

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-95585-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

ARCADIS U.S., Inc.

28550 Cabot Drive

Suite 500

Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:

5/29/2018 2:17:16 PM

Michael DelMonico, Project Manager I

(330)497-9396

[michael.delmonico@testamericainc.com](mailto:michael.delmonico@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*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.*

1

2

3

4

5

6

7

8

9

10

11

12

13

14



# 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 . . . . .	13
QC Sample Results . . . . .	14
QC Association Summary . . . . .	29
Lab Chronicle . . . . .	30
Certification Summary . . . . .	31
Chain of Custody . . . . .	32

# Definitions/Glossary

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

TestAmerica Job ID: 240-95585-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery 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.

## 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: 240-95585-1

**Job ID: 240-95585-1**

**Laboratory: TestAmerica Canton**

**Narrative**

## CASE NARRATIVE

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

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

**Report Number: 240-95585-1**

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 5/15/2018 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 3.1° C.

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

Samples MW-15-60D-051118 (240-95585-1) and MW-44-051418 (240-95585-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/23/2018, 05/24/2018 and 05/25/2018.

2-Hexanone exceeded the RPD limit for the MSD of sample 240-95530-2 in batch 240-328344.

Chloromethane exceeded the RPD limit for the MSD of sample 240-95579-4 in batch 240-328205.

Acetone failed the recovery criteria high for the MS of sample MW-44-051418MS (240-95585-2) in batch 240-328594. Refer to the QC report for details.

Sample MW-44-051418 (240-95585-2)[13.33X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method(s) 8260B: The initial calibration (ICAL) did not pass the method calibration acceptance criteria for [1,4-Dioxane]. This variance only

# Case Narrative

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

TestAmerica Job ID: 240-95585-1

---

## Job ID: 240-95585-1 (Continued)

---

### Laboratory: TestAmerica Canton (Continued)

affects results measured above the reporting limit. A CCV standard at or below the reporting limit (RL) was analyzed with the samples and found to be acceptable. This demonstrates the reporting limit is valid for the affected analytes. The samples associated with the ICAL were non-detects for the affected analytes; therefore, the results have been reported. The following samples are impacted: MW-44-051418 (240-95585-2) and (CCVIS 240-328594/2).

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-15-60D-051118 (240-95585-1) and MW-44-051418 (240-95585-2) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 05/23/2018.

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: 240-95585-1

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: 240-95585-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-95585-1	MW-15-60D-051118	Water	05/11/18 10:50	05/15/18 08:45
240-95585-2	MW-44-051418	Water	05/14/18 11:55	05/15/18 08:45

- 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: 240-95585-1

**Client Sample ID: MW-15-60D-051118**

**Lab Sample ID: 240-95585-1**

No Detections.

**Client Sample ID: MW-44-051418**

**Lab Sample ID: 240-95585-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	11		2.0	0.24	ug/L	1		8260B SIM	Total/NA
Methylene Chloride	9.7	J	67	7.1	ug/L	13.33		8260B	Total/NA
Vinyl chloride	270		13	6.0	ug/L	13.33		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton



# Client Sample Results

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

TestAmerica Job ID: 240-95585-1

**Client Sample ID: MW-15-60D-051118**

**Lab Sample ID: 240-95585-1**

**Date Collected: 05/11/18 10:50**

**Matrix: Water**

**Date Received: 05/15/18 08:45**

**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	0.24	ug/L			05/23/18 20:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		63 - 125					05/23/18 20:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	1.8	ug/L			05/23/18 21:45	1
Benzene	1.0	U	1.0	0.28	ug/L			05/23/18 21:45	1
Bromodichloromethane	1.0	U	1.0	0.30	ug/L			05/23/18 21:45	1
Bromoform	1.0	U	1.0	0.43	ug/L			05/23/18 21:45	1
Bromomethane	1.0	U	1.0	0.42	ug/L			05/23/18 21:45	1
2-Butanone (MEK)	10	U	10	1.0	ug/L			05/23/18 21:45	1
Carbon disulfide	5.0	U	5.0	0.34	ug/L			05/23/18 21:45	1
Carbon tetrachloride	1.0	U	1.0	0.35	ug/L			05/23/18 21:45	1
Chlorobenzene	1.0	U	1.0	0.32	ug/L			05/23/18 21:45	1
Chloroethane	1.0	U	1.0	0.41	ug/L			05/23/18 21:45	1
Chloroform	1.0	U	1.0	0.31	ug/L			05/23/18 21:45	1
Chloromethane	1.0	U	1.0	0.43	ug/L			05/23/18 21:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			05/23/18 21:45	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.26	ug/L			05/23/18 21:45	1
Cyclohexane	1.0	U	1.0	0.44	ug/L			05/23/18 21:45	1
Dibromochloromethane	1.0	U	1.0	0.25	ug/L			05/23/18 21:45	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.47	ug/L			05/23/18 21:45	1
1,2-Dibromoethane	1.0	U	1.0	0.23	ug/L			05/23/18 21:45	1
1,2-Dichlorobenzene	1.0	U	1.0	0.26	ug/L			05/23/18 21:45	1
1,3-Dichlorobenzene	1.0	U	1.0	0.32	ug/L			05/23/18 21:45	1
1,4-Dichlorobenzene	1.0	U	1.0	0.23	ug/L			05/23/18 21:45	1
Dichlorodifluoromethane	1.0	U	1.0	0.50	ug/L			05/23/18 21:45	1
1,1-Dichloroethane	1.0	U	1.0	0.25	ug/L			05/23/18 21:45	1
1,2-Dichloroethane	1.0	U	1.0	0.30	ug/L			05/23/18 21:45	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			05/23/18 21:45	1
1,2-Dichloropropane	1.0	U	1.0	0.30	ug/L			05/23/18 21:45	1
Diethyl ether	2.0	U	2.0	0.35	ug/L			05/23/18 21:45	1
Ethylbenzene	1.0	U	1.0	0.26	ug/L			05/23/18 21:45	1
2-Hexanone	10	U	10	1.2	ug/L			05/23/18 21:45	1
Isopropylbenzene	1.0	U	1.0	0.21	ug/L			05/23/18 21:45	1
Methyl acetate	10	U	10	1.4	ug/L			05/23/18 21:45	1
Methylcyclohexane	1.0	U	1.0	0.45	ug/L			05/23/18 21:45	1
Methylene Chloride	5.0	U	5.0	0.53	ug/L			05/23/18 21:45	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.71	ug/L			05/23/18 21:45	1
Methyl tert-butyl ether	1.0	U	1.0	0.27	ug/L			05/23/18 21:45	1
Styrene	1.0	U	1.0	0.23	ug/L			05/23/18 21:45	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.32	ug/L			05/23/18 21:45	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			05/23/18 21:45	1
Toluene	1.0	U	1.0	0.23	ug/L			05/23/18 21:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			05/23/18 21:45	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.31	ug/L			05/23/18 21:45	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.27	ug/L			05/23/18 21:45	1
1,1,1-Trichloroethane	1.0	U	1.0	0.23	ug/L			05/23/18 21:45	1

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-95585-1

**Client Sample ID: MW-15-60D-051118**

**Lab Sample ID: 240-95585-1**

**Date Collected: 05/11/18 10:50**

**Matrix: Water**

**Date Received: 05/15/18 08:45**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	1.0	U	1.0	0.34	ug/L			05/23/18 21:45	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			05/23/18 21:45	1
Trichlorofluoromethane	1.0	U	1.0	0.50	ug/L			05/23/18 21:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			05/23/18 21:45	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.22	ug/L			05/23/18 21:45	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/23/18 21:45	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/23/18 21:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/23/18 21:45	1
Xylenes, Total	2.0	U	2.0	0.24	ug/L			05/23/18 21:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		69 - 120		05/23/18 21:45	1
4-Bromofluorobenzene (Surr)	91		69 - 120		05/24/18 21:07	1
Dibromofluoromethane (Surr)	94		69 - 124		05/23/18 21:45	1
Dibromofluoromethane (Surr)	95		69 - 124		05/24/18 21:07	1
1,2-Dichloroethane-d4 (Surr)	95		61 - 138		05/23/18 21:45	1
1,2-Dichloroethane-d4 (Surr)	103		61 - 138		05/24/18 21:07	1
Toluene-d8 (Surr)	98		73 - 120		05/23/18 21:45	1
Toluene-d8 (Surr)	94		73 - 120		05/24/18 21:07	1

