloropropane	1.0	U *	1.0	0.15	ug/L			03/15/19 14:22	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 14:22	1
2-Hexanone	10	U *	10	0.54	ug/L			03/15/19 14:22	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 14:22	1
Methyl acetate	10	U *	10	1.7	ug/L			03/15/19 14:22	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 14:22	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 14:22	1
4-Methyl-2-pentanone (MIBK)	10	U *	10	0.42	ug/L			03/15/19 14:22	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 14:22	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 14:22	1
1,1,2,2-Tetrachloroethane	1.0	U *	1.0	0.13	ug/L			03/15/19 14:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 14:22	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 14:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 14:22	1
trans-1,3-Dichloropropene	1.0	U *	1.0	0.67	ug/L			03/15/19 14:22	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 14:22	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 14:22	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 14:22	1

TestAmerica Canton

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: MW-15-60D\_030519**

**Lab Sample ID: 240-109103-2**

**Date Collected: 03/05/19 12:30**

**Matrix: Water**

**Date Received: 03/08/19 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/15/19 14:22	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 14:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 14:22	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 14:22	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 14:22	1
1,3,5-Trimethylbenzene	1.0	U *	1.0	0.12	ug/L			03/15/19 14:22	1
<b>Vinyl chloride</b>	<b>0.31</b>	<b>J *</b>	1.0	0.20	ug/L			03/15/19 14:22	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/15/19 14:22	1
Diethyl ether	2.0	U *	2.0	0.19	ug/L			03/15/19 14:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		59 - 120		03/15/19 14:22	1
Dibromofluoromethane (Surr)	93		75 - 128		03/15/19 14:22	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		03/15/19 14:22	1
Toluene-d8 (Surr)	110		70 - 123		03/15/19 14:22	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-109103-3**

**Date Collected: 03/05/19 00:00**

**Matrix: Water**

**Date Received: 03/08/19 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			03/15/19 14:44	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 14:44	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 14:44	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 14:44	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 14:44	1
2-Butanone (MEK)	10	U *	10	1.2	ug/L			03/15/19 14:44	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 14:44	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 14:44	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 14:44	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 14:44	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 14:44	1
Chloromethane	1.0	U *	1.0	0.20	ug/L			03/15/19 14:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 14:44	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 14:44	1
Cyclohexane	1.0	U *	1.0	0.24	ug/L			03/15/19 14:44	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 14:44	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 14:44	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 14:44	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 14:44	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 14:44	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 14:44	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 14:44	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 14:44	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 14:44	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 14:44	1
1,2-Dichloropropane	1.0	U *	1.0	0.15	ug/L			03/15/19 14:44	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 14:44	1
2-Hexanone	10	U *	10	0.54	ug/L			03/15/19 14:44	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 14:44	1
Methyl acetate	10	U *	10	1.7	ug/L			03/15/19 14:44	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 14:44	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 14:44	1
4-Methyl-2-pentanone (MIBK)	10	U *	10	0.42	ug/L			03/15/19 14:44	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 14:44	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 14:44	1
1,1,2,2-Tetrachloroethane	1.0	U *	1.0	0.13	ug/L			03/15/19 14:44	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 14:44	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 14:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 14:44	1
trans-1,3-Dichloropropene	1.0	U *	1.0	0.67	ug/L			03/15/19 14:44	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 14:44	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 14:44	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 14:44	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/15/19 14:44	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 14:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 14:44	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 14:44	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 14:44	1
1,3,5-Trimethylbenzene	1.0	U *	1.0	0.12	ug/L			03/15/19 14:44	1

TestAmerica Canton

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-109103-3**

**Date Collected: 03/05/19 00:00**

**Matrix: Water**

**Date Received: 03/08/19 08:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	0.39	J *	1.0	0.20	ug/L			03/15/19 14:44	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/15/19 14:44	1
Diethyl ether	2.0	U *	2.0	0.19	ug/L			03/15/19 14:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		59 - 120		03/15/19 14:44	1
Dibromofluoromethane (Surr)	99		75 - 128		03/15/19 14:44	1
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		03/15/19 14:44	1
Toluene-d8 (Surr)	113		70 - 123		03/15/19 14:44	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (59-120)	DBFM (75-128)	DCA (70-121)	TOL (70-123)
240-109103-1	MW-15-59D_030519	93	98	111	115
240-109103-2	MW-15-60D_030519	91	93	106	110
240-109103-3	TRIP BLANK	93	99	113	113
LCS 240-371753/35	Lab Control Sample	113	94	107	125 X
MB 240-371753/6	Method Blank	94	100	113	116

