

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 240-103536-1

Client Project/Site: Ford LTP Livonia MI - E203728  
Revision: 1

For:

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

Attn: Kristoffer Hinskey



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Authorized for release by:  
11/14/2018 5:13:47 PM

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

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

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# Definitions/Glossary

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

TestAmerica Job ID: 240-103536-1

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description   |
|-----------|---|
| 4         | MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable. |
| E         | Result exceeded calibration range.  |
| U         | Indicates the analyte was analyzed for but not detected.  |
| J         | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.  |
| F2        | MS/MSD RPD exceeds 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: 240-103536-1

**Job ID: 240-103536-1**

**Laboratory: TestAmerica Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP Livonia MI - E203631**

**Report Number: 240-103536-1**

### Revision

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.

This report was revised on 11/14/2018 to update the Cadena number.

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 10/30/2018 10:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5° C.

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

Samples MW-4\_102618 (240-103536-1), MW-2\_102618 (240-103536-2), MW-5\_102618 (240-103536-3) and MW-3\_102618 (240-103536-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/06/2018 and 11/07/2018.

1,1-Dichloroethane failed the recovery criteria low for the MS and MSD of sample 240-103534-4 in batch 240-353754. Refer to the QC report for details.

Samples MW-4\_102618 (240-103536-1)[500X] and MW-2\_102618 (240-103536-2)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

# Case Narrative

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

TestAmerica Job ID: 240-103536-1

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## Job ID: 240-103536-1 (Continued)

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### Laboratory: TestAmerica Canton (Continued)

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-4\_102618 (240-103536-1), MW-2\_102618 (240-103536-2), MW-5\_102618 (240-103536-3) and MW-3\_102618 (240-103536-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/05/2018.

1,4-Dioxane exceeded the RPD limit for the MSD of sample 240-103550-6 in batch 240-353689. Refer to the QC report for details.

Sample MW-4\_102618 (240-103536-1)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following sample was diluted due to the nature of the sample matrix: MW-4\_102618 (240-103536-1). Elevated reporting limits (RLs) are provided.

No additional 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: 240-103536-1

| 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: 240-103536-1

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       |
|---------------|------------------|--------|----------------|----------------|
| 240-103536-1  | MW-4_102618      | Water  | 10/26/18 10:47 | 10/30/18 10:50 |
| 240-103536-2  | MW-2_102618      | Water  | 10/26/18 11:56 | 10/30/18 10:50 |
| 240-103536-3  | MW-5_102618      | Water  | 10/26/18 14:27 | 10/30/18 10:50 |
| 240-103536-4  | MW-3_102618      | Water  | 10/26/18 15:27 | 10/30/18 10:50 |

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# Detection Summary

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

TestAmerica Job ID: 240-103536-1

## Client Sample ID: MW-4\_102618

## Lab Sample ID: 240-103536-1

| Analyte                  | Result | Qualifier | RL  | MDL | Unit | Dil Fac | D | Method | Prep Type |
|--------------------------|--------|-----------|-----|-----|------|---------|---|--------|-----------|
| cis-1,2-Dichloroethene   | 24000  |           | 500 | 80  | ug/L | 500     |   | 8260B  | Total/NA  |
| trans-1,2-Dichloroethene | 1100   |           | 500 | 95  | ug/L | 500     |   | 8260B  | Total/NA  |
| Trichloroethene          | 35000  |           | 500 | 50  | ug/L | 500     |   | 8260B  | Total/NA  |
| Vinyl chloride           | 610    |           | 500 | 100 | ug/L | 500     |   | 8260B  | Total/NA  |

## Client Sample ID: MW-2\_102618

## Lab Sample ID: 240-103536-2

| Analyte                  | Result | Qualifier | RL  | MDL  | Unit | Dil Fac | D | Method    | Prep Type |
|--------------------------|--------|-----------|-----|------|------|---------|---|-----------|-----------|
| 1,4-Dioxane              | 4.9    |           | 2.0 | 0.86 | ug/L | 1       |   | 8260B SIM | Total/NA  |
| cis-1,2-Dichloroethene   | 1900   |           | 50  | 8.0  | ug/L | 50      |   | 8260B     | Total/NA  |
| trans-1,2-Dichloroethene | 530    |           | 50  | 9.5  | ug/L | 50      |   | 8260B     | Total/NA  |
| Trichloroethene          | 8.2    | J         | 50  | 5.0  | ug/L | 50      |   | 8260B     | Total/NA  |
| Vinyl chloride           | 190    |           | 50  | 10   | ug/L | 50      |   | 8260B     | Total/NA  |

## Client Sample ID: MW-5\_102618

## Lab Sample ID: 240-103536-3

| Analyte                | Result | Qualifier | RL  | MDL  | Unit | Dil Fac | D | Method | Prep Type |
|------------------------|--------|-----------|-----|------|------|---------|---|--------|-----------|
| cis-1,2-Dichloroethene | 0.39   | J         | 1.0 | 0.16 | ug/L | 1       |   | 8260B  | Total/NA  |
| 1,4-Dichlorobenzene    | 0.73   | J         | 1.0 | 0.16 | ug/L | 1       |   | 8260B  | Total/NA  |
| Trichloroethene        | 0.18   | J         | 1.0 | 0.10 | ug/L | 1       |   | 8260B  | Total/NA  |

## Client Sample ID: MW-3\_102618

## Lab Sample ID: 240-103536-4

| Analyte             | Result | Qualifier | RL  | MDL  | Unit | Dil Fac | D | Method    | Prep Type |
|---------------------|--------|-----------|-----|------|------|---------|---|-----------|-----------|
| 1,4-Dioxane         | 1.3    | J         | 2.0 | 0.86 | ug/L | 1       |   | 8260B SIM | Total/NA  |
| 1,3-Dichlorobenzene | 1.3    |           | 1.0 | 0.15 | 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: 240-103536-1

**Client Sample ID: MW-4\_102618**

**Lab Sample ID: 240-103536-1**

**Date Collected: 10/26/18 10:47**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                      | Result    | Qualifier | RL       | MDL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|-----|------|---|----------|----------------|---------|
| 1,4-Dioxane                  | 200       | U         | 200      | 86  | ug/L |   |          | 11/05/18 20:02 | 100     |
| Surrogate                    | %Recovery | Qualifier | Limits   |     |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 107       |           | 63 - 125 |     |      |   |          | 11/05/18 20:02 | 100     |

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

| Analyte                         | Result       | Qualifier | RL   | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|---------------------------------|--------------|-----------|------|------|------|---|----------|----------------|---------|
| Acetone                         | 5000         | U         | 5000 | 2700 | ug/L |   |          | 11/07/18 00:17 | 500     |
| Benzene                         | 500          | U         | 500  | 65   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Bromodichloromethane            | 500          | U         | 500  | 85   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Bromoform                       | 500          | U         | 500  | 380  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Bromomethane                    | 500          | U         | 500  | 210  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 2-Butanone (MEK)                | 5000         | U         | 5000 | 580  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Carbon disulfide                | 2500         | U         | 2500 | 140  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Carbon tetrachloride            | 500          | U         | 500  | 130  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Chlorobenzene                   | 500          | U         | 500  | 70   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Chloroethane                    | 500          | U         | 500  | 420  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Chloroform                      | 500          | U         | 500  | 65   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Chloromethane                   | 500          | U         | 500  | 100  | ug/L |   |          | 11/07/18 00:17 | 500     |
| <b>cis-1,2-Dichloroethene</b>   | <b>24000</b> |           | 500  | 80   | ug/L |   |          | 11/07/18 00:17 | 500     |
| cis-1,3-Dichloropropene         | 500          | U         | 500  | 310  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Cyclohexane                     | 500          | U         | 500  | 120  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Dibromochloromethane            | 500          | U         | 500  | 200  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,2-Dibromo-3-Chloropropane     | 500          | U         | 500  | 460  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,2-Dibromoethane               | 500          | U         | 500  | 60   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,2-Dichlorobenzene             | 500          | U         | 500  | 75   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,3-Dichlorobenzene             | 500          | U         | 500  | 75   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,4-Dichlorobenzene             | 500          | U         | 500  | 80   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Dichlorodifluoromethane         | 500          | U         | 500  | 180  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,1-Dichloroethane              | 500          | U         | 500  | 85   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,2-Dichloroethane              | 500          | U         | 500  | 110  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,1-Dichloroethene              | 500          | U         | 500  | 95   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,2-Dichloropropane             | 500          | U         | 500  | 75   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Ethylbenzene                    | 500          | U         | 500  | 55   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 2-Hexanone                      | 5000         | U         | 5000 | 270  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Isopropylbenzene                | 500          | U         | 500  | 45   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Methyl acetate                  | 5000         | U         | 5000 | 860  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Methylcyclohexane               | 500          | U         | 500  | 170  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Methylene Chloride              | 2500         | U         | 2500 | 1300 | ug/L |   |          | 11/07/18 00:17 | 500     |
| 4-Methyl-2-pentanone (MIBK)     | 5000         | U         | 5000 | 210  | ug/L |   |          | 11/07/18 00:17 | 500     |
| Methyl tert-butyl ether         | 500          | U         | 500  | 35   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Styrene                         | 500          | U         | 500  | 50   | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,1,2,2-Tetrachloroethane       | 500          | U         | 500  | 65   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Tetrachloroethene               | 500          | U         | 500  | 75   | ug/L |   |          | 11/07/18 00:17 | 500     |
| Toluene                         | 500          | U         | 500  | 70   | ug/L |   |          | 11/07/18 00:17 | 500     |
| <b>trans-1,2-Dichloroethene</b> | <b>1100</b>  |           | 500  | 95   | ug/L |   |          | 11/07/18 00:17 | 500     |
| trans-1,3-Dichloropropene       | 500          | U         | 500  | 340  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,2,4-Trichlorobenzene          | 500          | U         | 500  | 130  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,1,1-Trichloroethane           | 500          | U         | 500  | 120  | ug/L |   |          | 11/07/18 00:17 | 500     |
| 1,1,2-Trichloroethane           | 500          | U         | 500  | 45   | ug/L |   |          | 11/07/18 00:17 | 500     |

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# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-4\_102618**

**Lab Sample ID: 240-103536-1**

**Date Collected: 10/26/18 10:47**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                               | Result           | Qualifier        | RL            | MDL | Unit | D | Prepared        | Analyzed        | Dil Fac        |
|---------------------------------------|------------------|------------------|---------------|-----|------|---|-----------------|-----------------|----------------|
| <b>Trichloroethene</b>                | <b>35000</b>     |                  | 500           | 50  | ug/L |   |                 | 11/07/18 00:17  | 500            |
| Trichlorofluoromethane                | 500              | U                | 500           | 230 | ug/L |   |                 | 11/07/18 00:17  | 500            |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 500              | U                | 500           | 210 | ug/L |   |                 | 11/07/18 00:17  | 500            |
| 1,2,3-Trimethylbenzene                | 2500             | U                | 2500          | 70  | ug/L |   |                 | 11/07/18 00:17  | 500            |
| 1,2,4-Trimethylbenzene                | 500              | U                | 500           | 35  | ug/L |   |                 | 11/07/18 00:17  | 500            |
| 1,3,5-Trimethylbenzene                | 500              | U                | 500           | 60  | ug/L |   |                 | 11/07/18 00:17  | 500            |
| <b>Vinyl chloride</b>                 | <b>610</b>       |                  | 500           | 100 | ug/L |   |                 | 11/07/18 00:17  | 500            |
| Xylenes, Total                        | 1000             | U                | 1000          | 75  | ug/L |   |                 | 11/07/18 00:17  | 500            |
| Diethyl ether                         | 1000             | U                | 1000          | 95  | ug/L |   |                 | 11/07/18 00:17  | 500            |
| <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)           | 94               |                  | 59 - 120      |     |      |   |                 | 11/07/18 00:17  | 500            |
| Dibromofluoromethane (Surr)           | 102              |                  | 75 - 128      |     |      |   |                 | 11/07/18 00:17  | 500            |
| 1,2-Dichloroethane-d4 (Surr)          | 101              |                  | 70 - 121      |     |      |   |                 | 11/07/18 00:17  | 500            |
| Toluene-d8 (Surr)                     | 99               |                  | 70 - 123      |     |      |   |                 | 11/07/18 00:17  | 500            |

# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-2\_102618**

**Lab Sample ID: 240-103536-2**

**Date Collected: 10/26/18 11:56**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                      | Result    | Qualifier | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|------|------|---|----------|----------------|---------|
| 1,4-Dioxane                  | 4.9       |           | 2.0      | 0.86 | ug/L |   |          | 11/05/18 20:27 | 1       |
| Surrogate                    | %Recovery | Qualifier | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 108       |           | 63 - 125 |      |      |   |          | 11/05/18 20:27 | 1       |