# Client Sample Results

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

TestAmerica Job ID: 240-95585-1

**Client Sample ID: MW-44-051418**

**Lab Sample ID: 240-95585-2**

**Date Collected: 05/14/18 11:55**

**Matrix: Water**

**Date Received: 05/15/18 08:45**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	11		2.0	0.24	ug/L			05/23/18 21:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		63 - 125					05/23/18 21:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	130	U F1	130	23	ug/L			05/25/18 18:48	13.33
Benzene	13	U	13	3.7	ug/L			05/25/18 18:48	13.33
Bromodichloromethane	13	U	13	4.0	ug/L			05/25/18 18:48	13.33
Bromoform	13	U	13	5.7	ug/L			05/25/18 18:48	13.33
Bromomethane	13	U	13	5.6	ug/L			05/25/18 18:48	13.33
2-Butanone (MEK)	130	U	130	14	ug/L			05/25/18 18:48	13.33
Carbon disulfide	67	U	67	4.5	ug/L			05/25/18 18:48	13.33
Carbon tetrachloride	13	U	13	4.7	ug/L			05/25/18 18:48	13.33
Chlorobenzene	13	U	13	4.3	ug/L			05/25/18 18:48	13.33
Chloroethane	13	U	13	5.5	ug/L			05/25/18 18:48	13.33
Chloroform	13	U	13	4.1	ug/L			05/25/18 18:48	13.33
Chloromethane	13	U	13	5.7	ug/L			05/25/18 18:48	13.33
cis-1,2-Dichloroethene	13	U	13	4.0	ug/L			05/25/18 18:48	13.33
cis-1,3-Dichloropropene	13	U	13	3.5	ug/L			05/25/18 18:48	13.33
Cyclohexane	13	U	13	5.9	ug/L			05/25/18 18:48	13.33
Dibromochloromethane	13	U	13	3.3	ug/L			05/25/18 18:48	13.33
1,2-Dibromo-3-Chloropropane	13	U	13	6.3	ug/L			05/25/18 18:48	13.33
1,2-Dibromoethane	13	U	13	3.1	ug/L			05/25/18 18:48	13.33
1,2-Dichlorobenzene	13	U	13	3.5	ug/L			05/25/18 18:48	13.33
1,3-Dichlorobenzene	13	U	13	4.3	ug/L			05/25/18 18:48	13.33
1,4-Dichlorobenzene	13	U	13	3.1	ug/L			05/25/18 18:48	13.33
Dichlorodifluoromethane	13	U	13	6.7	ug/L			05/25/18 18:48	13.33
1,1-Dichloroethane	13	U	13	3.3	ug/L			05/25/18 18:48	13.33
1,2-Dichloroethane	13	U	13	4.0	ug/L			05/25/18 18:48	13.33
1,1-Dichloroethene	13	U	13	3.6	ug/L			05/25/18 18:48	13.33
1,2-Dichloropropane	13	U	13	4.0	ug/L			05/25/18 18:48	13.33
Diethyl ether	27	U	27	4.7	ug/L			05/25/18 18:48	13.33
Ethylbenzene	13	U	13	3.5	ug/L			05/25/18 18:48	13.33
2-Hexanone	130	U	130	16	ug/L			05/25/18 18:48	13.33
Isopropylbenzene	13	U	13	2.8	ug/L			05/25/18 18:48	13.33
Methyl acetate	130	U	130	19	ug/L			05/25/18 18:48	13.33
Methylcyclohexane	13	U	13	6.0	ug/L			05/25/18 18:48	13.33
<b>Methylene Chloride</b>	<b>9.7</b>	<b>J</b>	67	7.1	ug/L			05/25/18 18:48	13.33
4-Methyl-2-pentanone (MIBK)	130	U	130	9.5	ug/L			05/25/18 18:48	13.33
Methyl tert-butyl ether	13	U	13	3.6	ug/L			05/25/18 18:48	13.33
Styrene	13	U	13	3.1	ug/L			05/25/18 18:48	13.33
1,1,1,2-Tetrachloroethane	13	U	13	4.3	ug/L			05/25/18 18:48	13.33
Tetrachloroethene	13	U	13	4.0	ug/L			05/25/18 18:48	13.33
Toluene	13	U	13	3.1	ug/L			05/25/18 18:48	13.33
trans-1,2-Dichloroethene	13	U	13	3.9	ug/L			05/25/18 18:48	13.33
trans-1,3-Dichloropropene	13	U	13	4.1	ug/L			05/25/18 18:48	13.33
1,2,4-Trichlorobenzene	13	U	13	3.6	ug/L			05/25/18 18:48	13.33
1,1,1-Trichloroethane	13	U	13	3.1	ug/L			05/25/18 18:48	13.33

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-95585-1

**Client Sample ID: MW-44-051418**

**Lab Sample ID: 240-95585-2**

**Date Collected: 05/14/18 11:55**

**Matrix: Water**

**Date Received: 05/15/18 08:45**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	13	U	13	4.5	ug/L			05/25/18 18:48	13.33
Trichloroethene	13	U	13	4.4	ug/L			05/25/18 18:48	13.33
Trichlorofluoromethane	13	U	13	6.7	ug/L			05/25/18 18:48	13.33
1,1,2-Trichloro-1,2,2-trifluoroethane	13	U	13	5.5	ug/L			05/25/18 18:48	13.33
1,2,3-Trimethylbenzene	67	U	67	2.9	ug/L			05/25/18 18:48	13.33
1,2,4-Trimethylbenzene	13	U	13	3.2	ug/L			05/25/18 18:48	13.33
1,3,5-Trimethylbenzene	13	U	13	3.2	ug/L			05/25/18 18:48	13.33
<b>Vinyl chloride</b>	<b>270</b>		13	6.0	ug/L			05/25/18 18:48	13.33
Xylenes, Total	27	U	27	3.2	ug/L			05/25/18 18:48	13.33
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		69 - 120					05/25/18 18:48	13.33
Dibromofluoromethane (Surr)	96		69 - 124					05/25/18 18:48	13.33
1,2-Dichloroethane-d4 (Surr)	95		61 - 138					05/25/18 18:48	13.33
Toluene-d8 (Surr)	99		73 - 120					05/25/18 18:48	13.33

# Surrogate Summary

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

TestAmerica Job ID: 240-95585-1

## 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)			
		BFB (69-120)	DBFM (69-124)	DCA (61-138)	TOL (73-120)
240-95530-A-2 MS	Matrix Spike	94	96	101	99
240-95530-C-2 MSD	Matrix Spike Duplicate	96	96	102	100
240-95579-B-4 MS	Matrix Spike	96	99	95	99
240-95579-B-4 MSD	Matrix Spike Duplicate	89	89	94	94
240-95585-1	MW-15-60D-051118	90	94	95	98
240-95585-1	MW-15-60D-051118	91	95	103	94
240-95585-2	MW-44-051418	92	96	95	99
240-95585-2 MS	MW-44-051418	92	95	88	98
240-95585-2 MSD	MW-44-051418	92	97	98	100
LCS 240-328205/4	Lab Control Sample	92	97	98	95
LCS 240-328344/4	Lab Control Sample	92	96	95	99
LCS 240-328344/5	Lab Control Sample	87	96	98	93
LCS 240-328594/4	Lab Control Sample	93	91	89	96
MB 240-328205/6	Method Blank	97	96	95	95
MB 240-328344/7	Method Blank	93	97	101	98
MB 240-328594/6	Method Blank	88	93	91	94

#### 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)
240-95585-1	MW-15-60D-051118	112
240-95585-2	MW-44-051418	104
240-95595-C-3 MS	Matrix Spike	104
240-95595-C-3 MSD	Matrix Spike Duplicate	106
LCS 240-328228/4	Lab Control Sample	109
MB 240-328228/5	Method Blank	106