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

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

TOL = Toluene-d8 (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 (63-125)
240-109103-1	MW-15-59D_030519	81
240-109103-2	MW-15-60D_030519	82
240-109266-A-1 MS	Matrix Spike	79
240-109266-A-1 MSD	Matrix Spike Duplicate	77
LCS 240-371371/4	Lab Control Sample	79
MB 240-371371/5	Method Blank	81

#### Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (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 (10-150)
MRL 240-371371/6	Lab Control Sample	68

#### Surrogate Legend

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

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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

**Lab Sample ID: MB 240-371753/6**

**Matrix: Water**

**Analysis Batch: 371753**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			03/15/19 12:33	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 12:33	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 12:33	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 12:33	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 12:33	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/15/19 12:33	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 12:33	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 12:33	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 12:33	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 12:33	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 12:33	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/15/19 12:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 12:33	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 12:33	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/15/19 12:33	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 12:33	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 12:33	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 12:33	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 12:33	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 12:33	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 12:33	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 12:33	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 12:33	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 12:33	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 12:33	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/15/19 12:33	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 12:33	1
2-Hexanone	10	U	10	0.54	ug/L			03/15/19 12:33	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 12:33	1
Methyl acetate	10	U	10	1.7	ug/L			03/15/19 12:33	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 12:33	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 12:33	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/15/19 12:33	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 12:33	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 12:33	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/15/19 12:33	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 12:33	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 12:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 12:33	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/15/19 12:33	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 12:33	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 12:33	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 12:33	1
Trichloroethene	0.128	J	1.0	0.10	ug/L			03/15/19 12:33	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 12:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 12:33	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 12:33	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 12:33	1

TestAmerica Canton



# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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

**Lab Sample ID: MB 240-371753/6**  
**Matrix: Water**  
**Analysis Batch: 371753**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			03/15/19 12:33	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/15/19 12:33	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/15/19 12:33	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/15/19 12:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		59 - 120		03/15/19 12:33	1
Dibromofluoromethane (Surr)	100		75 - 128		03/15/19 12:33	1
1,2-Dichloroethane-d4 (Surr)	113		70 - 121		03/15/19 12:33	1
Toluene-d8 (Surr)	116		70 - 123		03/15/19 12:33	1

**Lab Sample ID: LCS 240-371753/35**  
**Matrix: Water**  
**Analysis Batch: 371753**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	29.6		ug/L		148	21 - 162
Benzene	10.0	11.9		ug/L		119	80 - 123
Bromodichloromethane	10.0	11.5		ug/L		115	77 - 125
Bromoform	10.0	8.41		ug/L		84	49 - 141
Bromomethane	10.0	11.4		ug/L		114	41 - 175
2-Butanone (MEK)	20.0	36.4	*	ug/L		182	39 - 163
Carbon disulfide	10.0	12.2		ug/L		122	60 - 138
Carbon tetrachloride	10.0	9.01		ug/L		90	63 - 140
Chlorobenzene	10.0	10.8		ug/L		108	80 - 121
Chloroethane	10.0	16.2		ug/L		162	33 - 173
Chloroform	10.0	11.4		ug/L		114	79 - 127
Chloromethane	10.0	17.3	*	ug/L		173	54 - 143
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	76 - 128
cis-1,3-Dichloropropene	10.0	12.9		ug/L		129	64 - 132
Cyclohexane	10.0	15.9	*	ug/L		159	58 - 145
Dibromochloromethane	10.0	11.0		ug/L		110	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	9.68		ug/L		97	46 - 132
1,2-Dibromoethane	10.0	11.5		ug/L		115	77 - 123
1,2-Dichlorobenzene	10.0	10.1		ug/L		101	78 - 120
1,3-Dichlorobenzene	10.0	10.2		ug/L		102	78 - 120
1,4-Dichlorobenzene	10.0	10.0		ug/L		100	78 - 120
Dichlorodifluoromethane	10.0	10.4		ug/L		104	29 - 148
1,1-Dichloroethane	10.0	13.2		ug/L		132	75 - 133
1,2-Dichloroethane	10.0	11.5		ug/L		115	71 - 135
1,1-Dichloroethene	10.0	11.8		ug/L		118	65 - 139
1,2-Dichloropropane	10.0	15.7	*	ug/L		157	78 - 133
Ethylbenzene	10.0	10.9		ug/L		109	80 - 120
2-Hexanone	20.0	37.8	*	ug/L		189	43 - 148
Isopropylbenzene	10.0	10.6		ug/L		106	74 - 120
Methyl acetate	20.0	33.9	*	ug/L		170	52 - 145
Methylcyclohexane	10.0	11.5		ug/L		115	60 - 125
Methylene Chloride	10.0	11.6		ug/L		116	70 - 134