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

| Analyte                         | Result      | Qualifier | RL  | MDL | Unit | D | Prepared | Analyzed       | Dil Fac |
|---------------------------------|-------------|-----------|-----|-----|------|---|----------|----------------|---------|
| Acetone                         | 500         | U         | 500 | 270 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Benzene                         | 50          | U         | 50  | 6.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Bromodichloromethane            | 50          | U         | 50  | 8.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Bromoform                       | 50          | U         | 50  | 38  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Bromomethane                    | 50          | U         | 50  | 21  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 2-Butanone (MEK)                | 500         | U         | 500 | 58  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Carbon disulfide                | 250         | U         | 250 | 14  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Carbon tetrachloride            | 50          | U         | 50  | 13  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Chlorobenzene                   | 50          | U         | 50  | 7.0 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Chloroethane                    | 50          | U         | 50  | 42  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Chloroform                      | 50          | U         | 50  | 6.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Chloromethane                   | 50          | U         | 50  | 10  | ug/L |   |          | 11/07/18 00:39 | 50      |
| <b>cis-1,2-Dichloroethene</b>   | <b>1900</b> |           | 50  | 8.0 | ug/L |   |          | 11/07/18 00:39 | 50      |
| cis-1,3-Dichloropropene         | 50          | U         | 50  | 31  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Cyclohexane                     | 50          | U         | 50  | 12  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Dibromochloromethane            | 50          | U         | 50  | 20  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,2-Dibromo-3-Chloropropane     | 50          | U         | 50  | 46  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,2-Dibromoethane               | 50          | U         | 50  | 6.0 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,2-Dichlorobenzene             | 50          | U         | 50  | 7.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,3-Dichlorobenzene             | 50          | U         | 50  | 7.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,4-Dichlorobenzene             | 50          | U         | 50  | 8.0 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Dichlorodifluoromethane         | 50          | U         | 50  | 18  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,1-Dichloroethane              | 50          | U         | 50  | 8.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,2-Dichloroethane              | 50          | U         | 50  | 11  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,1-Dichloroethene              | 50          | U         | 50  | 9.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,2-Dichloropropane             | 50          | U         | 50  | 7.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Ethylbenzene                    | 50          | U         | 50  | 5.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 2-Hexanone                      | 500         | U         | 500 | 27  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Isopropylbenzene                | 50          | U         | 50  | 4.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Methyl acetate                  | 500         | U         | 500 | 86  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Methylcyclohexane               | 50          | U         | 50  | 17  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Methylene Chloride              | 250         | U         | 250 | 130 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 4-Methyl-2-pentanone (MIBK)     | 500         | U         | 500 | 21  | ug/L |   |          | 11/07/18 00:39 | 50      |
| Methyl tert-butyl ether         | 50          | U         | 50  | 3.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Styrene                         | 50          | U         | 50  | 5.0 | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,1,2,2-Tetrachloroethane       | 50          | U         | 50  | 6.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Tetrachloroethene               | 50          | U         | 50  | 7.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| Toluene                         | 50          | U         | 50  | 7.0 | ug/L |   |          | 11/07/18 00:39 | 50      |
| <b>trans-1,2-Dichloroethene</b> | <b>530</b>  |           | 50  | 9.5 | ug/L |   |          | 11/07/18 00:39 | 50      |
| trans-1,3-Dichloropropene       | 50          | U         | 50  | 34  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,2,4-Trichlorobenzene          | 50          | U         | 50  | 13  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,1,1-Trichloroethane           | 50          | U         | 50  | 12  | ug/L |   |          | 11/07/18 00:39 | 50      |
| 1,1,2-Trichloroethane           | 50          | U         | 50  | 4.5 | ug/L |   |          | 11/07/18 00:39 | 50      |

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-2\_102618**

**Lab Sample ID: 240-103536-2**

**Date Collected: 10/26/18 11:56**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                               | Result           | Qualifier        | RL            | MDL | Unit | D | Prepared        | Analyzed        | Dil Fac        |
|---------------------------------------|------------------|------------------|---------------|-----|------|---|-----------------|-----------------|----------------|
| <b>Trichloroethene</b>                | <b>8.2</b>       | <b>J</b>         | 50            | 5.0 | ug/L |   |                 | 11/07/18 00:39  | 50             |
| Trichlorofluoromethane                | 50               | U                | 50            | 23  | ug/L |   |                 | 11/07/18 00:39  | 50             |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 50               | U                | 50            | 21  | ug/L |   |                 | 11/07/18 00:39  | 50             |
| 1,2,3-Trimethylbenzene                | 250              | U                | 250           | 7.0 | ug/L |   |                 | 11/07/18 00:39  | 50             |
| 1,2,4-Trimethylbenzene                | 50               | U                | 50            | 3.5 | ug/L |   |                 | 11/07/18 00:39  | 50             |
| 1,3,5-Trimethylbenzene                | 50               | U                | 50            | 6.0 | ug/L |   |                 | 11/07/18 00:39  | 50             |
| <b>Vinyl chloride</b>                 | <b>190</b>       |                  | 50            | 10  | ug/L |   |                 | 11/07/18 00:39  | 50             |
| Xylenes, Total                        | 100              | U                | 100           | 7.5 | ug/L |   |                 | 11/07/18 00:39  | 50             |
| Diethyl ether                         | 100              | U                | 100           | 9.5 | ug/L |   |                 | 11/07/18 00:39  | 50             |
| <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)           | 96               |                  | 59 - 120      |     |      |   |                 | 11/07/18 00:39  | 50             |
| Dibromofluoromethane (Surr)           | 102              |                  | 75 - 128      |     |      |   |                 | 11/07/18 00:39  | 50             |
| 1,2-Dichloroethane-d4 (Surr)          | 106              |                  | 70 - 121      |     |      |   |                 | 11/07/18 00:39  | 50             |
| Toluene-d8 (Surr)                     | 100              |                  | 70 - 123      |     |      |   |                 | 11/07/18 00:39  | 50             |

# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-5\_102618**

**Lab Sample ID: 240-103536-3**

**Date Collected: 10/26/18 14:27**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                      | Result    | Qualifier | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|------|------|---|----------|----------------|---------|
| 1,4-Dioxane                  | 2.0       | U         | 2.0      | 0.86 | ug/L |   |          | 11/05/18 20:53 | 1       |
| Surrogate                    | %Recovery | Qualifier | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 107       |           | 63 - 125 |      |      |   |          | 11/05/18 20:53 | 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 |   |          | 11/06/18 02:29 | 1       |
| Benzene                       | 1.0         | U         | 1.0 | 0.13  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Bromodichloromethane          | 1.0         | U         | 1.0 | 0.17  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Bromoform                     | 1.0         | U         | 1.0 | 0.76  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Bromomethane                  | 1.0         | U         | 1.0 | 0.42  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 2-Butanone (MEK)              | 10          | U         | 10  | 1.2   | ug/L |   |          | 11/06/18 02:29 | 1       |
| Carbon disulfide              | 5.0         | U         | 5.0 | 0.28  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Carbon tetrachloride          | 1.0         | U         | 1.0 | 0.26  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Chlorobenzene                 | 1.0         | U         | 1.0 | 0.14  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Chloroethane                  | 1.0         | U         | 1.0 | 0.83  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Chloroform                    | 1.0         | U         | 1.0 | 0.13  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Chloromethane                 | 1.0         | U         | 1.0 | 0.20  | ug/L |   |          | 11/06/18 02:29 | 1       |
| <b>cis-1,2-Dichloroethene</b> | <b>0.39</b> | <b>J</b>  | 1.0 | 0.16  | ug/L |   |          | 11/06/18 02:29 | 1       |
| cis-1,3-Dichloropropene       | 1.0         | U         | 1.0 | 0.61  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Cyclohexane                   | 1.0         | U         | 1.0 | 0.24  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Dibromochloromethane          | 1.0         | U         | 1.0 | 0.39  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,2-Dibromo-3-Chloropropane   | 1.0         | U         | 1.0 | 0.91  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,2-Dibromoethane             | 1.0         | U         | 1.0 | 0.12  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,2-Dichlorobenzene           | 1.0         | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,3-Dichlorobenzene           | 1.0         | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:29 | 1       |
| <b>1,4-Dichlorobenzene</b>    | <b>0.73</b> | <b>J</b>  | 1.0 | 0.16  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Dichlorodifluoromethane       | 1.0         | U         | 1.0 | 0.35  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,1-Dichloroethane            | 1.0         | U         | 1.0 | 0.17  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,2-Dichloroethane            | 1.0         | U         | 1.0 | 0.21  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,1-Dichloroethene            | 1.0         | U         | 1.0 | 0.19  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,2-Dichloropropane           | 1.0         | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Ethylbenzene                  | 1.0         | U         | 1.0 | 0.11  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 2-Hexanone                    | 10          | U         | 10  | 0.54  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Isopropylbenzene              | 1.0         | U         | 1.0 | 0.090 | ug/L |   |          | 11/06/18 02:29 | 1       |
| Methyl acetate                | 10          | U         | 10  | 1.7   | ug/L |   |          | 11/06/18 02:29 | 1       |
| Methylcyclohexane             | 1.0         | U         | 1.0 | 0.33  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Methylene Chloride            | 5.0         | U         | 5.0 | 2.6   | ug/L |   |          | 11/06/18 02:29 | 1       |
| 4-Methyl-2-pentanone (MIBK)   | 10          | U         | 10  | 0.42  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Methyl tert-butyl ether       | 1.0         | U         | 1.0 | 0.070 | ug/L |   |          | 11/06/18 02:29 | 1       |
| Styrene                       | 1.0         | U         | 1.0 | 0.10  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,1,2,2-Tetrachloroethane     | 1.0         | U         | 1.0 | 0.13  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Tetrachloroethene             | 1.0         | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:29 | 1       |
| Toluene                       | 1.0         | U         | 1.0 | 0.14  | ug/L |   |          | 11/06/18 02:29 | 1       |
| trans-1,2-Dichloroethene      | 1.0         | U         | 1.0 | 0.19  | ug/L |   |          | 11/06/18 02:29 | 1       |
| trans-1,3-Dichloropropene     | 1.0         | U         | 1.0 | 0.67  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,2,4-Trichlorobenzene        | 1.0         | U         | 1.0 | 0.26  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,1,1-Trichloroethane         | 1.0         | U         | 1.0 | 0.24  | ug/L |   |          | 11/06/18 02:29 | 1       |
| 1,1,2-Trichloroethane         | 1.0         | U         | 1.0 | 0.090 | ug/L |   |          | 11/06/18 02:29 | 1       |

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-5\_102618**

**Lab Sample ID: 240-103536-3**

**Date Collected: 10/26/18 14:27**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                               | Result           | Qualifier        | RL            | MDL   | Unit | D | Prepared        | Analyzed        | Dil Fac        |
|---------------------------------------|------------------|------------------|---------------|-------|------|---|-----------------|-----------------|----------------|
| <b>Trichloroethene</b>                | <b>0.18</b>      | <b>J</b>         | 1.0           | 0.10  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| Trichlorofluoromethane                | 1.0              | U                | 1.0           | 0.45  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1.0              | U                | 1.0           | 0.41  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| 1,2,3-Trimethylbenzene                | 5.0              | U                | 5.0           | 0.14  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| 1,2,4-Trimethylbenzene                | 1.0              | U                | 1.0           | 0.070 | ug/L |   |                 | 11/06/18 02:29  | 1              |
| 1,3,5-Trimethylbenzene                | 1.0              | U                | 1.0           | 0.12  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| Vinyl chloride                        | 1.0              | U                | 1.0           | 0.20  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| Xylenes, Total                        | 2.0              | U                | 2.0           | 0.15  | ug/L |   |                 | 11/06/18 02:29  | 1              |
| Diethyl ether                         | 2.0              | U                | 2.0           | 0.19  | ug/L |   |                 | 11/06/18 02:29  | 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)           | 96               |                  | 59 - 120      |       |      |   |                 | 11/06/18 02:29  | 1              |
| Dibromofluoromethane (Surr)           | 103              |                  | 75 - 128      |       |      |   |                 | 11/06/18 02:29  | 1              |
| 1,2-Dichloroethane-d4 (Surr)          | 99               |                  | 70 - 121      |       |      |   |                 | 11/06/18 02:29  | 1              |
| Toluene-d8 (Surr)                     | 102              |                  | 70 - 123      |       |      |   |                 | 11/06/18 02:29  | 1              |

# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-3\_102618**

**Lab Sample ID: 240-103536-4**

**Date Collected: 10/26/18 15:27**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

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

| Analyte                      | Result    | Qualifier | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|------|------|---|----------|----------------|---------|
| 1,4-Dioxane                  | 1.3       | J         | 2.0      | 0.86 | ug/L |   |          | 11/05/18 21:19 | 1       |
| Surrogate                    | %Recovery | Qualifier | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 106       |           | 63 - 125 |      |      |   |          | 11/05/18 21:19 | 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 |   |          | 11/06/18 02:51 | 1       |
| Benzene                     | 1.0        | U         | 1.0 | 0.13  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Bromodichloromethane        | 1.0        | U         | 1.0 | 0.17  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Bromoform                   | 1.0        | U         | 1.0 | 0.76  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Bromomethane                | 1.0        | U         | 1.0 | 0.42  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 2-Butanone (MEK)            | 10         | U         | 10  | 1.2   | ug/L |   |          | 11/06/18 02:51 | 1       |
| Carbon disulfide            | 5.0        | U         | 5.0 | 0.28  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Carbon tetrachloride        | 1.0        | U         | 1.0 | 0.26  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Chlorobenzene               | 1.0        | U         | 1.0 | 0.14  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Chloroethane                | 1.0        | U         | 1.0 | 0.83  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Chloroform                  | 1.0        | U         | 1.0 | 0.13  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Chloromethane               | 1.0        | U         | 1.0 | 0.20  | ug/L |   |          | 11/06/18 02:51 | 1       |
| cis-1,2-Dichloroethene      | 1.0        | U         | 1.0 | 0.16  | ug/L |   |          | 11/06/18 02:51 | 1       |
| cis-1,3-Dichloropropene     | 1.0        | U         | 1.0 | 0.61  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Cyclohexane                 | 1.0        | U         | 1.0 | 0.24  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Dibromochloromethane        | 1.0        | U         | 1.0 | 0.39  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,2-Dibromo-3-Chloropropane | 1.0        | U         | 1.0 | 0.91  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,2-Dibromoethane           | 1.0        | U         | 1.0 | 0.12  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,2-Dichlorobenzene         | 1.0        | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:51 | 1       |
| <b>1,3-Dichlorobenzene</b>  | <b>1.3</b> |           | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,4-Dichlorobenzene         | 1.0        | U         | 1.0 | 0.16  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Dichlorodifluoromethane     | 1.0        | U         | 1.0 | 0.35  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,1-Dichloroethane          | 1.0        | U         | 1.0 | 0.17  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,2-Dichloroethane          | 1.0        | U         | 1.0 | 0.21  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,1-Dichloroethene          | 1.0        | U         | 1.0 | 0.19  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,2-Dichloropropane         | 1.0        | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Ethylbenzene                | 1.0        | U         | 1.0 | 0.11  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 2-Hexanone                  | 10         | U         | 10  | 0.54  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Isopropylbenzene            | 1.0        | U         | 1.0 | 0.090 | ug/L |   |          | 11/06/18 02:51 | 1       |
| Methyl acetate              | 10         | U         | 10  | 1.7   | ug/L |   |          | 11/06/18 02:51 | 1       |
| Methylcyclohexane           | 1.0        | U         | 1.0 | 0.33  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Methylene Chloride          | 5.0        | U         | 5.0 | 2.6   | ug/L |   |          | 11/06/18 02:51 | 1       |
| 4-Methyl-2-pentanone (MIBK) | 10         | U         | 10  | 0.42  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Methyl tert-butyl ether     | 1.0        | U         | 1.0 | 0.070 | ug/L |   |          | 11/06/18 02:51 | 1       |
| Styrene                     | 1.0        | U         | 1.0 | 0.10  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,1,2,2-Tetrachloroethane   | 1.0        | U         | 1.0 | 0.13  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Tetrachloroethene           | 1.0        | U         | 1.0 | 0.15  | ug/L |   |          | 11/06/18 02:51 | 1       |
| Toluene                     | 1.0        | U         | 1.0 | 0.14  | ug/L |   |          | 11/06/18 02:51 | 1       |
| trans-1,2-Dichloroethene    | 1.0        | U         | 1.0 | 0.19  | ug/L |   |          | 11/06/18 02:51 | 1       |
| trans-1,3-Dichloropropene   | 1.0        | U         | 1.0 | 0.67  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,2,4-Trichlorobenzene      | 1.0        | U         | 1.0 | 0.26  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,1,1-Trichloroethane       | 1.0        | U         | 1.0 | 0.24  | ug/L |   |          | 11/06/18 02:51 | 1       |
| 1,1,2-Trichloroethane       | 1.0        | U         | 1.0 | 0.090 | ug/L |   |          | 11/06/18 02:51 | 1       |

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-3\_102618**

**Lab Sample ID: 240-103536-4**

**Date Collected: 10/26/18 15:27**

**Matrix: Water**

**Date Received: 10/30/18 10:50**

**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 |   |                 | 11/06/18 02:51  | 1              |
| Trichlorofluoromethane                | 1.0              | U                | 1.0           | 0.45  | ug/L |   |                 | 11/06/18 02:51  | 1              |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1.0              | U                | 1.0           | 0.41  | ug/L |   |                 | 11/06/18 02:51  | 1              |
| 1,2,3-Trimethylbenzene                | 5.0              | U                | 5.0           | 0.14  | ug/L |   |                 | 11/06/18 02:51  | 1              |
| 1,2,4-Trimethylbenzene                | 1.0              | U                | 1.0           | 0.070 | ug/L |   |                 | 11/06/18 02:51  | 1              |
| 1,3,5-Trimethylbenzene                | 1.0              | U                | 1.0           | 0.12  | ug/L |   |                 | 11/06/18 02:51  | 1              |
| Vinyl chloride                        | 1.0              | U                | 1.0           | 0.20  | ug/L |   |                 | 11/06/18 02:51  | 1              |
| Xylenes, Total                        | 2.0              | U                | 2.0           | 0.15  | ug/L |   |                 | 11/06/18 02:51  | 1              |
| Diethyl ether                         | 2.0              | U                | 2.0           | 0.19  | ug/L |   |                 | 11/06/18 02:51  | 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)           | 95               |                  | 59 - 120      |       |      |   |                 | 11/06/18 02:51  | 1              |
| Dibromofluoromethane (Surr)           | 102              |                  | 75 - 128      |       |      |   |                 | 11/06/18 02:51  | 1              |
| 1,2-Dichloroethane-d4 (Surr)          | 101              |                  | 70 - 121      |       |      |   |                 | 11/06/18 02:51  | 1              |
| Toluene-d8 (Surr)                     | 100              |                  | 70 - 123      |       |      |   |                 | 11/06/18 02:51  | 1              |



# Surrogate Summary

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

TestAmerica Job ID: 240-103536-1

## 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<br>(59-120)                                | DBFM<br>(75-128) | DCA<br>(70-121) | TOL<br>(70-123) |
| 240-103534-A-4 MS  | Matrix Spike           | 101  | 98               | 99              | 100             |
| 240-103534-D-4 MSD | Matrix Spike Duplicate | 100  | 100              | 98              | 103             |
| 240-103534-E-4 MS  | Matrix Spike           | 98   | 98               | 98              | 99              |
| 240-103534-H-4 MSD | Matrix Spike Duplicate | 97   | 98               | 98              | 99              |
| 240-103536-1       | MW-4_102618            | 94   | 102              | 101             | 99              |
| 240-103536-2       | MW-2_102618            | 96   | 102              | 106             | 100             |
| 240-103536-3       | MW-5_102618            | 96   | 103              | 99              | 102             |
| 240-103536-4       | MW-3_102618            | 95   | 102              | 101             | 100             |
| LCS 240-353754/4   | Lab Control Sample     | 101  | 102              | 102             | 103             |
| LCS 240-353988/4   | Lab Control Sample     | 100  | 98               | 98              | 101             |
| LCSD 240-353988/7  | Lab Control Sample Dup | 100  | 99               | 98              | 99              |
| MB 240-353754/6    | Method Blank           | 98   | 105              | 104             | 102             |
| MB 240-353988/6    | Method Blank           | 97   | 103              | 104             | 100             |

#### 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) |
| 240-103536-1       | MW-4_102618            | 107      |
| 240-103536-2       | MW-2_102618            | 108      |
| 240-103536-3       | MW-5_102618            | 107      |
| 240-103536-4       | MW-3_102618            | 106      |
| 240-103550-C-6 MS  | Matrix Spike           | 109      |
| 240-103550-C-6 MSD | Matrix Spike Duplicate | 108      |
| LCS 240-353689/4   | Lab Control Sample     | 103      |
| MB 240-353689/5    | 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: 240-103536-1

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

**Lab Sample ID: MB 240-353754/6**

**Matrix: Water**

**Analysis Batch: 353754**

**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 |   |          | 11/05/18 18:43 | 1       |
| Benzene                               | 1.0       | U            | 1.0 | 0.13  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Bromodichloromethane                  | 1.0       | U            | 1.0 | 0.17  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Bromoform                             | 1.0       | U            | 1.0 | 0.76  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Bromomethane                          | 1.0       | U            | 1.0 | 0.42  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 2-Butanone (MEK)                      | 10        | U            | 10  | 1.2   | ug/L |   |          | 11/05/18 18:43 | 1       |
| Carbon disulfide                      | 5.0       | U            | 5.0 | 0.28  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Carbon tetrachloride                  | 1.0       | U            | 1.0 | 0.26  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Chlorobenzene                         | 1.0       | U            | 1.0 | 0.14  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Chloroethane                          | 1.0       | U            | 1.0 | 0.83  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Chloroform                            | 1.0       | U            | 1.0 | 0.13  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Chloromethane                         | 1.0       | U            | 1.0 | 0.20  | ug/L |   |          | 11/05/18 18:43 | 1       |
| cis-1,2-Dichloroethene                | 1.0       | U            | 1.0 | 0.16  | ug/L |   |          | 11/05/18 18:43 | 1       |
| cis-1,3-Dichloropropene               | 1.0       | U            | 1.0 | 0.61  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Cyclohexane                           | 1.0       | U            | 1.0 | 0.24  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Dibromochloromethane                  | 1.0       | U            | 1.0 | 0.39  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2-Dibromo-3-Chloropropane           | 1.0       | U            | 1.0 | 0.91  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2-Dibromoethane                     | 1.0       | U            | 1.0 | 0.12  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2-Dichlorobenzene                   | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,3-Dichlorobenzene                   | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,4-Dichlorobenzene                   | 1.0       | U            | 1.0 | 0.16  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Dichlorodifluoromethane               | 1.0       | U            | 1.0 | 0.35  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,1-Dichloroethane                    | 1.0       | U            | 1.0 | 0.17  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2-Dichloroethane                    | 1.0       | U            | 1.0 | 0.21  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,1-Dichloroethene                    | 1.0       | U            | 1.0 | 0.19  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2-Dichloropropane                   | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Ethylbenzene                          | 1.0       | U            | 1.0 | 0.11  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 2-Hexanone                            | 10        | U            | 10  | 0.54  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Isopropylbenzene                      | 1.0       | U            | 1.0 | 0.090 | ug/L |   |          | 11/05/18 18:43 | 1       |
| Methyl acetate                        | 10        | U            | 10  | 1.7   | ug/L |   |          | 11/05/18 18:43 | 1       |
| Methylcyclohexane                     | 1.0       | U            | 1.0 | 0.33  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Methylene Chloride                    | 5.0       | U            | 5.0 | 2.6   | ug/L |   |          | 11/05/18 18:43 | 1       |
| 4-Methyl-2-pentanone (MIBK)           | 10        | U            | 10  | 0.42  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Methyl tert-butyl ether               | 1.0       | U            | 1.0 | 0.070 | ug/L |   |          | 11/05/18 18:43 | 1       |
| Styrene                               | 1.0       | U            | 1.0 | 0.10  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,1,2,2-Tetrachloroethane             | 1.0       | U            | 1.0 | 0.13  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Tetrachloroethene                     | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Toluene                               | 1.0       | U            | 1.0 | 0.14  | ug/L |   |          | 11/05/18 18:43 | 1       |
| trans-1,2-Dichloroethene              | 1.0       | U            | 1.0 | 0.19  | ug/L |   |          | 11/05/18 18:43 | 1       |
| trans-1,3-Dichloropropene             | 1.0       | U            | 1.0 | 0.67  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2,4-Trichlorobenzene                | 1.0       | U            | 1.0 | 0.26  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,1,1-Trichloroethane                 | 1.0       | U            | 1.0 | 0.24  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,1,2-Trichloroethane                 | 1.0       | U            | 1.0 | 0.090 | ug/L |   |          | 11/05/18 18:43 | 1       |
| Trichloroethene                       | 1.0       | U            | 1.0 | 0.10  | ug/L |   |          | 11/05/18 18:43 | 1       |
| Trichlorofluoromethane                | 1.0       | U            | 1.0 | 0.45  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1.0       | U            | 1.0 | 0.41  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2,3-Trimethylbenzene                | 5.0       | U            | 5.0 | 0.14  | ug/L |   |          | 11/05/18 18:43 | 1       |
| 1,2,4-Trimethylbenzene                | 1.0       | U            | 1.0 | 0.070 | ug/L |   |          | 11/05/18 18:43 | 1       |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: MB 240-353754/6**  
**Matrix: Water**  
**Analysis Batch: 353754**

**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 |   |          | 11/05/18 18:43 | 1       |
| Vinyl chloride         | 1.0       | U            | 1.0 | 0.20 | ug/L |   |          | 11/05/18 18:43 | 1       |
| Xylenes, Total         | 2.0       | U            | 2.0 | 0.15 | ug/L |   |          | 11/05/18 18:43 | 1       |
| Diethyl ether          | 2.0       | U            | 2.0 | 0.19 | ug/L |   |          | 11/05/18 18:43 | 1       |

| Surrogate                    | MB %Recovery | MB Qualifier | Limits   | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------------|--------------|----------|----------|----------------|---------|
| 4-Bromofluorobenzene (Surr)  | 98           |              | 59 - 120 |          | 11/05/18 18:43 | 1       |
| Dibromofluoromethane (Surr)  | 105          |              | 75 - 128 |          | 11/05/18 18:43 | 1       |
| 1,2-Dichloroethane-d4 (Surr) | 104          |              | 70 - 121 |          | 11/05/18 18:43 | 1       |
| Toluene-d8 (Surr)            | 102          |              | 70 - 123 |          | 11/05/18 18:43 | 1       |