#### 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: 240-95585-1

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

**Lab Sample ID: MB 240-328205/6**

**Matrix: Water**

**Analysis Batch: 328205**

**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	1.8	ug/L			05/23/18 14:03	1
Benzene	1.0	U	1.0	0.28	ug/L			05/23/18 14:03	1
Bromodichloromethane	1.0	U	1.0	0.30	ug/L			05/23/18 14:03	1
Bromoform	1.0	U	1.0	0.43	ug/L			05/23/18 14:03	1
Bromomethane	1.0	U	1.0	0.42	ug/L			05/23/18 14:03	1
2-Butanone (MEK)	10	U	10	1.0	ug/L			05/23/18 14:03	1
Carbon disulfide	5.0	U	5.0	0.34	ug/L			05/23/18 14:03	1
Carbon tetrachloride	1.0	U	1.0	0.35	ug/L			05/23/18 14:03	1
Chlorobenzene	1.0	U	1.0	0.32	ug/L			05/23/18 14:03	1
Chloroethane	1.0	U	1.0	0.41	ug/L			05/23/18 14:03	1
Chloroform	1.0	U	1.0	0.31	ug/L			05/23/18 14:03	1
Chloromethane	1.0	U	1.0	0.43	ug/L			05/23/18 14:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			05/23/18 14:03	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.26	ug/L			05/23/18 14:03	1
Cyclohexane	1.0	U	1.0	0.44	ug/L			05/23/18 14:03	1
Dibromochloromethane	1.0	U	1.0	0.25	ug/L			05/23/18 14:03	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.47	ug/L			05/23/18 14:03	1
1,2-Dibromoethane	1.0	U	1.0	0.23	ug/L			05/23/18 14:03	1
1,2-Dichlorobenzene	1.0	U	1.0	0.26	ug/L			05/23/18 14:03	1
1,3-Dichlorobenzene	1.0	U	1.0	0.32	ug/L			05/23/18 14:03	1
1,4-Dichlorobenzene	1.0	U	1.0	0.23	ug/L			05/23/18 14:03	1
Dichlorodifluoromethane	1.0	U	1.0	0.50	ug/L			05/23/18 14:03	1
1,1-Dichloroethane	1.0	U	1.0	0.25	ug/L			05/23/18 14:03	1
1,2-Dichloroethane	1.0	U	1.0	0.30	ug/L			05/23/18 14:03	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			05/23/18 14:03	1
1,2-Dichloropropane	1.0	U	1.0	0.30	ug/L			05/23/18 14:03	1
Diethyl ether	2.0	U	2.0	0.35	ug/L			05/23/18 14:03	1
Ethylbenzene	1.0	U	1.0	0.26	ug/L			05/23/18 14:03	1
2-Hexanone	10	U	10	1.2	ug/L			05/23/18 14:03	1
Isopropylbenzene	1.0	U	1.0	0.21	ug/L			05/23/18 14:03	1
Methyl acetate	10	U	10	1.4	ug/L			05/23/18 14:03	1
Methylcyclohexane	1.0	U	1.0	0.45	ug/L			05/23/18 14:03	1
Methylene Chloride	5.0	U	5.0	0.53	ug/L			05/23/18 14:03	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.71	ug/L			05/23/18 14:03	1
Methyl tert-butyl ether	1.0	U	1.0	0.27	ug/L			05/23/18 14:03	1
Styrene	1.0	U	1.0	0.23	ug/L			05/23/18 14:03	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.32	ug/L			05/23/18 14:03	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			05/23/18 14:03	1
Toluene	1.0	U	1.0	0.23	ug/L			05/23/18 14:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			05/23/18 14:03	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.31	ug/L			05/23/18 14:03	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.27	ug/L			05/23/18 14:03	1
1,1,1-Trichloroethane	1.0	U	1.0	0.23	ug/L			05/23/18 14:03	1
1,1,2-Trichloroethane	1.0	U	1.0	0.34	ug/L			05/23/18 14:03	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			05/23/18 14:03	1
Trichlorofluoromethane	1.0	U	1.0	0.50	ug/L			05/23/18 14:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			05/23/18 14:03	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.22	ug/L			05/23/18 14:03	1

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: MB 240-328205/6**  
**Matrix: Water**  
**Analysis Batch: 328205**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,4-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/23/18 14:03	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/23/18 14:03	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/23/18 14:03	1
Xylenes, Total	2.0	U	2.0	0.24	ug/L			05/23/18 14:03	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	97		69 - 120		05/23/18 14:03	1
Dibromofluoromethane (Surr)	96		69 - 124		05/23/18 14:03	1
1,2-Dichloroethane-d4 (Surr)	95		61 - 138		05/23/18 14:03	1
Toluene-d8 (Surr)	95		73 - 120		05/23/18 14:03	1

**Lab Sample ID: LCS 240-328205/4**  
**Matrix: Water**  
**Analysis Batch: 328205**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.2		ug/L		102	79 - 120
Bromodichloromethane	10.0	10.4		ug/L		104	79 - 125
Bromoform	10.0	9.73		ug/L		97	55 - 145
Bromomethane	10.0	9.92		ug/L		99	17 - 158
2-Butanone (MEK)	20.0	23.5		ug/L		117	43 - 149
Carbon disulfide	10.0	10.9		ug/L		109	49 - 141
Carbon tetrachloride	10.0	10.7		ug/L		107	55 - 171
Chlorobenzene	10.0	9.88		ug/L		99	80 - 120
Chloroethane	10.0	10.5		ug/L		105	10 - 149
Chloroform	10.0	10.4		ug/L		104	80 - 120
Chloromethane	10.0	10.3		ug/L		103	59 - 124
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	77 - 120
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	75 - 120
Cyclohexane	10.0	10.8		ug/L		108	66 - 135
Dibromochloromethane	10.0	9.83		ug/L		98	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	9.55		ug/L		95	50 - 130
1,2-Dibromoethane	10.0	10.2		ug/L		102	80 - 120
1,2-Dichlorobenzene	10.0	9.77		ug/L		98	80 - 120
1,3-Dichlorobenzene	10.0	9.61		ug/L		96	80 - 120
1,4-Dichlorobenzene	10.0	9.61		ug/L		96	80 - 120
Dichlorodifluoromethane	10.0	8.20		ug/L		82	42 - 141
1,1-Dichloroethane	10.0	10.6		ug/L		106	74 - 120
1,2-Dichloroethane	10.0	10.8		ug/L		108	68 - 133
1,1-Dichloroethene	10.0	11.4		ug/L		114	65 - 127
1,2-Dichloropropane	10.0	10.7		ug/L		107	78 - 127
Diethyl ether	10.0	11.6		ug/L		116	72 - 125
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
2-Hexanone	20.0	19.8		ug/L		99	28 - 169
Isopropylbenzene	10.0	9.84		ug/L		98	80 - 128
Methyl acetate	20.0	20.8		ug/L		104	63 - 137
Methylcyclohexane	10.0	9.85		ug/L		99	63 - 141

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: LCS 240-328205/4**

**Matrix: Water**

**Analysis Batch: 328205**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Chloride	10.0	9.87		ug/L		99	64 - 140
4-Methyl-2-pentanone (MIBK)	20.0	21.0		ug/L		105	53 - 144
Methyl tert-butyl ether	10.0	10.5		ug/L		105	73 - 120
Styrene	10.0	9.70		ug/L		97	80 - 121
1,1,2,2-Tetrachloroethane	10.0	9.87		ug/L		99	58 - 122
Tetrachloroethene	10.0	10.2		ug/L		102	80 - 122
Toluene	10.0	9.91		ug/L		99	78 - 120
trans-1,2-Dichloroethene	10.0	11.0		ug/L		110	74 - 124
trans-1,3-Dichloropropene	10.0	9.33		ug/L		93	67 - 120
1,2,4-Trichlorobenzene	10.0	9.09		ug/L		91	34 - 141
1,1,1-Trichloroethane	10.0	10.9		ug/L		109	64 - 147
1,1,2-Trichloroethane	10.0	10.0		ug/L		100	76 - 121
Trichloroethene	10.0	10.5		ug/L		105	76 - 124
Trichlorofluoromethane	10.0	9.82		ug/L		98	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.9		ug/L		109	65 - 144
1,2,4-Trimethylbenzene	10.0	9.61		ug/L		96	80 - 120
1,3,5-Trimethylbenzene	10.0	9.63		ug/L		96	79 - 120
Vinyl chloride	10.0	10.1		ug/L		101	65 - 124
Xylenes, Total	20.0	20.0		ug/L		100	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		69 - 120
Dibromofluoromethane (Surr)	97		69 - 124
1,2-Dichloroethane-d4 (Surr)	98		61 - 138
Toluene-d8 (Surr)	95		73 - 120

**Lab Sample ID: 240-95579-B-4 MS**

**Matrix: Water**

**Analysis Batch: 328205**

**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
Benzene	100	U	1000	1010		ug/L		101	69 - 127
Chloromethane	100	U F2	1000	1120		ug/L		112	34 - 127
cis-1,2-Dichloroethene	2300		1000	3260		ug/L		99	69 - 127
trans-1,2-Dichloroethene	100	U	1000	1090		ug/L		109	66 - 131
Trichloroethene	1300		1000	2280		ug/L		99	68 - 129
Vinyl chloride	150		1000	1150		ug/L		100	55 - 123

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		69 - 120
Dibromofluoromethane (Surr)	99		69 - 124
1,2-Dichloroethane-d4 (Surr)	95		61 - 138
Toluene-d8 (Surr)	99		73 - 120

TestAmerica Canton



# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: 240-95579-B-4 MSD**

**Matrix: Water**

**Analysis Batch: 328205**

**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
Benzene	100	U	1000	997		ug/L		100	69 - 127	1	10
Chloromethane	100	U F2	1000	495	F2	ug/L		49	34 - 127	78	25
cis-1,2-Dichloroethene	2300		1000	3030		ug/L		77	69 - 127	7	11
trans-1,2-Dichloroethene	100	U	1000	1040		ug/L		104	66 - 131	4	11
Trichloroethene	1300		1000	2230		ug/L		94	68 - 129	2	12
Vinyl chloride	150		1000	1060		ug/L		91	55 - 123	9	12

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		69 - 120
Dibromofluoromethane (Surr)	89		69 - 124
1,2-Dichloroethane-d4 (Surr)	94		61 - 138
Toluene-d8 (Surr)	94		73 - 120

**Lab Sample ID: MB 240-328344/7**

**Matrix: Water**

**Analysis Batch: 328344**

**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	1.8	ug/L			05/24/18 12:35	1
Benzene	1.0	U	1.0	0.28	ug/L			05/24/18 12:35	1
Bromodichloromethane	1.0	U	1.0	0.30	ug/L			05/24/18 12:35	1
Bromoform	1.0	U	1.0	0.43	ug/L			05/24/18 12:35	1
Bromomethane	1.0	U	1.0	0.42	ug/L			05/24/18 12:35	1
2-Butanone (MEK)	10	U	10	1.0	ug/L			05/24/18 12:35	1
Carbon disulfide	5.0	U	5.0	0.34	ug/L			05/24/18 12:35	1
Carbon tetrachloride	1.0	U	1.0	0.35	ug/L			05/24/18 12:35	1
Chlorobenzene	1.0	U	1.0	0.32	ug/L			05/24/18 12:35	1
Chloroethane	1.0	U	1.0	0.41	ug/L			05/24/18 12:35	1
Chloroform	1.0	U	1.0	0.31	ug/L			05/24/18 12:35	1
Chloromethane	1.0	U	1.0	0.43	ug/L			05/24/18 12:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			05/24/18 12:35	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.26	ug/L			05/24/18 12:35	1
Cyclohexane	1.0	U	1.0	0.44	ug/L			05/24/18 12:35	1
Dibromochloromethane	1.0	U	1.0	0.25	ug/L			05/24/18 12:35	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.47	ug/L			05/24/18 12:35	1
1,2-Dibromoethane	1.0	U	1.0	0.23	ug/L			05/24/18 12:35	1
1,2-Dichlorobenzene	1.0	U	1.0	0.26	ug/L			05/24/18 12:35	1
1,3-Dichlorobenzene	1.0	U	1.0	0.32	ug/L			05/24/18 12:35	1
1,4-Dichlorobenzene	1.0	U	1.0	0.23	ug/L			05/24/18 12:35	1
Dichlorodifluoromethane	1.0	U	1.0	0.50	ug/L			05/24/18 12:35	1
1,1-Dichloroethane	1.0	U	1.0	0.25	ug/L			05/24/18 12:35	1
1,2-Dichloroethane	1.0	U	1.0	0.30	ug/L			05/24/18 12:35	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			05/24/18 12:35	1
1,2-Dichloropropane	1.0	U	1.0	0.30	ug/L			05/24/18 12:35	1
Diethyl ether	2.0	U	2.0	0.35	ug/L			05/24/18 12:35	1
Ethylbenzene	1.0	U	1.0	0.26	ug/L			05/24/18 12:35	1
2-Hexanone	10	U	10	1.2	ug/L			05/24/18 12:35	1
Isopropylbenzene	1.0	U	1.0	0.21	ug/L			05/24/18 12:35	1

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: MB 240-328344/7**  
**Matrix: Water**  
**Analysis Batch: 328344**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl acetate	10	U	10	1.4	ug/L			05/24/18 12:35	1
Methylcyclohexane	1.0	U	1.0	0.45	ug/L			05/24/18 12:35	1
Methylene Chloride	5.0	U	5.0	0.53	ug/L			05/24/18 12:35	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.71	ug/L			05/24/18 12:35	1
Methyl tert-butyl ether	1.0	U	1.0	0.27	ug/L			05/24/18 12:35	1
Styrene	1.0	U	1.0	0.23	ug/L			05/24/18 12:35	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.32	ug/L			05/24/18 12:35	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			05/24/18 12:35	1
Toluene	1.0	U	1.0	0.23	ug/L			05/24/18 12:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			05/24/18 12:35	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.31	ug/L			05/24/18 12:35	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.27	ug/L			05/24/18 12:35	1
1,1,1-Trichloroethane	1.0	U	1.0	0.23	ug/L			05/24/18 12:35	1
1,1,2-Trichloroethane	1.0	U	1.0	0.34	ug/L			05/24/18 12:35	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			05/24/18 12:35	1
Trichlorofluoromethane	1.0	U	1.0	0.50	ug/L			05/24/18 12:35	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			05/24/18 12:35	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.22	ug/L			05/24/18 12:35	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/24/18 12:35	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/24/18 12:35	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/24/18 12:35	1
Xylenes, Total	2.0	U	2.0	0.24	ug/L			05/24/18 12:35	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	93		69 - 120		05/24/18 12:35	1
Dibromofluoromethane (Surr)	97		69 - 124		05/24/18 12:35	1
1,2-Dichloroethane-d4 (Surr)	101		61 - 138		05/24/18 12:35	1
Toluene-d8 (Surr)	98		73 - 120		05/24/18 12:35	1

**Lab Sample ID: LCS 240-328344/4**  
**Matrix: Water**  
**Analysis Batch: 328344**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	79 - 120
Bromodichloromethane	10.0	10.3		ug/L		103	79 - 125
Bromoform	10.0	9.53		ug/L		95	55 - 145
Bromomethane	10.0	10.7		ug/L		107	17 - 158
2-Butanone (MEK)	20.0	22.6		ug/L		113	43 - 149
Carbon disulfide	10.0	10.7		ug/L		107	49 - 141
Carbon tetrachloride	10.0	9.63		ug/L		96	55 - 171
Chlorobenzene	10.0	10.7		ug/L		107	80 - 120
Chloroethane	10.0	11.9		ug/L		119	10 - 149
Chloroform	10.0	10.7		ug/L		107	80 - 120
Chloromethane	10.0	9.95		ug/L		100	59 - 124
cis-1,2-Dichloroethene	10.0	10.6		ug/L		106	77 - 120
cis-1,3-Dichloropropene	10.0	9.17		ug/L		92	75 - 120

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID:** LCS 240-328344/4  
**Matrix:** Water  
**Analysis Batch:** 328344