TestAmerica Canton

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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

**Lab Sample ID: LCS 240-371753/35**

**Matrix: Water**

**Analysis Batch: 371753**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	20.0	32.2	*	ug/L		161	49 - 143
Methyl tert-butyl ether	10.0	8.17		ug/L		82	51 - 133
Styrene	10.0	10.9		ug/L		109	79 - 120
1,1,2,2-Tetrachloroethane	10.0	16.5	*	ug/L		165	65 - 139
Tetrachloroethene	10.0	8.86		ug/L		89	74 - 130
Toluene	10.0	12.9		ug/L		129	78 - 129
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
trans-1,3-Dichloropropene	10.0	13.2	*	ug/L		132	55 - 128
1,2,4-Trichlorobenzene	10.0	6.63		ug/L		66	42 - 133
1,1,1-Trichloroethane	10.0	9.69		ug/L		97	69 - 134
1,1,2-Trichloroethane	10.0	12.3		ug/L		123	78 - 133
Trichloroethene	10.0	9.06		ug/L		91	76 - 125
Trichlorofluoromethane	10.0	10.5		ug/L		105	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	8.65		ug/L		87	50 - 156
1,2,4-Trimethylbenzene	10.0	12.0		ug/L		120	74 - 120
1,3,5-Trimethylbenzene	10.0	12.8	*	ug/L		128	75 - 121
Vinyl chloride	10.0	15.5	*	ug/L		155	58 - 143
Xylenes, Total	20.0	22.7		ug/L		114	80 - 120
Diethyl ether	10.0	16.8	*	ug/L		168	70 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		59 - 120
Dibromofluoromethane (Surr)	94		75 - 128
1,2-Dichloroethane-d4 (Surr)	107		70 - 121
Toluene-d8 (Surr)	125	X	70 - 123

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

**Lab Sample ID: MB 240-371371/5**

**Matrix: Water**

**Analysis Batch: 371371**

**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			03/13/19 10:50	1

  

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		63 - 125		03/13/19 10:50	1

**Lab Sample ID: LCS 240-371371/4**

**Matrix: Water**

**Analysis Batch: 371371**

**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	12.1		ug/L		121	59 - 131

TestAmerica Canton

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

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

**Lab Sample ID: LCS 240-371371/4**  
**Matrix: Water**  
**Analysis Batch: 371371**

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

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	79		63 - 125

**Lab Sample ID: MRL 240-371371/6**  
**Matrix: Water**  
**Analysis Batch: 371371**

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane			0.00100	0.00101	J	ng/uL		101	10 - 150
Surrogate	MRL	MRL							
1,2-Dichloroethane-d4 (Surr)	%Recovery	Qualifier							
	79								10 - 150

**Lab Sample ID: 240-109266-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 371371**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	11.8		ug/L		118	52 - 129
Surrogate	MS	MS							
1,2-Dichloroethane-d4 (Surr)	%Recovery	Qualifier							
	79								63 - 125