**Lab Sample ID: LCS 240-353754/4**  
**Matrix: Water**  
**Analysis Batch: 353754**

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

| Analyte                     | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|-----------------------------|-------------|------------|---------------|------|---|------|--------------|
| Acetone                     | 40.0        | 51.7       |               | ug/L |   | 129  | 21 - 162     |
| Benzene                     | 20.0        | 20.4       |               | ug/L |   | 102  | 80 - 123     |
| Bromodichloromethane        | 20.0        | 19.2       |               | ug/L |   | 96   | 77 - 125     |
| Bromoform                   | 20.0        | 19.4       |               | ug/L |   | 97   | 49 - 141     |
| Bromomethane                | 20.0        | 19.1       |               | ug/L |   | 95   | 41 - 175     |
| 2-Butanone (MEK)            | 40.0        | 43.4       |               | ug/L |   | 108  | 39 - 163     |
| Carbon disulfide            | 20.0        | 18.0       |               | ug/L |   | 90   | 60 - 138     |
| Carbon tetrachloride        | 20.0        | 19.5       |               | ug/L |   | 98   | 63 - 140     |
| Chlorobenzene               | 20.0        | 20.2       |               | ug/L |   | 101  | 80 - 121     |
| Chloroethane                | 20.0        | 19.0       |               | ug/L |   | 95   | 33 - 173     |
| Chloroform                  | 20.0        | 20.6       |               | ug/L |   | 103  | 79 - 127     |
| Chloromethane               | 20.0        | 17.7       |               | ug/L |   | 89   | 54 - 143     |
| cis-1,2-Dichloroethene      | 20.0        | 20.4       |               | ug/L |   | 102  | 76 - 128     |
| cis-1,3-Dichloropropene     | 20.0        | 19.0       |               | ug/L |   | 95   | 64 - 132     |
| Cyclohexane                 | 20.0        | 20.1       |               | ug/L |   | 101  | 58 - 145     |
| Dibromochloromethane        | 20.0        | 20.1       |               | ug/L |   | 101  | 70 - 132     |
| 1,2-Dibromo-3-Chloropropane | 20.0        | 20.7       |               | ug/L |   | 103  | 46 - 132     |
| 1,2-Dibromoethane           | 20.0        | 19.5       |               | ug/L |   | 98   | 77 - 123     |
| 1,2-Dichlorobenzene         | 20.0        | 21.9       |               | ug/L |   | 110  | 78 - 120     |
| 1,3-Dichlorobenzene         | 20.0        | 20.8       |               | ug/L |   | 104  | 78 - 120     |
| 1,4-Dichlorobenzene         | 20.0        | 20.6       |               | ug/L |   | 103  | 78 - 120     |
| Dichlorodifluoromethane     | 20.0        | 16.8       |               | ug/L |   | 84   | 29 - 148     |
| 1,1-Dichloroethane          | 20.0        | 19.5       |               | ug/L |   | 98   | 75 - 133     |
| 1,2-Dichloroethane          | 20.0        | 19.2       |               | ug/L |   | 96   | 71 - 135     |
| 1,1-Dichloroethene          | 20.0        | 20.4       |               | ug/L |   | 102  | 65 - 139     |
| 1,2-Dichloropropane         | 20.0        | 20.0       |               | ug/L |   | 100  | 78 - 133     |
| Ethylbenzene                | 20.0        | 20.5       |               | ug/L |   | 102  | 80 - 120     |
| 2-Hexanone                  | 40.0        | 39.4       |               | ug/L |   | 98   | 43 - 148     |
| Isopropylbenzene            | 20.0        | 21.5       |               | ug/L |   | 107  | 74 - 120     |
| Methyl acetate              | 40.0        | 42.0       |               | ug/L |   | 105  | 52 - 145     |
| Methylcyclohexane           | 20.0        | 19.9       |               | ug/L |   | 99   | 60 - 125     |
| Methylene Chloride          | 20.0        | 18.8       |               | ug/L |   | 94   | 70 - 134     |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: LCS 240-353754/4**  
**Matrix: Water**  
**Analysis Batch: 353754**

**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)           | 40.0        | 38.7       |               | ug/L |   | 97   | 49 - 143     |
| Methyl tert-butyl ether               | 20.0        | 17.8       |               | ug/L |   | 89   | 51 - 133     |
| Styrene                               | 20.0        | 20.6       |               | ug/L |   | 103  | 79 - 120     |
| 1,1,2,2-Tetrachloroethane             | 20.0        | 20.8       |               | ug/L |   | 104  | 65 - 139     |
| Tetrachloroethene                     | 20.0        | 21.1       |               | ug/L |   | 106  | 74 - 130     |
| Toluene                               | 20.0        | 20.7       |               | ug/L |   | 103  | 78 - 129     |
| trans-1,2-Dichloroethene              | 20.0        | 19.7       |               | ug/L |   | 99   | 78 - 133     |
| trans-1,3-Dichloropropene             | 20.0        | 17.6       |               | ug/L |   | 88   | 55 - 128     |
| 1,2,4-Trichlorobenzene                | 20.0        | 21.8       |               | ug/L |   | 109  | 42 - 133     |
| 1,1,1-Trichloroethane                 | 20.0        | 20.0       |               | ug/L |   | 100  | 69 - 134     |
| 1,1,2-Trichloroethane                 | 20.0        | 21.6       |               | ug/L |   | 108  | 78 - 133     |
| Trichloroethene                       | 20.0        | 19.9       |               | ug/L |   | 99   | 76 - 125     |
| Trichlorofluoromethane                | 20.0        | 19.3       |               | ug/L |   | 97   | 51 - 164     |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 20.0        | 21.6       |               | ug/L |   | 108  | 50 - 156     |
| 1,2,4-Trimethylbenzene                | 20.0        | 21.4       |               | ug/L |   | 107  | 74 - 120     |
| 1,3,5-Trimethylbenzene                | 20.0        | 21.5       |               | ug/L |   | 107  | 75 - 121     |
| Vinyl chloride                        | 20.0        | 18.8       |               | ug/L |   | 94   | 58 - 143     |
| Xylenes, Total                        | 40.0        | 42.4       |               | ug/L |   | 106  | 80 - 120     |
| 1,4-Dioxane                           | 400         | 608        |               | ug/L |   | 152  | 10 - 175     |
| Diethyl ether                         | 20.0        | 20.8       |               | ug/L |   | 104  | 70 - 146     |

| Surrogate                    | LCS %Recovery | LCS Qualifier | LCS Limits |
|------------------------------|---------------|---------------|------------|
| 4-Bromofluorobenzene (Surr)  | 101           |               | 59 - 120   |
| Dibromofluoromethane (Surr)  | 102           |               | 75 - 128   |
| 1,2-Dichloroethane-d4 (Surr) | 102           |               | 70 - 121   |
| Toluene-d8 (Surr)            | 103           |               | 70 - 123   |

**Lab Sample ID: 240-103534-A-4 MS**  
**Matrix: Water**  
**Analysis Batch: 353754**

**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                | 40.0        | 52.6      |              | ug/L |   | 131  | 10 - 168     |
| Benzene                     | 1.0           | U                | 20.0        | 19.6      |              | ug/L |   | 98   | 71 - 122     |
| Bromodichloromethane        | 1.0           | U                | 20.0        | 18.7      |              | ug/L |   | 93   | 64 - 125     |
| Bromoform                   | 1.0           | U                | 20.0        | 18.4      |              | ug/L |   | 92   | 44 - 129     |
| Bromomethane                | 1.0           | U                | 20.0        | 18.0      |              | ug/L |   | 90   | 19 - 187     |
| 2-Butanone (MEK)            | 10            | U                | 40.0        | 45.2      |              | ug/L |   | 113  | 37 - 156     |
| Carbon tetrachloride        | 1.0           | U                | 20.0        | 18.4      |              | ug/L |   | 92   | 41 - 143     |
| Chlorobenzene               | 1.0           | U                | 20.0        | 19.2      |              | ug/L |   | 96   | 70 - 123     |
| Chloroethane                | 78            |                  | 20.0        | 92.3      | E            | ug/L |   | 74   | 11 - 189     |
| Chloroform                  | 1.0           | U                | 20.0        | 19.3      |              | ug/L |   | 97   | 68 - 130     |
| Chloromethane               | 1.0           | U                | 20.0        | 16.8      |              | ug/L |   | 84   | 31 - 154     |
| cis-1,2-Dichloroethene      | 14            |                  | 20.0        | 32.9      |              | ug/L |   | 94   | 64 - 130     |
| cis-1,3-Dichloropropene     | 1.0           | U                | 20.0        | 17.8      |              | ug/L |   | 89   | 48 - 127     |
| Dibromochloromethane        | 1.0           | U                | 20.0        | 18.9      |              | ug/L |   | 95   | 60 - 129     |
| 1,2-Dibromo-3-Chloropropane | 1.0           | U                | 20.0        | 19.4      |              | ug/L |   | 97   | 38 - 124     |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: 240-103534-A-4 MS**

**Matrix: Water**

**Analysis Batch: 353754**

**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 |
|---------------------------------------|---------------|------------------|-------------|-----------|--------------|------|---|------|--------------|
| 1,2-Dibromoethane                     | 1.0           | U                | 20.0        | 18.7      |              | ug/L |   | 93   | 71 - 123     |
| 1,2-Dichlorobenzene                   | 1.0           | U                | 20.0        | 19.7      |              | ug/L |   | 99   | 64 - 120     |
| 1,3-Dichlorobenzene                   | 1.0           | U                | 20.0        | 19.3      |              | ug/L |   | 96   | 62 - 120     |
| 1,4-Dichlorobenzene                   | 1.0           | U                | 20.0        | 18.9      |              | ug/L |   | 95   | 63 - 120     |
| Dichlorodifluoromethane               | 1.0           | U                | 20.0        | 15.5      |              | ug/L |   | 77   | 28 - 136     |
| 1,1-Dichloroethane                    | 180           | E                | 20.0        | 192       | E 4          | ug/L |   | 51   | 63 - 136     |
| 1,2-Dichloroethane                    | 0.75          | J                | 20.0        | 18.9      |              | ug/L |   | 91   | 65 - 135     |
| 1,1-Dichloroethene                    | 0.79          | J                | 20.0        | 20.4      |              | ug/L |   | 98   | 53 - 140     |
| 1,2-Dichloropropane                   | 1.0           | U                | 20.0        | 19.1      |              | ug/L |   | 95   | 70 - 132     |
| Ethylbenzene                          | 1.0           | U                | 20.0        | 19.4      |              | ug/L |   | 97   | 66 - 120     |
| Isopropylbenzene                      | 1.0           | U                | 20.0        | 19.8      |              | ug/L |   | 99   | 59 - 120     |
| Methylene Chloride                    | 5.0           | U                | 20.0        | 18.1      |              | ug/L |   | 91   | 61 - 130     |
| 4-Methyl-2-pentanone (MIBK)           | 10            | U                | 40.0        | 39.3      |              | ug/L |   | 98   | 44 - 143     |
| Methyl tert-butyl ether               | 1.0           | U                | 20.0        | 16.6      |              | ug/L |   | 83   | 41 - 136     |
| Styrene                               | 1.0           | U                | 20.0        | 19.4      |              | ug/L |   | 97   | 68 - 120     |
| 1,1,2,2-Tetrachloroethane             | 1.0           | U                | 20.0        | 19.6      |              | ug/L |   | 98   | 60 - 137     |
| Tetrachloroethene                     | 1.0           | U                | 20.0        | 19.9      |              | ug/L |   | 100  | 51 - 136     |
| Toluene                               | 1.0           | U                | 20.0        | 19.6      |              | ug/L |   | 98   | 62 - 132     |
| trans-1,2-Dichloroethene              | 65            |                  | 20.0        | 80.3      | E            | ug/L |   | 77   | 68 - 133     |
| trans-1,3-Dichloropropene             | 1.0           | U                | 20.0        | 16.2      |              | ug/L |   | 81   | 40 - 125     |
| 1,2,4-Trichlorobenzene                | 1.0           | U                | 20.0        | 19.6      |              | ug/L |   | 98   | 30 - 126     |
| 1,1,1-Trichloroethane                 | 1.0           | U                | 20.0        | 18.5      |              | ug/L |   | 93   | 51 - 138     |
| 1,1,2-Trichloroethane                 | 1.0           | U                | 20.0        | 20.6      |              | ug/L |   | 103  | 76 - 132     |
| Trichloroethene                       | 1.6           |                  | 20.0        | 20.5      |              | ug/L |   | 95   | 55 - 131     |
| Trichlorofluoromethane                | 1.0           | U                | 20.0        | 17.7      |              | ug/L |   | 88   | 37 - 174     |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1.0           | U                | 20.0        | 20.3      |              | ug/L |   | 101  | 31 - 156     |
| 1,2,4-Trimethylbenzene                | 1.0           | U                | 20.0        | 19.3      |              | ug/L |   | 97   | 62 - 120     |
| 1,3,5-Trimethylbenzene                | 1.0           | U                | 20.0        | 19.2      |              | ug/L |   | 96   | 64 - 120     |
| Vinyl chloride                        | 8.3           |                  | 20.0        | 25.6      |              | ug/L |   | 87   | 43 - 154     |
| Xylenes, Total                        | 2.0           | U                | 40.0        | 39.8      |              | ug/L |   | 100  | 67 - 120     |
| Diethyl ether                         | 2.0           | U                | 20.0        | 18.9      |              | ug/L |   | 94   | 65 - 134     |

| Surrogate                    | MS %Recovery | MS Qualifier | Limits   |
|------------------------------|--------------|--------------|----------|
| 4-Bromofluorobenzene (Surr)  | 101          |              | 59 - 120 |
| Dibromofluoromethane (Surr)  | 98           |              | 75 - 128 |
| 1,2-Dichloroethane-d4 (Surr) | 99           |              | 70 - 121 |
| Toluene-d8 (Surr)            | 100          |              | 70 - 123 |

**Lab Sample ID: 240-103534-D-4 MSD**

**Matrix: Water**

**Analysis Batch: 353754**

**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 |
|----------------------|---------------|------------------|-------------|------------|---------------|------|---|------|--------------|-----|-----------|
| Acetone              | 10            | U                | 40.0        | 47.8       |               | ug/L |   | 119  | 10 - 168     | 10  | 35        |
| Benzene              | 1.0           | U                | 20.0        | 19.7       |               | ug/L |   | 99   | 71 - 122     | 1   | 22        |
| Bromodichloromethane | 1.0           | U                | 20.0        | 18.8       |               | ug/L |   | 94   | 64 - 125     | 1   | 27        |
| Bromoform            | 1.0           | U                | 20.0        | 18.2       |               | ug/L |   | 91   | 44 - 129     | 1   | 28        |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: 240-103534-D-4 MSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 353754**

| Analyte                               | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---------------------------------------|---------------|------------------|-------------|------------|---------------|------|---|------|--------------|-----|-----------|
| Bromomethane                          | 1.0           | U                | 20.0        | 18.2       |               | ug/L |   | 91   | 19 - 187     | 1   | 35        |
| 2-Butanone (MEK)                      | 10            | U                | 40.0        | 41.8       |               | ug/L |   | 104  | 37 - 156     | 8   | 35        |
| Carbon tetrachloride                  | 1.0           | U                | 20.0        | 18.8       |               | ug/L |   | 94   | 41 - 143     | 2   | 30        |
| Chlorobenzene                         | 1.0           | U                | 20.0        | 19.4       |               | ug/L |   | 97   | 70 - 123     | 1   | 23        |
| Chloroethane                          | 78            |                  | 20.0        | 93.1       | E             | ug/L |   | 77   | 11 - 189     | 1   | 35        |
| Chloroform                            | 1.0           | U                | 20.0        | 19.6       |               | ug/L |   | 98   | 68 - 130     | 1   | 23        |
| Chloromethane                         | 1.0           | U                | 20.0        | 17.1       |               | ug/L |   | 85   | 31 - 154     | 1   | 35        |
| cis-1,2-Dichloroethene                | 14            |                  | 20.0        | 32.8       |               | ug/L |   | 94   | 64 - 130     | 0   | 21        |
| cis-1,3-Dichloropropene               | 1.0           | U                | 20.0        | 17.7       |               | ug/L |   | 89   | 48 - 127     | 1   | 30        |
| Dibromochloromethane                  | 1.0           | U                | 20.0        | 19.2       |               | ug/L |   | 96   | 60 - 129     | 1   | 26        |
| 1,2-Dibromo-3-Chloropropane           | 1.0           | U                | 20.0        | 19.4       |               | ug/L |   | 97   | 38 - 124     | 0   | 35        |
| 1,2-Dibromoethane                     | 1.0           | U                | 20.0        | 19.1       |               | ug/L |   | 95   | 71 - 123     | 2   | 27        |
| 1,2-Dichlorobenzene                   | 1.0           | U                | 20.0        | 20.3       |               | ug/L |   | 102  | 64 - 120     | 3   | 30        |
| 1,3-Dichlorobenzene                   | 1.0           | U                | 20.0        | 19.7       |               | ug/L |   | 99   | 62 - 120     | 3   | 31        |
| 1,4-Dichlorobenzene                   | 1.0           | U                | 20.0        | 19.4       |               | ug/L |   | 97   | 63 - 120     | 3   | 28        |
| Dichlorodifluoromethane               | 1.0           | U                | 20.0        | 15.6       |               | ug/L |   | 78   | 28 - 136     | 1   | 35        |
| 1,1-Dichloroethane                    | 180           | E                | 20.0        | 192        | E 4           | ug/L |   | 51   | 63 - 136     | 0   | 23        |
| 1,2-Dichloroethane                    | 0.75          | J                | 20.0        | 18.9       |               | ug/L |   | 91   | 65 - 135     | 0   | 24        |
| 1,1-Dichloroethene                    | 0.79          | J                | 20.0        | 20.4       |               | ug/L |   | 98   | 53 - 140     | 0   | 35        |
| 1,2-Dichloropropane                   | 1.0           | U                | 20.0        | 19.3       |               | ug/L |   | 97   | 70 - 132     | 1   | 26        |
| Ethylbenzene                          | 1.0           | U                | 20.0        | 19.6       |               | ug/L |   | 98   | 66 - 120     | 1   | 24        |
| Isopropylbenzene                      | 1.0           | U                | 20.0        | 19.9       |               | ug/L |   | 100  | 59 - 120     | 1   | 31        |
| Methylene Chloride                    | 5.0           | U                | 20.0        | 18.3       |               | ug/L |   | 92   | 61 - 130     | 1   | 29        |
| 4-Methyl-2-pentanone (MIBK)           | 10            | U                | 40.0        | 37.2       |               | ug/L |   | 93   | 44 - 143     | 6   | 35        |
| Methyl tert-butyl ether               | 1.0           | U                | 20.0        | 17.9       |               | ug/L |   | 89   | 41 - 136     | 8   | 29        |
| Styrene                               | 1.0           | U                | 20.0        | 19.4       |               | ug/L |   | 97   | 68 - 120     | 0   | 26        |
| 1,1,1,2-Tetrachloroethane             | 1.0           | U                | 20.0        | 20.1       |               | ug/L |   | 101  | 60 - 137     | 3   | 31        |
| Tetrachloroethene                     | 1.0           | U                | 20.0        | 20.0       |               | ug/L |   | 100  | 51 - 136     | 0   | 23        |
| Toluene                               | 1.0           | U                | 20.0        | 19.7       |               | ug/L |   | 98   | 62 - 132     | 1   | 23        |
| trans-1,2-Dichloroethene              | 65            |                  | 20.0        | 80.9       | E             | ug/L |   | 80   | 68 - 133     | 1   | 24        |
| trans-1,3-Dichloropropene             | 1.0           | U                | 20.0        | 16.6       |               | ug/L |   | 83   | 40 - 125     | 3   | 27        |
| 1,2,4-Trichlorobenzene                | 1.0           | U                | 20.0        | 19.4       |               | ug/L |   | 97   | 30 - 126     | 1   | 35        |
| 1,1,1-Trichloroethane                 | 1.0           | U                | 20.0        | 18.7       |               | ug/L |   | 94   | 51 - 138     | 1   | 27        |
| 1,1,2-Trichloroethane                 | 1.0           | U                | 20.0        | 20.7       |               | ug/L |   | 103  | 76 - 132     | 0   | 25        |
| Trichloroethene                       | 1.6           |                  | 20.0        | 20.6       |               | ug/L |   | 95   | 55 - 131     | 0   | 23        |
| Trichlorofluoromethane                | 1.0           | U                | 20.0        | 17.8       |               | ug/L |   | 89   | 37 - 174     | 0   | 35        |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1.0           | U                | 20.0        | 20.5       |               | ug/L |   | 103  | 31 - 156     | 1   | 35        |
| 1,2,4-Trimethylbenzene                | 1.0           | U                | 20.0        | 19.8       |               | ug/L |   | 99   | 62 - 120     | 3   | 27        |
| 1,3,5-Trimethylbenzene                | 1.0           | U                | 20.0        | 19.8       |               | ug/L |   | 99   | 64 - 120     | 3   | 23        |
| Vinyl chloride                        | 8.3           |                  | 20.0        | 25.7       |               | ug/L |   | 87   | 43 - 154     | 1   | 29        |
| Xylenes, Total                        | 2.0           | U                | 40.0        | 40.0       |               | ug/L |   | 100  | 67 - 120     | 1   | 25        |
| Diethyl ether                         | 2.0           | U                | 20.0        | 19.6       |               | ug/L |   | 98   | 65 - 134     | 4   | 33        |

| Surrogate                    | MSD %Recovery | MSD Qualifier | Limits   |
|------------------------------|---------------|---------------|----------|
| 4-Bromofluorobenzene (Surr)  | 100           |               | 59 - 120 |
| Dibromofluoromethane (Surr)  | 100           |               | 75 - 128 |
| 1,2-Dichloroethane-d4 (Surr) | 98            |               | 70 - 121 |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: 240-103534-D-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 353754**

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

| Surrogate         | MSD %Recovery | MSD Qualifier | Limits   |
|-------------------|---------------|---------------|----------|
| Toluene-d8 (Surr) | 103           |               | 70 - 123 |

**Lab Sample ID: MB 240-353988/6**  
**Matrix: Water**  
**Analysis Batch: 353988**

**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 |   |          | 11/06/18 18:20 | 1       |
| Benzene                     | 1.0       | U            | 1.0 | 0.13  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Bromodichloromethane        | 1.0       | U            | 1.0 | 0.17  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Bromoform                   | 1.0       | U            | 1.0 | 0.76  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Bromomethane                | 1.0       | U            | 1.0 | 0.42  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 2-Butanone (MEK)            | 10        | U            | 10  | 1.2   | ug/L |   |          | 11/06/18 18:20 | 1       |
| Carbon disulfide            | 5.0       | U            | 5.0 | 0.28  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Carbon tetrachloride        | 1.0       | U            | 1.0 | 0.26  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Chlorobenzene               | 1.0       | U            | 1.0 | 0.14  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Chloroethane                | 1.0       | U            | 1.0 | 0.83  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Chloroform                  | 1.0       | U            | 1.0 | 0.13  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Chloromethane               | 1.0       | U            | 1.0 | 0.20  | ug/L |   |          | 11/06/18 18:20 | 1       |
| cis-1,2-Dichloroethene      | 1.0       | U            | 1.0 | 0.16  | ug/L |   |          | 11/06/18 18:20 | 1       |
| cis-1,3-Dichloropropene     | 1.0       | U            | 1.0 | 0.61  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Cyclohexane                 | 1.0       | U            | 1.0 | 0.24  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Dibromochloromethane        | 1.0       | U            | 1.0 | 0.39  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2-Dibromo-3-Chloropropane | 1.0       | U            | 1.0 | 0.91  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2-Dibromoethane           | 1.0       | U            | 1.0 | 0.12  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2-Dichlorobenzene         | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,3-Dichlorobenzene         | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,4-Dichlorobenzene         | 1.0       | U            | 1.0 | 0.16  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Dichlorodifluoromethane     | 1.0       | U            | 1.0 | 0.35  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,1-Dichloroethane          | 1.0       | U            | 1.0 | 0.17  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2-Dichloroethane          | 1.0       | U            | 1.0 | 0.21  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,1-Dichloroethene          | 1.0       | U            | 1.0 | 0.19  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2-Dichloropropane         | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Ethylbenzene                | 1.0       | U            | 1.0 | 0.11  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 2-Hexanone                  | 10        | U            | 10  | 0.54  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Isopropylbenzene            | 1.0       | U            | 1.0 | 0.090 | ug/L |   |          | 11/06/18 18:20 | 1       |
| Methyl acetate              | 10        | U            | 10  | 1.7   | ug/L |   |          | 11/06/18 18:20 | 1       |
| Methylcyclohexane           | 1.0       | U            | 1.0 | 0.33  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Methylene Chloride          | 5.0       | U            | 5.0 | 2.6   | ug/L |   |          | 11/06/18 18:20 | 1       |
| 4-Methyl-2-pentanone (MIBK) | 10        | U            | 10  | 0.42  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Methyl tert-butyl ether     | 1.0       | U            | 1.0 | 0.070 | ug/L |   |          | 11/06/18 18:20 | 1       |
| Styrene                     | 1.0       | U            | 1.0 | 0.10  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,1,2,2-Tetrachloroethane   | 1.0       | U            | 1.0 | 0.13  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Tetrachloroethene           | 1.0       | U            | 1.0 | 0.15  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Toluene                     | 1.0       | U            | 1.0 | 0.14  | ug/L |   |          | 11/06/18 18:20 | 1       |
| trans-1,2-Dichloroethene    | 1.0       | U            | 1.0 | 0.19  | ug/L |   |          | 11/06/18 18:20 | 1       |
| trans-1,3-Dichloropropene   | 1.0       | U            | 1.0 | 0.67  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2,4-Trichlorobenzene      | 1.0       | U            | 1.0 | 0.26  | ug/L |   |          | 11/06/18 18:20 | 1       |

TestAmerica Canton



# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: MB 240-353988/6**  
**Matrix: Water**  
**Analysis Batch: 353988**

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

| Analyte                               | MB Result | MB Qualifier | RL  | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|---------------------------------------|-----------|--------------|-----|-------|------|---|----------|----------------|---------|
| 1,1,1-Trichloroethane                 | 1.0       | U            | 1.0 | 0.24  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,1,2-Trichloroethane                 | 1.0       | U            | 1.0 | 0.090 | ug/L |   |          | 11/06/18 18:20 | 1       |
| Trichloroethene                       | 1.0       | U            | 1.0 | 0.10  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Trichlorofluoromethane                | 1.0       | U            | 1.0 | 0.45  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 1.0       | U            | 1.0 | 0.41  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2,3-Trimethylbenzene                | 5.0       | U            | 5.0 | 0.14  | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,2,4-Trimethylbenzene                | 1.0       | U            | 1.0 | 0.070 | ug/L |   |          | 11/06/18 18:20 | 1       |
| 1,3,5-Trimethylbenzene                | 1.0       | U            | 1.0 | 0.12  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Vinyl chloride                        | 1.0       | U            | 1.0 | 0.20  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Xylenes, Total                        | 2.0       | U            | 2.0 | 0.15  | ug/L |   |          | 11/06/18 18:20 | 1       |
| Diethyl ether                         | 2.0       | U            | 2.0 | 0.19  | ug/L |   |          | 11/06/18 18:20 | 1       |

| Surrogate                    | MB %Recovery | MB Qualifier | Limits   | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------------|--------------|----------|----------|----------------|---------|
| 4-Bromofluorobenzene (Surr)  | 97           |              | 59 - 120 |          | 11/06/18 18:20 | 1       |
| Dibromofluoromethane (Surr)  | 103          |              | 75 - 128 |          | 11/06/18 18:20 | 1       |
| 1,2-Dichloroethane-d4 (Surr) | 104          |              | 70 - 121 |          | 11/06/18 18:20 | 1       |
| Toluene-d8 (Surr)            | 100          |              | 70 - 123 |          | 11/06/18 18:20 | 1       |

**Lab Sample ID: LCS 240-353988/4**  
**Matrix: Water**  
**Analysis Batch: 353988**

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

| Analyte                     | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|-----------------------------|-------------|------------|---------------|------|---|------|--------------|
| Acetone                     | 40.0        | 51.4       |               | ug/L |   | 128  | 21 - 162     |
| Benzene                     | 20.0        | 20.4       |               | ug/L |   | 102  | 80 - 123     |
| Bromodichloromethane        | 20.0        | 19.5       |               | ug/L |   | 97   | 77 - 125     |
| Bromoform                   | 20.0        | 19.4       |               | ug/L |   | 97   | 49 - 141     |
| Bromomethane                | 20.0        | 18.6       |               | ug/L |   | 93   | 41 - 175     |
| 2-Butanone (MEK)            | 40.0        | 43.5       |               | ug/L |   | 109  | 39 - 163     |
| Carbon disulfide            | 20.0        | 18.0       |               | ug/L |   | 90   | 60 - 138     |
| Carbon tetrachloride        | 20.0        | 19.7       |               | ug/L |   | 99   | 63 - 140     |
| Chlorobenzene               | 20.0        | 20.1       |               | ug/L |   | 101  | 80 - 121     |
| Chloroethane                | 20.0        | 18.5       |               | ug/L |   | 92   | 33 - 173     |
| Chloroform                  | 20.0        | 20.2       |               | ug/L |   | 101  | 79 - 127     |
| Chloromethane               | 20.0        | 16.8       |               | ug/L |   | 84   | 54 - 143     |
| cis-1,2-Dichloroethene      | 20.0        | 20.1       |               | ug/L |   | 100  | 76 - 128     |
| cis-1,3-Dichloropropene     | 20.0        | 19.4       |               | ug/L |   | 97   | 64 - 132     |
| Cyclohexane                 | 20.0        | 20.3       |               | ug/L |   | 102  | 58 - 145     |
| Dibromochloromethane        | 20.0        | 19.9       |               | ug/L |   | 100  | 70 - 132     |
| 1,2-Dibromo-3-Chloropropane | 20.0        | 20.3       |               | ug/L |   | 102  | 46 - 132     |
| 1,2-Dibromoethane           | 20.0        | 19.4       |               | ug/L |   | 97   | 77 - 123     |
| 1,2-Dichlorobenzene         | 20.0        | 21.3       |               | ug/L |   | 107  | 78 - 120     |
| 1,3-Dichlorobenzene         | 20.0        | 20.8       |               | ug/L |   | 104  | 78 - 120     |
| 1,4-Dichlorobenzene         | 20.0        | 20.6       |               | ug/L |   | 103  | 78 - 120     |
| Dichlorodifluoromethane     | 20.0        | 16.1       |               | ug/L |   | 81   | 29 - 148     |
| 1,1-Dichloroethane          | 20.0        | 19.7       |               | ug/L |   | 98   | 75 - 133     |
| 1,2-Dichloroethane          | 20.0        | 19.0       |               | ug/L |   | 95   | 71 - 135     |
| 1,1-Dichloroethene          | 20.0        | 20.3       |               | ug/L |   | 101  | 65 - 139     |

TestAmerica Canton



# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: LCS 240-353988/4**  
**Matrix: Water**  
**Analysis Batch: 353988**

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

| Analyte                               | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------------------------------------|-------------|------------|---------------|------|---|------|--------------|
| 1,2-Dichloropropane                   | 20.0        | 20.5       |               | ug/L |   | 102  | 78 - 133     |
| Ethylbenzene                          | 20.0        | 20.5       |               | ug/L |   | 102  | 80 - 120     |
| 2-Hexanone                            | 40.0        | 41.0       |               | ug/L |   | 103  | 43 - 148     |
| Isopropylbenzene                      | 20.0        | 21.0       |               | ug/L |   | 105  | 74 - 120     |
| Methyl acetate                        | 40.0        | 42.7       |               | ug/L |   | 107  | 52 - 145     |
| Methylcyclohexane                     | 20.0        | 19.7       |               | ug/L |   | 99   | 60 - 125     |
| Methylene Chloride                    | 20.0        | 18.7       |               | ug/L |   | 94   | 70 - 134     |
| 4-Methyl-2-pentanone (MIBK)           | 40.0        | 40.9       |               | ug/L |   | 102  | 49 - 143     |
| Methyl tert-butyl ether               | 20.0        | 17.8       |               | ug/L |   | 89   | 51 - 133     |
| Styrene                               | 20.0        | 20.8       |               | ug/L |   | 104  | 79 - 120     |
| 1,1,1,2-Tetrachloroethane             | 20.0        | 20.8       |               | ug/L |   | 104  | 65 - 139     |
| Tetrachloroethene                     | 20.0        | 20.6       |               | ug/L |   | 103  | 74 - 130     |
| Toluene                               | 20.0        | 20.2       |               | ug/L |   | 101  | 78 - 129     |
| trans-1,2-Dichloroethene              | 20.0        | 19.7       |               | ug/L |   | 99   | 78 - 133     |
| trans-1,3-Dichloropropene             | 20.0        | 17.6       |               | ug/L |   | 88   | 55 - 128     |
| 1,2,4-Trichlorobenzene                | 20.0        | 20.7       |               | ug/L |   | 103  | 42 - 133     |
| 1,1,1-Trichloroethane                 | 20.0        | 19.8       |               | ug/L |   | 99   | 69 - 134     |
| 1,1,2-Trichloroethane                 | 20.0        | 20.9       |               | ug/L |   | 105  | 78 - 133     |
| Trichloroethene                       | 20.0        | 19.9       |               | ug/L |   | 100  | 76 - 125     |
| Trichlorofluoromethane                | 20.0        | 18.7       |               | ug/L |   | 94   | 51 - 164     |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 20.0        | 21.6       |               | ug/L |   | 108  | 50 - 156     |
| 1,2,4-Trimethylbenzene                | 20.0        | 21.0       |               | ug/L |   | 105  | 74 - 120     |
| 1,3,5-Trimethylbenzene                | 20.0        | 20.9       |               | ug/L |   | 105  | 75 - 121     |
| Vinyl chloride                        | 20.0        | 18.4       |               | ug/L |   | 92   | 58 - 143     |
| Xylenes, Total                        | 40.0        | 41.8       |               | ug/L |   | 105  | 80 - 120     |
| 1,4-Dioxane                           | 400         | 551        |               | ug/L |   | 138  | 10 - 175     |
| Diethyl ether                         | 20.0        | 20.2       |               | ug/L |   | 101  | 70 - 146     |

| Surrogate                    | LCS %Recovery | LCS Qualifier | Limits   |
|------------------------------|---------------|---------------|----------|
| 4-Bromofluorobenzene (Surr)  | 100           |               | 59 - 120 |
| Dibromofluoromethane (Surr)  | 98            |               | 75 - 128 |
| 1,2-Dichloroethane-d4 (Surr) | 98            |               | 70 - 121 |
| Toluene-d8 (Surr)            | 101           |               | 70 - 123 |

**Lab Sample ID: LCSD 240-353988/7**  
**Matrix: Water**  
**Analysis Batch: 353988**

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

| Analyte              | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|----------------------|-------------|-------------|----------------|------|---|------|--------------|-----|-----------|
| Acetone              | 40.0        | 53.5        |                | ug/L |   | 134  | 21 - 162     | 4   | 35        |
| Benzene              | 20.0        | 20.1        |                | ug/L |   | 100  | 80 - 123     | 1   | 35        |
| Bromodichloromethane | 20.0        | 18.9        |                | ug/L |   | 94   | 77 - 125     | 3   | 35        |
| Bromoform            | 20.0        | 19.1        |                | ug/L |   | 96   | 49 - 141     | 1   | 35        |
| Bromomethane         | 20.0        | 18.6        |                | ug/L |   | 93   | 41 - 175     | 0   | 35        |
| 2-Butanone (MEK)     | 40.0        | 45.4        |                | ug/L |   | 114  | 39 - 163     | 4   | 35        |
| Carbon disulfide     | 20.0        | 17.7        |                | ug/L |   | 89   | 60 - 138     | 2   | 35        |
| Carbon tetrachloride | 20.0        | 19.3        |                | ug/L |   | 97   | 63 - 140     | 2   | 35        |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: LCSD 240-353988/7**

**Client Sample ID: Lab Control Sample Dup**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 353988**

| Analyte                               | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---------------------------------------|-------------|-------------|----------------|------|---|------|--------------|-----|-----------|
| Chlorobenzene                         | 20.0        | 19.9        |                | ug/L |   | 99   | 80 - 121     | 1   | 35        |
| Chloroethane                          | 20.0        | 18.9        |                | ug/L |   | 94   | 33 - 173     | 2   | 35        |
| Chloroform                            | 20.0        | 19.9        |                | ug/L |   | 99   | 79 - 127     | 2   | 35        |
| Chloromethane                         | 20.0        | 16.8        |                | ug/L |   | 84   | 54 - 143     | 0   | 35        |
| cis-1,2-Dichloroethene                | 20.0        | 19.9        |                | ug/L |   | 99   | 76 - 128     | 1   | 35        |
| cis-1,3-Dichloropropene               | 20.0        | 19.1        |                | ug/L |   | 95   | 64 - 132     | 2   | 35        |
| Cyclohexane                           | 20.0        | 19.4        |                | ug/L |   | 97   | 58 - 145     | 5   | 35        |
| Dibromochloromethane                  | 20.0        | 19.9        |                | ug/L |   | 100  | 70 - 132     | 0   | 35        |
| 1,2-Dibromo-3-Chloropropane           | 20.0        | 20.5        |                | ug/L |   | 103  | 46 - 132     | 1   | 35        |
| 1,2-Dibromoethane                     | 20.0        | 19.4        |                | ug/L |   | 97   | 77 - 123     | 0   | 35        |
| 1,2-Dichlorobenzene                   | 20.0        | 21.1        |                | ug/L |   | 105  | 78 - 120     | 1   | 35        |
| 1,3-Dichlorobenzene                   | 20.0        | 20.4        |                | ug/L |   | 102  | 78 - 120     | 2   | 35        |
| 1,4-Dichlorobenzene                   | 20.0        | 20.2        |                | ug/L |   | 101  | 78 - 120     | 2   | 35        |
| Dichlorodifluoromethane               | 20.0        | 16.3        |                | ug/L |   | 81   | 29 - 148     | 1   | 35        |
| 1,1-Dichloroethane                    | 20.0        | 19.5        |                | ug/L |   | 98   | 75 - 133     | 1   | 35        |
| 1,2-Dichloroethane                    | 20.0        | 18.7        |                | ug/L |   | 94   | 71 - 135     | 1   | 35        |
| 1,1-Dichloroethene                    | 20.0        | 20.2        |                | ug/L |   | 101  | 65 - 139     | 0   | 35        |
| 1,2-Dichloropropane                   | 20.0        | 19.8        |                | ug/L |   | 99   | 78 - 133     | 4   | 35        |
| Ethylbenzene                          | 20.0        | 20.2        |                | ug/L |   | 101  | 80 - 120     | 2   | 35        |
| 2-Hexanone                            | 40.0        | 39.1        |                | ug/L |   | 98   | 43 - 148     | 5   | 35        |
| Isopropylbenzene                      | 20.0        | 20.9        |                | ug/L |   | 105  | 74 - 120     | 0   | 35        |
| Methyl acetate                        | 40.0        | 42.5        |                | ug/L |   | 106  | 52 - 145     | 0   | 35        |
| Methylcyclohexane                     | 20.0        | 19.3        |                | ug/L |   | 97   | 60 - 125     | 2   | 35        |
| Methylene Chloride                    | 20.0        | 18.8        |                | ug/L |   | 94   | 70 - 134     | 0   | 35        |
| 4-Methyl-2-pentanone (MIBK)           | 40.0        | 38.8        |                | ug/L |   | 97   | 49 - 143     | 5   | 35        |
| Methyl tert-butyl ether               | 20.0        | 17.2        |                | ug/L |   | 86   | 51 - 133     | 4   | 35        |
| Styrene                               | 20.0        | 20.7        |                | ug/L |   | 103  | 79 - 120     | 1   | 35        |
| 1,1,2,2-Tetrachloroethane             | 20.0        | 20.4        |                | ug/L |   | 102  | 65 - 139     | 2   | 35        |
| Tetrachloroethene                     | 20.0        | 20.5        |                | ug/L |   | 103  | 74 - 130     | 0   | 35        |
| Toluene                               | 20.0        | 20.1        |                | ug/L |   | 100  | 78 - 129     | 1   | 35        |
| trans-1,2-Dichloroethene              | 20.0        | 19.4        |                | ug/L |   | 97   | 78 - 133     | 2   | 35        |
| trans-1,3-Dichloropropene             | 20.0        | 17.2        |                | ug/L |   | 86   | 55 - 128     | 2   | 35        |
| 1,2,4-Trichlorobenzene                | 20.0        | 21.4        |                | ug/L |   | 107  | 42 - 133     | 4   | 35        |
| 1,1,1-Trichloroethane                 | 20.0        | 18.4        |                | ug/L |   | 92   | 69 - 134     | 7   | 35        |
| 1,1,2-Trichloroethane                 | 20.0        | 20.8        |                | ug/L |   | 104  | 78 - 133     | 1   | 35        |
| Trichloroethene                       | 20.0        | 19.4        |                | ug/L |   | 97   | 76 - 125     | 3   | 35        |
| Trichlorofluoromethane                | 20.0        | 18.7        |                | ug/L |   | 93   | 51 - 164     | 0   | 35        |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 20.0        | 20.8        |                | ug/L |   | 104  | 50 - 156     | 4   | 35        |
| 1,2,4-Trimethylbenzene                | 20.0        | 20.7        |                | ug/L |   | 104  | 74 - 120     | 1   | 35        |
| 1,3,5-Trimethylbenzene                | 20.0        | 20.5        |                | ug/L |   | 102  | 75 - 121     | 2   | 35        |
| Vinyl chloride                        | 20.0        | 18.4        |                | ug/L |   | 92   | 58 - 143     | 0   | 35        |
| Xylenes, Total                        | 40.0        | 41.3        |                | ug/L |   | 103  | 80 - 120     | 1   | 35        |
| 1,4-Dioxane                           | 400         | 648         |                | ug/L |   | 162  | 10 - 175     | 16  | 35        |
| Diethyl ether                         | 20.0        | 19.7        |                | ug/L |   | 99   | 70 - 146     | 2   | 35        |

| Surrogate                   | LCSD %Recovery | LCSD Qualifier | Limits   |
|-----------------------------|----------------|----------------|----------|
| 4-Bromofluorobenzene (Surr) | 100            |                | 59 - 120 |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: LCSD 240-353988/7**  
**Matrix: Water**  
**Analysis Batch: 353988**

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

| <i>Surrogate</i>                    | <i>LCSD %Recovery</i> | <i>LCSD Qualifier</i> | <i>Limits</i> |
|-------------------------------------|-----------------------|-----------------------|---------------|
| <i>Dibromofluoromethane (Surr)</i>  | 99                    |                       | 75 - 128      |
| <i>1,2-Dichloroethane-d4 (Surr)</i> | 98                    |                       | 70 - 121      |
| <i>Toluene-d8 (Surr)</i>            | 99                    |                       | 70 - 123      |

**Lab Sample ID: 240-103534-E-4 MS**  
**Matrix: Water**  
**Analysis Batch: 353988**

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

| <b>Analyte</b>              | <b>Sample Result</b> | <b>Sample Qualifier</b> | <b>Spike Added</b> | <b>MS Result</b> | <b>MS Qualifier</b> | <b>Unit</b> | <b>D</b> | <b>%Rec</b> | <b>%Rec. Limits</b> |
|-----------------------------|----------------------|-------------------------|--------------------|------------------|---------------------|-------------|----------|-------------|---------------------|
| Acetone                     | 50                   | U                       | 200                | 257              |                     | ug/L        |          | 128         | 10 - 168            |
| Benzene                     | 5.0                  | U                       | 100                | 98.9             |                     | ug/L        |          | 99          | 71 - 122            |
| Bromodichloromethane        | 5.0                  | U                       | 100                | 94.0             |                     | ug/L        |          | 94          | 64 - 125            |
| Bromoform                   | 5.0                  | U                       | 100                | 92.3             |                     | ug/L        |          | 92          | 44 - 129            |
| Bromomethane                | 5.0                  | U                       | 100                | 90.0             |                     | ug/L        |          | 90          | 19 - 187            |
| 2-Butanone (MEK)            | 50                   | U                       | 200                | 219              |                     | ug/L        |          | 110         | 37 - 156            |
| Carbon tetrachloride        | 5.0                  | U                       | 100                | 91.4             |                     | ug/L        |          | 91          | 41 - 143            |
| Chlorobenzene               | 5.0                  | U                       | 100                | 96.1             |                     | ug/L        |          | 96          | 70 - 123            |
| Chloroethane                | 84                   |                         | 100                | 168              |                     | ug/L        |          | 84          | 11 - 189            |
| Chloroform                  | 5.0                  | U                       | 100                | 98.3             |                     | ug/L        |          | 98          | 68 - 130            |
| Chloromethane               | 5.0                  | U                       | 100                | 82.4             |                     | ug/L        |          | 82          | 31 - 154            |
| cis-1,2-Dichloroethene      | 14                   |                         | 100                | 112              |                     | ug/L        |          | 97          | 64 - 130            |
| cis-1,3-Dichloropropene     | 5.0                  | U                       | 100                | 89.5             |                     | ug/L        |          | 90          | 48 - 127            |
| Dibromochloromethane        | 5.0                  | U                       | 100                | 95.4             |                     | ug/L        |          | 95          | 60 - 129            |
| 1,2-Dibromo-3-Chloropropane | 5.0                  | U                       | 100                | 94.8             |                     | ug/L        |          | 95          | 38 - 124            |
| 1,2-Dibromoethane           | 5.0                  | U                       | 100                | 94.8             |                     | ug/L        |          | 95          | 71 - 123            |
| 1,2-Dichlorobenzene         | 5.0                  | U                       | 100                | 100              |                     | ug/L        |          | 100         | 64 - 120            |
| 1,3-Dichlorobenzene         | 5.0                  | U                       | 100                | 95.0             |                     | ug/L        |          | 95          | 62 - 120            |
| 1,4-Dichlorobenzene         | 5.0                  | U                       | 100                | 94.1             |                     | ug/L        |          | 94          | 63 - 120            |
| Dichlorodifluoromethane     | 5.0                  | U                       | 100                | 75.3             |                     | ug/L        |          | 75          | 28 - 136            |
| 1,1-Dichloroethane          | 190                  |                         | 100                | 270              |                     | ug/L        |          | 77          | 63 - 136            |
| 1,2-Dichloroethane          | 1.1                  | J                       | 100                | 93.8             |                     | ug/L        |          | 93          | 65 - 135            |
| 1,1-Dichloroethene          | 5.0                  | U                       | 100                | 99.6             |                     | ug/L        |          | 100         | 53 - 140            |
| 1,2-Dichloropropane         | 5.0                  | U                       | 100                | 97.5             |                     | ug/L        |          | 97          | 70 - 132            |
| Ethylbenzene                | 5.0                  | U                       | 100                | 95.0             |                     | ug/L        |          | 95          | 66 - 120            |
| Isopropylbenzene            | 5.0                  | U                       | 100                | 97.7             |                     | ug/L        |          | 98          | 59 - 120            |
| Methylene Chloride          | 25                   | U                       | 100                | 92.6             |                     | ug/L        |          | 93          | 61 - 130            |
| 4-Methyl-2-pentanone (MIBK) | 50                   | U                       | 200                | 191              |                     | ug/L        |          | 95          | 44 - 143            |
| Methyl tert-butyl ether     | 5.0                  | U                       | 100                | 84.0             |                     | ug/L        |          | 84          | 41 - 136            |
| Styrene                     | 5.0                  | U                       | 100                | 97.4             |                     | ug/L        |          | 97          | 68 - 120            |
| 1,1,2,2-Tetrachloroethane   | 5.0                  | U                       | 100                | 99.0             |                     | ug/L        |          | 99          | 60 - 137            |
| Tetrachloroethene           | 5.0                  | U                       | 100                | 97.2             |                     | ug/L        |          | 97          | 51 - 136            |
| Toluene                     | 5.0                  | U                       | 100                | 97.4             |                     | ug/L        |          | 97          | 62 - 132            |
| trans-1,2-Dichloroethene    | 69                   |                         | 100                | 157              |                     | ug/L        |          | 88          | 68 - 133            |
| trans-1,3-Dichloropropene   | 5.0                  | U                       | 100                | 82.2             |                     | ug/L        |          | 82          | 40 - 125            |
| 1,2,4-Trichlorobenzene      | 5.0                  | U                       | 100                | 95.0             |                     | ug/L        |          | 95          | 30 - 126            |
| 1,1,1-Trichloroethane       | 5.0                  | U                       | 100                | 92.1             |                     | ug/L        |          | 92          | 51 - 138            |
| 1,1,2-Trichloroethane       | 5.0                  | U                       | 100                | 102              |                     | ug/L        |          | 102         | 76 - 132            |
| Trichloroethene             | 1.9                  | J                       | 100                | 96.3             |                     | ug/L        |          | 94          | 55 - 131            |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: 240-103534-E-4 MS**

**Matrix: Water**

**Analysis Batch: 353988**

**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 |
|---------------------------------------|------------------|------------------|---------------|-----------|--------------|------|---|------|--------------|
| Trichlorofluoromethane                | 5.0              | U                | 100           | 89.0      |              | ug/L |   | 89   | 37 - 174     |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 5.0              | U                | 100           | 102       |              | ug/L |   | 102  | 31 - 156     |
| 1,2,4-Trimethylbenzene                | 5.0              | U                | 100           | 96.8      |              | ug/L |   | 97   | 62 - 120     |
| 1,3,5-Trimethylbenzene                | 5.0              | U                | 100           | 96.1      |              | ug/L |   | 96   | 64 - 120     |
| Vinyl chloride                        | 8.5              |                  | 100           | 97.2      |              | ug/L |   | 89   | 43 - 154     |
| Xylenes, Total                        | 10               | U                | 200           | 197       |              | ug/L |   | 99   | 67 - 120     |
| Diethyl ether                         | 10               | U                | 100           | 100       |              | ug/L |   | 100  | 65 - 134     |
| <b>MS MS</b>                          |                  |                  |               |           |              |      |   |      |              |
| <b>Surrogate</b>                      | <b>%Recovery</b> | <b>Qualifier</b> | <b>Limits</b> |           |              |      |   |      |              |
| 4-Bromofluorobenzene (Surr)           | 98               |                  | 59 - 120      |           |              |      |   |      |              |
| Dibromofluoromethane (Surr)           | 98               |                  | 75 - 128      |           |              |      |   |      |              |
| 1,2-Dichloroethane-d4 (Surr)          | 98               |                  | 70 - 121      |           |              |      |   |      |              |
| Toluene-d8 (Surr)                     | 99               |                  | 70 - 123      |           |              |      |   |      |              |

**Lab Sample ID: 240-103534-H-4 MSD**

**Matrix: Water**

**Analysis Batch: 353988**

**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 |
|-----------------------------|---------------|------------------|-------------|------------|---------------|------|---|------|--------------|-----|-----------|
| Acetone                     | 50            | U                | 200         | 262        |               | ug/L |   | 131  | 10 - 168     | 2   | 35        |
| Benzene                     | 5.0           | U                | 100         | 98.8       |               | ug/L |   | 99   | 71 - 122     | 0   | 22        |
| Bromodichloromethane        | 5.0           | U                | 100         | 95.1       |               | ug/L |   | 95   | 64 - 125     | 1   | 27        |
| Bromoform                   | 5.0           | U                | 100         | 94.4       |               | ug/L |   | 94   | 44 - 129     | 2   | 28        |
| Bromomethane                | 5.0           | U                | 100         | 90.1       |               | ug/L |   | 90   | 19 - 187     | 0   | 35        |
| 2-Butanone (MEK)            | 50            | U                | 200         | 225        |               | ug/L |   | 112  | 37 - 156     | 2   | 35        |
| Carbon tetrachloride        | 5.0           | U                | 100         | 92.4       |               | ug/L |   | 92   | 41 - 143     | 1   | 30        |
| Chlorobenzene               | 5.0           | U                | 100         | 97.6       |               | ug/L |   | 98   | 70 - 123     | 1   | 23        |
| Chloroethane                | 84            |                  | 100         | 172        |               | ug/L |   | 89   | 11 - 189     | 3   | 35        |
| Chloroform                  | 5.0           | U                | 100         | 99.3       |               | ug/L |   | 99   | 68 - 130     | 1   | 23        |
| Chloromethane               | 5.0           | U                | 100         | 81.3       |               | ug/L |   | 81   | 31 - 154     | 1   | 35        |
| cis-1,2-Dichloroethene      | 14            |                  | 100         | 114        |               | ug/L |   | 99   | 64 - 130     | 2   | 21        |
| cis-1,3-Dichloropropene     | 5.0           | U                | 100         | 90.9       |               | ug/L |   | 91   | 48 - 127     | 2   | 30        |
| Dibromochloromethane        | 5.0           | U                | 100         | 97.2       |               | ug/L |   | 97   | 60 - 129     | 2   | 26        |
| 1,2-Dibromo-3-Chloropropane | 5.0           | U                | 100         | 100        |               | ug/L |   | 100  | 38 - 124     | 6   | 35        |
| 1,2-Dibromoethane           | 5.0           | U                | 100         | 97.8       |               | ug/L |   | 98   | 71 - 123     | 3   | 27        |
| 1,2-Dichlorobenzene         | 5.0           | U                | 100         | 101        |               | ug/L |   | 101  | 64 - 120     | 1   | 30        |
| 1,3-Dichlorobenzene         | 5.0           | U                | 100         | 96.5       |               | ug/L |   | 96   | 62 - 120     | 2   | 31        |
| 1,4-Dichlorobenzene         | 5.0           | U                | 100         | 96.4       |               | ug/L |   | 96   | 63 - 120     | 2   | 28        |
| Dichlorodifluoromethane     | 5.0           | U                | 100         | 75.5       |               | ug/L |   | 76   | 28 - 136     | 0   | 35        |
| 1,1-Dichloroethane          | 190           |                  | 100         | 282        |               | ug/L |   | 89   | 63 - 136     | 4   | 23        |
| 1,2-Dichloroethane          | 1.1           | J                | 100         | 93.9       |               | ug/L |   | 93   | 65 - 135     | 0   | 24        |
| 1,1-Dichloroethene          | 5.0           | U                | 100         | 99.6       |               | ug/L |   | 100  | 53 - 140     | 0   | 35        |
| 1,2-Dichloropropane         | 5.0           | U                | 100         | 98.5       |               | ug/L |   | 99   | 70 - 132     | 1   | 26        |
| Ethylbenzene                | 5.0           | U                | 100         | 96.5       |               | ug/L |   | 97   | 66 - 120     | 2   | 24        |
| Isopropylbenzene            | 5.0           | U                | 100         | 99.7       |               | ug/L |   | 100  | 59 - 120     | 2   | 31        |
| Methylene Chloride          | 25            | U                | 100         | 94.2       |               | ug/L |   | 94   | 61 - 130     | 2   | 29        |
| 4-Methyl-2-pentanone (MIBK) | 50            | U                | 200         | 201        |               | ug/L |   | 101  | 44 - 143     | 5   | 35        |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: 240-103534-H-4 MSD**

**Matrix: Water**

**Analysis Batch: 353988**

**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 |
|---------------------------------------|---------------|------------------|-------------|------------|---------------|------|---|------|--------------|-----|-----------|
| Methyl tert-butyl ether               | 5.0           | U                | 100         | 84.9       |               | ug/L |   | 85   | 41 - 136     | 1   | 29        |
| Styrene                               | 5.0           | U                | 100         | 98.6       |               | ug/L |   | 99   | 68 - 120     | 1   | 26        |
| 1,1,2,2-Tetrachloroethane             | 5.0           | U                | 100         | 103        |               | ug/L |   | 103  | 60 - 137     | 4   | 31        |
| Tetrachloroethene                     | 5.0           | U                | 100         | 99.7       |               | ug/L |   | 100  | 51 - 136     | 3   | 23        |
| Toluene                               | 5.0           | U                | 100         | 98.2       |               | ug/L |   | 98   | 62 - 132     | 1   | 23        |
| trans-1,2-Dichloroethene              | 69            |                  | 100         | 163        |               | ug/L |   | 93   | 68 - 133     | 4   | 24        |
| trans-1,3-Dichloropropene             | 5.0           | U                | 100         | 83.6       |               | ug/L |   | 84   | 40 - 125     | 2   | 27        |
| 1,2,4-Trichlorobenzene                | 5.0           | U                | 100         | 98.8       |               | ug/L |   | 99   | 30 - 126     | 4   | 35        |
| 1,1,1-Trichloroethane                 | 5.0           | U                | 100         | 94.0       |               | ug/L |   | 94   | 51 - 138     | 2   | 27        |
| 1,1,2-Trichloroethane                 | 5.0           | U                | 100         | 106        |               | ug/L |   | 106  | 76 - 132     | 4   | 25        |
| Trichloroethene                       | 1.9           | J                | 100         | 97.8       |               | ug/L |   | 96   | 55 - 131     | 1   | 23        |
| Trichlorofluoromethane                | 5.0           | U                | 100         | 87.8       |               | ug/L |   | 88   | 37 - 174     | 1   | 35        |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 5.0           | U                | 100         | 101        |               | ug/L |   | 101  | 31 - 156     | 0   | 35        |
| 1,2,4-Trimethylbenzene                | 5.0           | U                | 100         | 98.3       |               | ug/L |   | 98   | 62 - 120     | 2   | 27        |
| 1,3,5-Trimethylbenzene                | 5.0           | U                | 100         | 97.3       |               | ug/L |   | 97   | 64 - 120     | 1   | 23        |
| Vinyl chloride                        | 8.5           |                  | 100         | 97.8       |               | ug/L |   | 89   | 43 - 154     | 1   | 29        |
| Xylenes, Total                        | 10            | U                | 200         | 200        |               | ug/L |   | 100  | 67 - 120     | 1   | 25        |
| Diethyl ether                         | 10            | U                | 100         | 100        |               | ug/L |   | 100  | 65 - 134     | 0   | 33        |

| Surrogate                    | MSD %Recovery | MSD Qualifier | Limits   |
|------------------------------|---------------|---------------|----------|
| 4-Bromofluorobenzene (Surr)  | 97            |               | 59 - 120 |
| Dibromofluoromethane (Surr)  | 98            |               | 75 - 128 |
| 1,2-Dichloroethane-d4 (Surr) | 98            |               | 70 - 121 |
| Toluene-d8 (Surr)            | 99            |               | 70 - 123 |

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

**Lab Sample ID: MB 240-353689/5**

**Matrix: Water**

**Analysis Batch: 353689**

**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 |   |          | 11/05/18 13:37 | 1       |

| Surrogate                    | MB %Recovery | MB Qualifier | Limits   | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------------|--------------|----------|----------|----------------|---------|
| 1,2-Dichloroethane-d4 (Surr) | 106          |              | 63 - 125 |          | 11/05/18 13:37 | 1       |

**Lab Sample ID: LCS 240-353689/4**

**Matrix: Water**

**Analysis Batch: 353689**

**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        | 11.3       |               | ug/L |   | 113  | 59 - 131     |

| Surrogate                    | LCS %Recovery | LCS Qualifier | Limits   |
|------------------------------|---------------|---------------|----------|
| 1,2-Dichloroethane-d4 (Surr) | 103           |               | 63 - 125 |

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-103536-1

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

**Lab Sample ID: 240-103550-C-6 MS**

**Matrix: Water**

**Analysis Batch: 353689**

**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                  | 4.3              | F2               | 10.0          | 16.4      |              | ug/L |   | 121  | 52 - 129     |
| <b>MS MS</b>                 |                  |                  |               |           |              |      |   |      |              |
| <b>Surrogate</b>             | <b>%Recovery</b> | <b>Qualifier</b> | <b>Limits</b> |           |              |      |   |      |              |
| 1,2-Dichloroethane-d4 (Surr) | 109              |                  | 63 - 125      |           |              |      |   |      |              |

**Lab Sample ID: 240-103550-C-6 MSD**

**Matrix: Water**

**Analysis Batch: 353689**

**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                  | 4.3              | F2               | 10.0          | 13.4       | F2            | ug/L |   | 91   | 52 - 129     | 20  | 13        |
| <b>MSD MSD</b>               |                  |                  |               |            |               |      |   |      |              |     |           |
| <b>Surrogate</b>             | <b>%Recovery</b> | <b>Qualifier</b> | <b>Limits</b> |            |               |      |   |      |              |     |           |
| 1,2-Dichloroethane-d4 (Surr) | 108              |                  | 63 - 125      |            |               |      |   |      |              |     |           |

# QC Association Summary

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

TestAmerica Job ID: 240-103536-1

## GC/MS VOA

### Analysis Batch: 353689

| Lab Sample ID      | Client Sample ID       | Prep Type | Matrix | Method    | Prep Batch |
|--------------------|------------------------|-----------|--------|-----------|------------|
| 240-103536-1       | MW-4_102618            | Total/NA  | Water  | 8260B SIM |            |
| 240-103536-2       | MW-2_102618            | Total/NA  | Water  | 8260B SIM |            |
| 240-103536-3       | MW-5_102618            | Total/NA  | Water  | 8260B SIM |            |
| 240-103536-4       | MW-3_102618            | Total/NA  | Water  | 8260B SIM |            |
| MB 240-353689/5    | Method Blank           | Total/NA  | Water  | 8260B SIM |            |
| LCS 240-353689/4   | Lab Control Sample     | Total/NA  | Water  | 8260B SIM |            |
| 240-103550-C-6 MS  | Matrix Spike           | Total/NA  | Water  | 8260B SIM |            |
| 240-103550-C-6 MSD | Matrix Spike Duplicate | Total/NA  | Water  | 8260B SIM |            |

### Analysis Batch: 353754

| Lab Sample ID      | Client Sample ID       | Prep Type | Matrix | Method | Prep Batch |
|--------------------|------------------------|-----------|--------|--------|------------|
| 240-103536-3       | MW-5_102618            | Total/NA  | Water  | 8260B  |            |
| 240-103536-4       | MW-3_102618            | Total/NA  | Water  | 8260B  |            |
| MB 240-353754/6    | Method Blank           | Total/NA  | Water  | 8260B  |            |
| LCS 240-353754/4   | Lab Control Sample     | Total/NA  | Water  | 8260B  |            |
| 240-103534-A-4 MS  | Matrix Spike           | Total/NA  | Water  | 8260B  |            |
| 240-103534-D-4 MSD | Matrix Spike Duplicate | Total/NA  | Water  | 8260B  |            |

### Analysis Batch: 353988

| Lab Sample ID      | Client Sample ID       | Prep Type | Matrix | Method | Prep Batch |
|--------------------|------------------------|-----------|--------|--------|------------|
| 240-103536-1       | MW-4_102618            | Total/NA  | Water  | 8260B  |            |
| 240-103536-2       | MW-2_102618            | Total/NA  | Water  | 8260B  |            |
| MB 240-353988/6    | Method Blank           | Total/NA  | Water  | 8260B  |            |
| LCS 240-353988/4   | Lab Control Sample     | Total/NA  | Water  | 8260B  |            |
| LCSD 240-353988/7  | Lab Control Sample Dup | Total/NA  | Water  | 8260B  |            |
| 240-103534-E-4 MS  | Matrix Spike           | Total/NA  | Water  | 8260B  |            |
| 240-103534-H-4 MSD | Matrix Spike Duplicate | Total/NA  | Water  | 8260B  |            |

# Lab Chronicle

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

TestAmerica Job ID: 240-103536-1

**Client Sample ID: MW-4\_102618**

**Date Collected: 10/26/18 10:47**

**Date Received: 10/30/18 10:50**

**Lab Sample ID: 240-103536-1**

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA  | Analysis   | 8260B        |     | 500             | 353988       | 11/07/18 00:17       | TJL1    | TAL CAN |
| Total/NA  | Analysis   | 8260B SIM    |     | 100             | 353689       | 11/05/18 20:02       | SAM     | TAL CAN |

**Client Sample ID: MW-2\_102618**

**Date Collected: 10/26/18 11:56**

**Date Received: 10/30/18 10:50**

**Lab Sample ID: 240-103536-2**

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA  | Analysis   | 8260B        |     | 50              | 353988       | 11/07/18 00:39       | TJL1    | TAL CAN |
| Total/NA  | Analysis   | 8260B SIM    |     | 1               | 353689       | 11/05/18 20:27       | SAM     | TAL CAN |

**Client Sample ID: MW-5\_102618**

**Date Collected: 10/26/18 14:27**

**Date Received: 10/30/18 10:50**

**Lab Sample ID: 240-103536-3**

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA  | Analysis   | 8260B        |     | 1               | 353754       | 11/06/18 02:29       | TJL1    | TAL CAN |
| Total/NA  | Analysis   | 8260B SIM    |     | 1               | 353689       | 11/05/18 20:53       | SAM     | TAL CAN |

**Client Sample ID: MW-3\_102618**

**Date Collected: 10/26/18 15:27**

**Date Received: 10/30/18 10:50**

**Lab Sample ID: 240-103536-4**

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA  | Analysis   | 8260B        |     | 1               | 353754       | 11/06/18 02:51       | TJL1    | TAL CAN |
| Total/NA  | Analysis   | 8260B SIM    |     | 1               | 353689       | 11/05/18 21:19       | 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: 240-103536-1

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                | 06-30-19        |
| Illinois              | NELAP         | 5          | 200004                | 07-31-19        |
| 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                  | 07-31-19        |
| 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                  | 02-23-19        |
| Pennsylvania          | NELAP         | 3          | 68-00340              | 08-31-19 *      |
| Texas                 | NELAP         | 6          | T104704517-17-9       | 08-31-19        |
| USDA                  | Federal       |            | P330-16-00404         | 12-28-19        |
| Virginia              | NELAP         | 3          | 460175                | 09-14-19        |
| Washington            | State Program | 10         | C971                  | 01-12-19        |
| West Virginia DEP     | State Program | 3          | 210                   | 12-31-18 *      |

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

TestAmerica Canton

Regulatory Program:  DW  NPDES  RCRA  Other:

Project Manager: **Kris HINSKEY**  
Tel/Fax: **269-579-5402**

Company Name: **ARCADIS**  
Address: **38550 CABOT DR #5ND**  
City/State/Zip: **NOVI MI 48377**  
Phone: **248-994-3240**  
Fax: **248-994-3241**  
Project Name: **FORD LTP**  
Site: **MI001454 0004.0000 1**  
P.O.#: **678**

Client Contact: \_\_\_\_\_  
Date: \_\_\_\_\_  
Carrier: \_\_\_\_\_

COC No: **272845**  
1 of 1 COCs

Sampler: \_\_\_\_\_  
For Lab Use Only: \_\_\_\_\_  
Walk-in Client: \_\_\_\_\_  
Lab Sampling: \_\_\_\_\_  
Job / SDG No.: \_\_\_\_\_

Sample Specific Notes: \_\_\_\_\_

| Sample Identification | Sample Date | Sample Time | Sample Type (C=Comp, G=Grab) | Matrix | # of Cont. | Filtered Sample (Y/N) | Perform MS / MSD (Y/N) | Sample Specific Notes |
|-----------------------|-------------|-------------|------------------------------|--------|------------|-----------------------|------------------------|-----------------------|
| MW-4-102618           | 10/26/18    | 1047        | G                            | GW     | 6          |                       |                        |                       |
| MW-2-102618           | ↓           | 1156        | ↓                            | ↓      | ↓          |                       |                        |                       |
| MW-5-102618           | ↓           | 1427        | ↓                            | ↓      | ↓          |                       |                        |                       |
| MW-3-102618           | ↓           | 1527        | ↓                            | ↓      | ↓          |                       |                        |                       |

240-103536 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: \_\_\_\_\_  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments: \_\_\_\_\_

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

| Relinquished by:  | Date/Time:     | Relinquished by:  | Date/Time:     | Relinquished by: | Date/Time:     |
|-------------------|----------------|-------------------|----------------|------------------|----------------|
| RACHEL STERN      | 10/24/18 1715  | NOVI COLD STORAGE | 10/29/18 14:45 | ARCADIS          | 10/30/18 1050  |
| NOVI COLD STORAGE | 10/29/18 14:45 | ARCADIS           | 10/29/18 14:45 | ARCADIS          | 10/29/18 14:45 |

Company: ARCADIS  
Company: ARCADIS  
Company: ARCADIS

Received by: \_\_\_\_\_  
Received by: \_\_\_\_\_  
Received in Laboratory by: \_\_\_\_\_

Company: ARCADIS  
Company: ARCADIS  
Company: ARCADIS

Date/Time: 10/24/18 1715  
Date/Time: 10/29/18 14:45  
Date/Time: 10/29/18 14:45

Therm ID No.: \_\_\_\_\_  
Cooler Temp. (°C): Obs'd: \_\_\_\_\_  
Cord: \_\_\_\_\_



TestAmerica Canton Sample Receipt Form/Narrative  
Canton Facility

Login # : 163536

Client ARCADIS Site Name \_\_\_\_\_

Cooler unpacked by:  
Pop

Cooler Received on 10-30-18 Opened on 10-30-18

FedEx: 1<sup>st</sup>  Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # TA 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 +0.9 °C) Observed Cooler Temp. 3.6 °C Corrected Cooler Temp. 4.5 °C  
IR GUN #36 (CF +0.6 °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# HC849161

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:  
Pop

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