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyclohexane	10.0	10.8		ug/L		108	66 - 135
Dibromochloromethane	10.0	10.3		ug/L		103	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	8.31		ug/L		83	50 - 130
1,2-Dibromoethane	10.0	10.2		ug/L		102	80 - 120
1,2-Dichlorobenzene	10.0	10.7		ug/L		107	80 - 120
1,3-Dichlorobenzene	10.0	10.2		ug/L		102	80 - 120
1,4-Dichlorobenzene	10.0	10.2		ug/L		102	80 - 120
Dichlorodifluoromethane	10.0	7.83		ug/L		78	42 - 141
1,1-Dichloroethane	10.0	10.6		ug/L		106	74 - 120
1,2-Dichloroethane	10.0	11.3		ug/L		113	68 - 133
1,1-Dichloroethene	10.0	10.8		ug/L		108	65 - 127
1,2-Dichloropropane	10.0	10.8		ug/L		108	78 - 127
Diethyl ether	10.0	11.8		ug/L		118	72 - 125
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120
2-Hexanone	20.0	19.7		ug/L		98	28 - 169
Isopropylbenzene	10.0	10.1		ug/L		101	80 - 128
Methyl acetate	20.0	20.8		ug/L		104	63 - 137
Methylcyclohexane	10.0	9.68		ug/L		97	63 - 141
Methylene Chloride	10.0	10.4		ug/L		104	64 - 140
4-Methyl-2-pentanone (MIBK)	20.0	18.3		ug/L		91	53 - 144
Methyl tert-butyl ether	10.0	7.39		ug/L		74	73 - 120
Styrene	10.0	10.4		ug/L		104	80 - 121
1,1,2,2-Tetrachloroethane	10.0	10.7		ug/L		107	58 - 122
Tetrachloroethene	10.0	10.5		ug/L		105	80 - 122
Toluene	10.0	10.8		ug/L		108	78 - 120
trans-1,2-Dichloroethene	10.0	11.3		ug/L		113	74 - 124
trans-1,3-Dichloropropene	10.0	8.14		ug/L		81	67 - 120
1,2,4-Trichlorobenzene	10.0	10.3		ug/L		103	34 - 141
1,1,1-Trichloroethane	10.0	9.56		ug/L		96	64 - 147
1,1,2-Trichloroethane	10.0	11.1		ug/L		111	76 - 121
Trichloroethene	10.0	10.0		ug/L		100	76 - 124
Trichlorofluoromethane	10.0	12.3		ug/L		123	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.3		ug/L		113	65 - 144
1,2,4-Trimethylbenzene	10.0	10.0		ug/L		100	80 - 120
1,3,5-Trimethylbenzene	10.0	10.1		ug/L		101	79 - 120
Vinyl chloride	10.0	10.9		ug/L		109	65 - 124
Xylenes, Total	20.0	20.5		ug/L		103	80 - 120
1,4-Dioxane	200	97.3		ug/L		49	35 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	92		69 - 120
Dibromofluoromethane (Surr)	96		69 - 124
1,2-Dichloroethane-d4 (Surr)	95		61 - 138
Toluene-d8 (Surr)	99		73 - 120

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: LCS 240-328344/5**

**Matrix: Water**

**Analysis Batch: 328344**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3-Trimethylbenzene	10.0	10.5		ug/L		105	70 - 130
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	87		69 - 120				
Dibromofluoromethane (Surr)	96		69 - 124				
1,2-Dichloroethane-d4 (Surr)	98		61 - 138				
Toluene-d8 (Surr)	93		73 - 120				

**Lab Sample ID: 240-95530-A-2 MS**

**Matrix: Water**

**Analysis Batch: 328344**

**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
Acetone	10	U	20.0	22.1		ug/L		111	19 - 133
Benzene	1.0	U	10.0	10.6		ug/L		106	69 - 127
2-Butanone (MEK)	10	U	20.0	23.7		ug/L		119	34 - 153
Carbon tetrachloride	1.0	U	10.0	10.0		ug/L		100	53 - 175
Chlorobenzene	1.0	U	10.0	10.6		ug/L		106	76 - 120
Chloroform	1.0	U	10.0	10.7		ug/L		107	74 - 125
Chloromethane	1.0	U	10.0	11.0		ug/L		110	34 - 127
cis-1,3-Dichloropropene	1.0	U	10.0	9.16		ug/L		92	68 - 120
1,2-Dibromoethane	1.0	U	10.0	10.2		ug/L		102	73 - 121
1,2-Dichlorobenzene	1.0	U	10.0	10.2		ug/L		102	70 - 120
1,3-Dichlorobenzene	1.0	U	10.0	10.4		ug/L		104	71 - 120
1,4-Dichlorobenzene	1.0	U	10.0	10.4		ug/L		104	72 - 120
1,1-Dichloroethane	1.0	U	10.0	10.6		ug/L		106	69 - 122
1,2-Dichloroethane	1.0	U	10.0	11.8		ug/L		118	64 - 138
1,1-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	62 - 127
1,2-Dichloropropane	1.0	U	10.0	11.1		ug/L		111	72 - 131
Ethylbenzene	1.0	U	10.0	10.4		ug/L		104	72 - 121
2-Hexanone	10	U F2	20.0	19.9		ug/L		100	21 - 184
Methylene Chloride	5.0	U	10.0	10.1		ug/L		101	52 - 137
4-Methyl-2-pentanone (MIBK)	10	U	20.0	20.0		ug/L		100	53 - 147
Styrene	1.0	U	10.0	10.3		ug/L		103	74 - 125
1,1,2,2-Tetrachloroethane	1.0	U	10.0	10.7		ug/L		107	51 - 123
Tetrachloroethene	1.0	U	10.0	10.8		ug/L		108	69 - 126
Toluene	1.0	U	10.0	10.6		ug/L		106	69 - 125
trans-1,2-Dichloroethene	1.0	U	10.0	11.4		ug/L		114	66 - 131
1,1,1-Trichloroethane	1.0	U	10.0	9.44		ug/L		94	57 - 156
Trichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 129
Trichlorofluoromethane	1.0	U	10.0	12.5		ug/L		125	28 - 172
Vinyl chloride	1.0	U	10.0	11.6		ug/L		116	55 - 123
Xylenes, Total	2.0	U	20.0	20.4		ug/L		102	71 - 122
1,4-Dioxane	50	U	200	97.8		ug/L		49	13 - 155
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	94		69 - 120						

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: 240-95530-A-2 MS**  
**Matrix: Water**  
**Analysis Batch: 328344**

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

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	96		69 - 124
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		61 - 138
<i>Toluene-d8 (Surr)</i>	99		73 - 120

**Lab Sample ID: 240-95530-C-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 328344**

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

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
Acetone	10	U	20.0	23.9		ug/L		120	19 - 133	8	35
Benzene	1.0	U	10.0	10.7		ug/L		107	69 - 127	1	10
2-Butanone (MEK)	10	U	20.0	25.7		ug/L		129	34 - 153	8	23
Carbon tetrachloride	1.0	U	10.0	9.85		ug/L		98	53 - 175	2	17
Chlorobenzene	1.0	U	10.0	10.9		ug/L		109	76 - 120	3	12
Chloroform	1.0	U	10.0	10.8		ug/L		108	74 - 125	1	11
Chloromethane	1.0	U	10.0	11.1		ug/L		111	34 - 127	1	25
cis-1,3-Dichloropropene	1.0	U	10.0	9.30		ug/L		93	68 - 120	1	13
1,2-Dibromoethane	1.0	U	10.0	11.0		ug/L		110	73 - 121	7	12
1,2-Dichlorobenzene	1.0	U	10.0	10.3		ug/L		103	70 - 120	1	19
1,3-Dichlorobenzene	1.0	U	10.0	10.4		ug/L		104	71 - 120	0	18
1,4-Dichlorobenzene	1.0	U	10.0	10.4		ug/L		104	72 - 120	0	17
1,1-Dichloroethane	1.0	U	10.0	10.7		ug/L		107	69 - 122	1	11
1,2-Dichloroethane	1.0	U	10.0	11.8		ug/L		118	64 - 138	0	11
1,1-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	62 - 127	3	14
1,2-Dichloropropane	1.0	U	10.0	10.9		ug/L		109	72 - 131	1	12
Ethylbenzene	1.0	U	10.0	10.7		ug/L		107	72 - 121	3	15
2-Hexanone	10	U F2	20.0	23.2	F2	ug/L		116	21 - 184	15	12
Methylene Chloride	5.0	U	10.0	10.2		ug/L		102	52 - 137	1	12
4-Methyl-2-pentanone (MIBK)	10	U	20.0	21.4		ug/L		107	53 - 147	7	16
Styrene	1.0	U	10.0	10.7		ug/L		107	74 - 125	3	14
1,1,2,2-Tetrachloroethane	1.0	U	10.0	11.1		ug/L		111	51 - 123	4	17
Tetrachloroethene	1.0	U	10.0	11.0		ug/L		110	69 - 126	2	18
Toluene	1.0	U	10.0	11.2		ug/L		112	69 - 125	6	14
trans-1,2-Dichloroethene	1.0	U	10.0	11.5		ug/L		115	66 - 131	1	11
1,1,1-Trichloroethane	1.0	U	10.0	9.60		ug/L		96	57 - 156	2	13
Trichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 129	0	12
Trichlorofluoromethane	1.0	U	10.0	12.4		ug/L		124	28 - 172	1	26
Vinyl chloride	1.0	U	10.0	11.8		ug/L		118	55 - 123	1	12
Xylenes, Total	2.0	U	20.0	20.9		ug/L		105	71 - 122	2	14
1,4-Dioxane	50	U	200	136		ug/L		68	13 - 155	33	35

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>4-Bromofluorobenzene (Surr)</i>	96		69 - 120
<i>Dibromofluoromethane (Surr)</i>	96		69 - 124
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		61 - 138
<i>Toluene-d8 (Surr)</i>	100		73 - 120

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: MB 240-328594/6**

**Matrix: Water**

**Analysis Batch: 328594**

**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	1.8	ug/L			05/25/18 15:08	1
Benzene	1.0	U	1.0	0.28	ug/L			05/25/18 15:08	1
Bromodichloromethane	1.0	U	1.0	0.30	ug/L			05/25/18 15:08	1
Bromoform	1.0	U	1.0	0.43	ug/L			05/25/18 15:08	1
Bromomethane	1.0	U	1.0	0.42	ug/L			05/25/18 15:08	1
2-Butanone (MEK)	10	U	10	1.0	ug/L			05/25/18 15:08	1
Carbon disulfide	5.0	U	5.0	0.34	ug/L			05/25/18 15:08	1
Carbon tetrachloride	1.0	U	1.0	0.35	ug/L			05/25/18 15:08	1
Chlorobenzene	1.0	U	1.0	0.32	ug/L			05/25/18 15:08	1
Chloroethane	1.0	U	1.0	0.41	ug/L			05/25/18 15:08	1
Chloroform	1.0	U	1.0	0.31	ug/L			05/25/18 15:08	1
Chloromethane	1.0	U	1.0	0.43	ug/L			05/25/18 15:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			05/25/18 15:08	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.26	ug/L			05/25/18 15:08	1
Cyclohexane	1.0	U	1.0	0.44	ug/L			05/25/18 15:08	1
Dibromochloromethane	1.0	U	1.0	0.25	ug/L			05/25/18 15:08	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.47	ug/L			05/25/18 15:08	1
1,2-Dibromoethane	1.0	U	1.0	0.23	ug/L			05/25/18 15:08	1
1,2-Dichlorobenzene	1.0	U	1.0	0.26	ug/L			05/25/18 15:08	1
1,3-Dichlorobenzene	1.0	U	1.0	0.32	ug/L			05/25/18 15:08	1
1,4-Dichlorobenzene	1.0	U	1.0	0.23	ug/L			05/25/18 15:08	1
Dichlorodifluoromethane	1.0	U	1.0	0.50	ug/L			05/25/18 15:08	1
1,1-Dichloroethane	1.0	U	1.0	0.25	ug/L			05/25/18 15:08	1
1,2-Dichloroethane	1.0	U	1.0	0.30	ug/L			05/25/18 15:08	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			05/25/18 15:08	1
1,2-Dichloropropane	1.0	U	1.0	0.30	ug/L			05/25/18 15:08	1
Diethyl ether	2.0	U	2.0	0.35	ug/L			05/25/18 15:08	1
Ethylbenzene	1.0	U	1.0	0.26	ug/L			05/25/18 15:08	1
2-Hexanone	10	U	10	1.2	ug/L			05/25/18 15:08	1
Isopropylbenzene	1.0	U	1.0	0.21	ug/L			05/25/18 15:08	1
Methyl acetate	10	U	10	1.4	ug/L			05/25/18 15:08	1
Methylcyclohexane	1.0	U	1.0	0.45	ug/L			05/25/18 15:08	1
Methylene Chloride	5.0	U	5.0	0.53	ug/L			05/25/18 15:08	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.71	ug/L			05/25/18 15:08	1
Methyl tert-butyl ether	1.0	U	1.0	0.27	ug/L			05/25/18 15:08	1
Styrene	1.0	U	1.0	0.23	ug/L			05/25/18 15:08	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.32	ug/L			05/25/18 15:08	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			05/25/18 15:08	1
Toluene	1.0	U	1.0	0.23	ug/L			05/25/18 15:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			05/25/18 15:08	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.31	ug/L			05/25/18 15:08	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.27	ug/L			05/25/18 15:08	1
1,1,1-Trichloroethane	1.0	U	1.0	0.23	ug/L			05/25/18 15:08	1
1,1,2-Trichloroethane	1.0	U	1.0	0.34	ug/L			05/25/18 15:08	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			05/25/18 15:08	1
Trichlorofluoromethane	1.0	U	1.0	0.50	ug/L			05/25/18 15:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			05/25/18 15:08	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.22	ug/L			05/25/18 15:08	1

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: MB 240-328594/6**  
**Matrix: Water**  
**Analysis Batch: 328594**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/25/18 15:08	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.24	ug/L			05/25/18 15:08	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/25/18 15:08	1
Xylenes, Total	2.0	U	2.0	0.24	ug/L			05/25/18 15:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		69 - 120		05/25/18 15:08	1
Dibromofluoromethane (Surr)	93		69 - 124		05/25/18 15:08	1
1,2-Dichloroethane-d4 (Surr)	91		61 - 138		05/25/18 15:08	1
Toluene-d8 (Surr)	94		73 - 120		05/25/18 15:08	1

**Lab Sample ID: LCS 240-328594/4**  
**Matrix: Water**  
**Analysis Batch: 328594**

**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	20.0		ug/L		100	35 - 131
Benzene	10.0	9.48		ug/L		95	79 - 120
Bromodichloromethane	10.0	9.95		ug/L		100	79 - 125
Bromoform	10.0	9.56		ug/L		96	55 - 145
Bromomethane	10.0	7.50		ug/L		75	17 - 158
2-Butanone (MEK)	20.0	22.3		ug/L		112	43 - 149
Carbon disulfide	10.0	9.53		ug/L		95	49 - 141
Carbon tetrachloride	10.0	9.88		ug/L		99	55 - 171
Chlorobenzene	10.0	9.92		ug/L		99	80 - 120
Chloroethane	10.0	7.05		ug/L		71	10 - 149
Chloroform	10.0	9.64		ug/L		96	80 - 120
Chloromethane	10.0	7.78		ug/L		78	59 - 124
cis-1,2-Dichloroethene	10.0	9.39		ug/L		94	77 - 120
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	75 - 120
Cyclohexane	10.0	10.0		ug/L		100	66 - 135
Dibromochloromethane	10.0	10.3		ug/L		103	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	10.1		ug/L		101	50 - 130
1,2-Dibromoethane	10.0	10.6		ug/L		106	80 - 120
1,2-Dichlorobenzene	10.0	10.3		ug/L		103	80 - 120
1,3-Dichlorobenzene	10.0	10.2		ug/L		102	80 - 120
1,4-Dichlorobenzene	10.0	10.4		ug/L		104	80 - 120
Dichlorodifluoromethane	10.0	8.91		ug/L		89	42 - 141
1,1-Dichloroethane	10.0	9.79		ug/L		98	74 - 120
1,2-Dichloroethane	10.0	10.1		ug/L		101	68 - 133
1,1-Dichloroethene	10.0	10.1		ug/L		101	65 - 127
1,2-Dichloropropane	10.0	10.7		ug/L		107	78 - 127
Diethyl ether	10.0	11.0		ug/L		110	72 - 125
Ethylbenzene	10.0	9.88		ug/L		99	80 - 120
2-Hexanone	20.0	20.4		ug/L		102	28 - 169
Isopropylbenzene	10.0	9.86		ug/L		99	80 - 128
Methyl acetate	20.0	20.0		ug/L		100	63 - 137
Methylcyclohexane	10.0	9.19		ug/L		92	63 - 141

TestAmerica Canton



# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: LCS 240-328594/4**

**Matrix: Water**

**Analysis Batch: 328594**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Chloride	10.0	9.35		ug/L		94	64 - 140
4-Methyl-2-pentanone (MIBK)	20.0	20.5		ug/L		102	53 - 144
Methyl tert-butyl ether	10.0	9.85		ug/L		98	73 - 120
Styrene	10.0	9.90		ug/L		99	80 - 121
1,1,2,2-Tetrachloroethane	10.0	10.7		ug/L		107	58 - 122
Tetrachloroethene	10.0	10.4		ug/L		104	80 - 122
Toluene	10.0	10.2		ug/L		102	78 - 120
trans-1,2-Dichloroethene	10.0	10.0		ug/L		100	74 - 124
trans-1,3-Dichloropropene	10.0	10.0		ug/L		100	67 - 120
1,2,4-Trichlorobenzene	10.0	9.15		ug/L		92	34 - 141
1,1,1-Trichloroethane	10.0	9.70		ug/L		97	64 - 147
1,1,2-Trichloroethane	10.0	10.8		ug/L		108	76 - 121
Trichloroethene	10.0	9.98		ug/L		100	76 - 124
Trichlorofluoromethane	10.0	8.08		ug/L		81	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.4		ug/L		104	65 - 144
1,2,4-Trimethylbenzene	10.0	10.1		ug/L		101	80 - 120
1,3,5-Trimethylbenzene	10.0	10.4		ug/L		104	79 - 120
Vinyl chloride	10.0	9.70		ug/L		97	65 - 124
Xylenes, Total	20.0	20.0		ug/L		100	80 - 120
1,4-Dioxane	200	142		ug/L		71	35 - 134

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
4-Bromofluorobenzene (Surr)	93		69 - 120
Dibromofluoromethane (Surr)	91		69 - 124
1,2-Dichloroethane-d4 (Surr)	89		61 - 138
Toluene-d8 (Surr)	96		73 - 120

**Lab Sample ID: 240-95585-2 MS**

**Matrix: Water**

**Analysis Batch: 328594**

**Client Sample ID: MW-44-051418**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	130	U F1	267	384	F1	ug/L		144	19 - 133
Benzene	13	U	133	122		ug/L		92	69 - 127
Bromodichloromethane	13	U	133	126		ug/L		95	75 - 128
Bromoform	13	U	133	112		ug/L		84	61 - 135
Bromomethane	13	U	133	132		ug/L		99	10 - 148
2-Butanone (MEK)	130	U	267	267		ug/L		100	34 - 153
Carbon disulfide	67	U	133	122		ug/L		91	46 - 143
Carbon tetrachloride	13	U	133	119		ug/L		90	53 - 175
Chlorobenzene	13	U	133	122		ug/L		91	76 - 120
Chloroethane	13	U	133	148		ug/L		111	10 - 141
Chloroform	13	U	133	130		ug/L		98	74 - 125
Chloromethane	13	U	133	143		ug/L		107	34 - 127
cis-1,2-Dichloroethene	13	U	133	127		ug/L		95	69 - 127
cis-1,3-Dichloropropene	13	U	133	110		ug/L		83	68 - 120
Cyclohexane	13	U	133	120		ug/L		90	56 - 135

TestAmerica Canton



# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: 240-95585-2 MS**

**Matrix: Water**

**Analysis Batch: 328594**

**Client Sample ID: MW-44-051418**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Dibromochloromethane	13	U	133	122		ug/L		92	62 - 131
1,2-Dibromo-3-Chloropropane	13	U	133	120		ug/L		90	48 - 130
1,2-Dibromoethane	13	U	133	130		ug/L		97	73 - 121
1,2-Dichlorobenzene	13	U	133	123		ug/L		92	70 - 120
1,3-Dichlorobenzene	13	U	133	120		ug/L		90	71 - 120
1,4-Dichlorobenzene	13	U	133	120		ug/L		90	72 - 120
Dichlorodifluoromethane	13	U	133	110		ug/L		82	45 - 130
1,1-Dichloroethane	13	U	133	129		ug/L		97	69 - 122
1,2-Dichloroethane	13	U	133	131		ug/L		98	64 - 138
1,1-Dichloroethene	13	U	133	130		ug/L		98	62 - 127
1,2-Dichloropropane	13	U	133	131		ug/L		98	72 - 131
Diethyl ether	27	U	133	146		ug/L		109	65 - 124
Ethylbenzene	13	U	133	116		ug/L		87	72 - 121
2-Hexanone	130	U	267	264		ug/L		99	21 - 184
Isopropylbenzene	13	U	133	118		ug/L		88	70 - 132
Methyl acetate	130	U	267	284		ug/L		107	52 - 139
Methylcyclohexane	13	U	133	110		ug/L		82	46 - 139
Methylene Chloride	9.7	J	133	129		ug/L		89	52 - 137
4-Methyl-2-pentanone (MIBK)	130	U	267	256		ug/L		96	53 - 147
Methyl tert-butyl ether	13	U	133	127		ug/L		96	67 - 125
Styrene	13	U	133	115		ug/L		86	74 - 125
1,1,2,2-Tetrachloroethane	13	U	133	127		ug/L		95	51 - 123
Tetrachloroethene	13	U	133	121		ug/L		91	69 - 126
Toluene	13	U	133	132		ug/L		99	69 - 125
trans-1,2-Dichloroethene	13	U	133	127		ug/L		95	66 - 131
trans-1,3-Dichloropropene	13	U	133	106		ug/L		80	59 - 120
1,2,4-Trichlorobenzene	13	U	133	110		ug/L		82	26 - 138
1,1,1-Trichloroethane	13	U	133	126		ug/L		94	57 - 156
1,1,2-Trichloroethane	13	U	133	133		ug/L		100	68 - 127
Trichloroethene	13	U	133	122		ug/L		91	68 - 129
Trichlorofluoromethane	13	U	133	127		ug/L		95	28 - 172
1,1,2-Trichloro-1,2,2-trifluoroethane	13	U	133	124		ug/L		93	58 - 137
1,2,4-Trimethylbenzene	13	U	133	121		ug/L		90	64 - 120
1,3,5-Trimethylbenzene	13	U	133	119		ug/L		89	67 - 120
Vinyl chloride	270		133	395		ug/L		95	55 - 123
Xylenes, Total	27	U	267	244		ug/L		92	71 - 122
1,4-Dioxane	670	U	2670	1490		ug/L		56	13 - 155

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	92		69 - 120
Dibromofluoromethane (Surr)	95		69 - 124
1,2-Dichloroethane-d4 (Surr)	88		61 - 138
Toluene-d8 (Surr)	98		73 - 120

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: 240-95585-2 MSD**

**Matrix: Water**

**Analysis Batch: 328594**

**Client Sample ID: MW-44-051418**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits			
Acetone	130	U F1	267	275		ug/L		103	19 - 133	33		35
Benzene	13	U	133	125		ug/L		94	69 - 127	2		10
Bromodichloromethane	13	U	133	125		ug/L		93	75 - 128	1		13
Bromoform	13	U	133	112		ug/L		84	61 - 135	0		13
Bromomethane	13	U	133	150		ug/L		113	10 - 148	13		35
2-Butanone (MEK)	130	U	267	264		ug/L		99	34 - 153	1		23
Carbon disulfide	67	U	133	128		ug/L		96	46 - 143	5		18
Carbon tetrachloride	13	U	133	125		ug/L		94	53 - 175	5		17
Chlorobenzene	13	U	133	126		ug/L		94	76 - 120	3		12
Chloroethane	13	U	133	155		ug/L		116	10 - 141	5		35
Chloroform	13	U	133	131		ug/L		98	74 - 125	0		11
Chloromethane	13	U	133	142		ug/L		106	34 - 127	1		25
cis-1,2-Dichloroethene	13	U	133	131		ug/L		98	69 - 127	3		11
cis-1,3-Dichloropropene	13	U	133	114		ug/L		86	68 - 120	3		13
Cyclohexane	13	U	133	123		ug/L		93	56 - 135	2		35
Dibromochloromethane	13	U	133	124		ug/L		93	62 - 131	1		15
1,2-Dibromo-3-Chloropropane	13	U	133	114		ug/L		85	48 - 130	5		31
1,2-Dibromoethane	13	U	133	131		ug/L		98	73 - 121	1		12
1,2-Dichlorobenzene	13	U	133	127		ug/L		96	70 - 120	4		19
1,3-Dichlorobenzene	13	U	133	123		ug/L		93	71 - 120	3		18
1,4-Dichlorobenzene	13	U	133	125		ug/L		93	72 - 120	4		17
Dichlorodifluoromethane	13	U	133	107		ug/L		80	45 - 130	3		34
1,1-Dichloroethane	13	U	133	132		ug/L		99	69 - 122	2		11
1,2-Dichloroethane	13	U	133	139		ug/L		105	64 - 138	6		11
1,1-Dichloroethene	13	U	133	129		ug/L		97	62 - 127	1		14
1,2-Dichloropropane	13	U	133	139		ug/L		104	72 - 131	6		12
Diethyl ether	27	U	133	144		ug/L		108	65 - 124	1		11
Ethylbenzene	13	U	133	116		ug/L		87	72 - 121	1		15
2-Hexanone	130	U	267	256		ug/L		96	21 - 184	3		12
Isopropylbenzene	13	U	133	119		ug/L		89	70 - 132	1		16
Methyl acetate	130	U	267	259		ug/L		97	52 - 139	9		14
Methylcyclohexane	13	U	133	112		ug/L		84	46 - 139	2		35
Methylene Chloride	9.7	J	133	131		ug/L		91	52 - 137	2		12
4-Methyl-2-pentanone (MIBK)	130	U	267	257		ug/L		96	53 - 147	0		16
Methyl tert-butyl ether	13	U	133	133		ug/L		99	67 - 125	4		12
Styrene	13	U	133	119		ug/L		89	74 - 125	3		14
1,1,2,2-Tetrachloroethane	13	U	133	129		ug/L		97	51 - 123	2		17
Tetrachloroethene	13	U	133	123		ug/L		92	69 - 126	2		18
Toluene	13	U	133	127		ug/L		95	69 - 125	4		14
trans-1,2-Dichloroethene	13	U	133	132		ug/L		99	66 - 131	4		11
trans-1,3-Dichloropropene	13	U	133	112		ug/L		84	59 - 120	5		14
1,2,4-Trichlorobenzene	13	U	133	113		ug/L		85	26 - 138	3		35
1,1,1-Trichloroethane	13	U	133	135		ug/L		101	57 - 156	7		13
1,1,2-Trichloroethane	13	U	133	136		ug/L		102	68 - 127	2		11
Trichloroethene	13	U	133	126		ug/L		94	68 - 129	3		12
Trichlorofluoromethane	13	U	133	127		ug/L		95	28 - 172	0		26
1,1,2-Trichloro-1,2,2-trifluoroethane	13	U	133	125		ug/L		94	58 - 137	1		35

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: 240-95585-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 328594**

**Client Sample ID: MW-44-051418**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	13	U	133	124		ug/L		93	64 - 120	2	22
1,3,5-Trimethylbenzene	13	U	133	124		ug/L		93	67 - 120	4	25
Vinyl chloride	270		133	404		ug/L		101	55 - 123	2	12
Xylenes, Total	27	U	267	249		ug/L		93	71 - 122	2	14
1,4-Dioxane	670	U	2670	1410		ug/L		53	13 - 155	6	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		69 - 120
Dibromofluoromethane (Surr)	97		69 - 124
1,2-Dichloroethane-d4 (Surr)	98		61 - 138
Toluene-d8 (Surr)	100		73 - 120

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

**Lab Sample ID: MB 240-328228/5**  
**Matrix: Water**  
**Analysis Batch: 328228**

**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	0.24	ug/L			05/23/18 16:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		63 - 125		05/23/18 16:37	1

**Lab Sample ID: LCS 240-328228/4**  
**Matrix: Water**  
**Analysis Batch: 328228**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.32		ug/L		93	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		63 - 125

**Lab Sample ID: 240-95595-C-3 MS**  
**Matrix: Water**  
**Analysis Batch: 328228**

**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	8.89		ug/L		89	52 - 129

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		63 - 125

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-95585-1

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

**Lab Sample ID: 240-95595-C-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 328228**

**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	9.34		ug/L		93	52 - 129	5	13
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
1,2-Dichloroethane-d4 (Surr)	106		63 - 125								

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

# QC Association Summary

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

TestAmerica Job ID: 240-95585-1

## GC/MS VOA

### Analysis Batch: 328205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95585-1	MW-15-60D-051118	Total/NA	Water	8260B	
MB 240-328205/6	Method Blank	Total/NA	Water	8260B	
LCS 240-328205/4	Lab Control Sample	Total/NA	Water	8260B	
240-95579-B-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-95579-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 328228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95585-1	MW-15-60D-051118	Total/NA	Water	8260B SIM	
240-95585-2	MW-44-051418	Total/NA	Water	8260B SIM	
MB 240-328228/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-328228/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-95595-C-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-95595-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 328344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95585-1	MW-15-60D-051118	Total/NA	Water	8260B	
MB 240-328344/7	Method Blank	Total/NA	Water	8260B	
LCS 240-328344/4	Lab Control Sample	Total/NA	Water	8260B	
LCS 240-328344/5	Lab Control Sample	Total/NA	Water	8260B	
240-95530-A-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-95530-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 328594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95585-2	MW-44-051418	Total/NA	Water	8260B	
MB 240-328594/6	Method Blank	Total/NA	Water	8260B	
LCS 240-328594/4	Lab Control Sample	Total/NA	Water	8260B	
240-95585-2 MS	MW-44-051418	Total/NA	Water	8260B	
240-95585-2 MSD	MW-44-051418	Total/NA	Water	8260B	

# Lab Chronicle

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

TestAmerica Job ID: 240-95585-1

**Client Sample ID: MW-15-60D-051118**

**Lab Sample ID: 240-95585-1**

**Date Collected: 05/11/18 10:50**

**Matrix: Water**

**Date Received: 05/15/18 08:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	328205	05/23/18 21:45	LRW	TAL CAN
Total/NA	Analysis	8260B		1	328344	05/24/18 21:07	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	328228	05/23/18 20:48	SAM	TAL CAN

**Client Sample ID: MW-44-051418**

**Lab Sample ID: 240-95585-2**

**Date Collected: 05/14/18 11:55**

**Matrix: Water**

**Date Received: 05/15/18 08:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		13.33	328594	05/25/18 18:48	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	328228	05/23/18 21:13	SAM	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.

TestAmerica Job ID: 240-95585-1

Project/Site: Ford LTP Livonia MI - E203728

## 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	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-18 *
Illinois	NELAP	5	200004	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18 *
Nevada	State Program	9	OH-000482008A	07-31-18 *
New Jersey	NELAP	2	OH001	06-30-18 *
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-18 *
Texas	NELAP	6	T104704517-17-9	08-31-18 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

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



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

Regulatory program:  DW  NPDES  RCRA  Other

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

Site Contact: Angela DeGrandis  
Telephone: 734-320-0065

Lab Contact: Denise Pohl  
Telephone: 330-966-9789

TestAmerica Laboratories, Inc.  
COC No: \_\_\_\_\_ of \_\_\_\_\_  
For lab use only

Analysis Turnaround Time  
TAT if different from below  
 3 weeks  
 2 weeks  
 1 week  
 2 days  
 1 day

Method of Shipment/Carrier: \_\_\_\_\_  
Shipping/Tracking No: \_\_\_\_\_

Matrix:  Air  Aqueous  Sediment  Solid  Other: \_\_\_\_\_

Containers & Preservatives:  H2SO4  HNO3  HCl  NaOH  ZnAc  NaOH  Uptres  Other: \_\_\_\_\_

Filtered Sample (Y/N)  Composite=C / Grab=G  VOCs 8260B  1,4-Dioxane 8260B SIM

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

Possible Hazard Identification  
 Non-Hazard  Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:  
 Submit all results through Cadena at jim.tromalia@cadenalab.com, Cadena #E202728

Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Uptres	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	VOCs 8260B	1,4-Dioxane 8260B SIM	Analyses	Sample Specific Notes / Special Instructions:
MW-15-60D-051118	5/11/18	1050	X													NG	X				
MW-44-051418	5/14/18	1055	X													NG	X				

240-95585 Chain of Custody

Relinquished by: DIVA KAMATH / Arcadis  
Date/Time: 5/14/18 / 13:40  
Company: Arcadis

Relinquished by: [Signature] / TestAmerica  
Date/Time: 5/14/18 / 15:00  
Company: TestAmerica

Relinquished by: [Signature]  
Date/Time: 5/14/18 / 13:40  
Company: TestAmerica

Received by: [Signature] / TestAmerica  
Date/Time: 5/14/18 / 13:40  
Company: TestAmerica

Received by: [Signature] / TestAmerica  
Date/Time: 5/15/18 / 8:45  
Company: TestAmerica





**TestAmerica Canton Sample Receipt Form/Narrative**

Login # : 95585

**Canton Facility**

Client ARCADIS Site Name \_\_\_\_\_ Cooler unpacked by: DJP  
 Cooler Received on 5-15-18 Opened on 5-15-18  
 FedEx: 1<sup>st</sup> 3rd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other \_\_\_\_\_

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

TestAmerica Cooler # 7A 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-8 (CF +0.1 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN #36 (CF +0.3 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN # 627 (CF -1.3 °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  
 -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 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  
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC732776
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 # \_\_\_\_\_ 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: DJP

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**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): \_\_\_\_\_

TestAmerica Multiple Cooler Receipt Form/Narrative Login #: 95585  
Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
TA	9	3.0	3.1	ICE
2	1	1.8	1.9	8