**Lab Sample ID: 240-109266-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 371371**

**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	10.0	11.6		ug/L		116	52 - 129	2	13
Surrogate	MSD	MSD									
1,2-Dichloroethane-d4 (Surr)	%Recovery	Qualifier									
	77										63 - 125

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

## GC/MS VOA

### Analysis Batch: 371371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-109103-1	MW-15-59D_030519	Total/NA	Water	8260B SIM	
240-109103-2	MW-15-60D_030519	Total/NA	Water	8260B SIM	
MB 240-371371/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-371371/4	Lab Control Sample	Total/NA	Water	8260B SIM	
MRL 240-371371/6	Lab Control Sample	Total/NA	Water	8260B SIM	
240-109266-A-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-109266-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 371753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-109103-1	MW-15-59D_030519	Total/NA	Water	8260B	
240-109103-2	MW-15-60D_030519	Total/NA	Water	8260B	
240-109103-3	TRIP BLANK	Total/NA	Water	8260B	
MB 240-371753/6	Method Blank	Total/NA	Water	8260B	
LCS 240-371753/35	Lab Control Sample	Total/NA	Water	8260B	

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Ford LTP Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

**Client Sample ID: MW-15-59D\_030519**

**Date Collected: 03/05/19 10:45**

**Date Received: 03/08/19 08:00**

**Lab Sample ID: 240-109103-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371753	03/15/19 13:59	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	371371	03/13/19 14:11	SAM	TAL CAN

**Client Sample ID: MW-15-60D\_030519**

**Date Collected: 03/05/19 12:30**

**Date Received: 03/08/19 08:00**

**Lab Sample ID: 240-109103-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371753	03/15/19 14:22	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	371371	03/13/19 14:36	SAM	TAL CAN

**Client Sample ID: TRIP BLANK**

**Date Collected: 03/05/19 00:00**

**Date Received: 03/08/19 08:00**

**Lab Sample ID: 240-109103-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371753	03/15/19 14:44	LEE	TAL CAN

**Laboratory References:**

TAL CAN = 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 Livonia MI - E203728

TestAmerica Job ID: 240-109103-1

## Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19 *
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

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





<b>Client Contact</b> Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: MI001454.0006.00003 PO # MI001454.0006.00003		<b>Regulatory program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
<b>Client Project Manager: Kris Hinskey</b> Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		<b>Site Contact: Angela DeGrandis</b> Telephone: 330-497-9396	
<b>Method of Shipment/Carrier:</b> Shipping/Tracking No:		<b>Analysis Turnaround Time</b> TAT if different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	
<b>Sample Identification</b> MW-15-59D_030519 MW-15-60D_030519 TRIP BLANK		<b>Containers &amp; Preservatives</b> H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input checked="" type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> Hmpres <input type="checkbox"/> Other:	
<b>Matrix</b> Air <input type="checkbox"/> Aqueous <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other:		<b>Filtered Sample (Y/N)</b> VOCs 826B 1,4-Dioxane 826B SIM	
<b>Sample Date</b> 3/5/19 3/5/19		<b>Sample Time</b> 1045 1230	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Corrosive <input type="checkbox"/> Irritant <input type="checkbox"/> Unknown		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Special Instructions/QC Requirements &amp; Comments:</b> Submit all results through Cadena at jim.tomalia@cadena.com, Cadena #E203728 Level IV Reporting.			
Relinquished by: RACHEL BIELAK Paul Pilla Relinquished by: NOVI COLD STORAGE Relinquished by:		Company: ARCADIS Company: ARCADIS Company: TESTAMERICA	
Date/Time: 3/6/19 0945 Date/Time: 03/07/19 1252 Date/Time: 3/7/19 14:30		Date/Time: 3/6/19 0945 Date/Time: 3/7/19 1252 Date/Time: 3/8/19 80	



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TestAmerica Canton Sample Receipt Form/Narrative

Login # : 109103

Canton Facility

Client Acadis Site Name Cooler unpacked by:
Cooler Received on 3/8/14 Opened on 3/8/14
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 3.2 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC861525
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 831701 Yes No
16. 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

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: AM

Blank lines for Chain of Custody entries.

18. 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)

19. 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: