

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

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Tel: (330)497-9396

TestAmerica Job ID: 240-87815-1

Client Project/Site: Ford LTP Livonia MI

For:

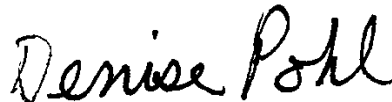
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11/30/2017 6:36:37 AM

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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

TestAmerica Job ID: 240-87815-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
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.
X	Surrogate is outside control limits
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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

TestAmerica Job ID: 240-87815-1

**Job ID: 240-87815-1**

**Laboratory: TestAmerica Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP Livonia MI**

**Report Number: 240-87815-1**

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

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

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

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

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

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

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

### **RECEIPT**

The samples were received on 11/10/2017 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.2° C, 2.0° C and 2.8° C.

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

Samples MW-75S\_11082017 (240-87815-1), MW-75D\_11082017 (240-87815-2), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5), MW-82D\_11082017 (240-87815-6), MW-79S\_11092017 (240-87815-7), MW-79D\_11092017 (240-87815-8) and TRIP BLANK (240-87815-9) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/19/2017 and 11/20/2017.

4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria low for MW-75D\_11082017 (240-87815-2). Refer to the QC report for details.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane and Chloroethane failed the recovery criteria high for LCS 240-304202/4.

1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane and Diethyl ether failed the recovery criteria high for LCS 240-304206/4. Chloroethane failed the recovery criteria high for LCS 240-304282/4. Chloroethane failed the recovery criteria high for LCSD 240-304202/9. 1,4-Dioxane exceeded the RPD limit. For LCSD 240-304206/7, 1,4-Dioxane failed the recovery criteria low. Diethyl ether failed the recovery criteria high. Also, 1,4-Dioxane and Acetone exceeded the RPD limit. Refer to the QC report for details.

# Case Narrative

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

TestAmerica Job ID: 240-87815-1

## Job ID: 240-87815-1 (Continued)

### Laboratory: TestAmerica Canton (Continued)

Bromomethane, Chloroethane and Vinyl chloride failed the recovery criteria high for the MS of sample 240-87764-5 in batch 240-304282. Bromomethane, Chloroethane and Vinyl chloride failed the recovery criteria high for the MSD of sample 240-87764-5 in batch 240-304282. 2-Hexanone exceeded the RPD limit. 2-Butanone (MEK) exceeded the RPD limit for the MSD of sample 240-87765-3 in batch 240-304202. Refer to the QC report for details.

Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 304202 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-75S\_11082017 (240-87815-1), MW-75D\_11082017 (240-87815-2), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5), MW-82D\_11082017 (240-87815-6), MW-79S\_11092017 (240-87815-7) and MW-79D\_11092017 (240-87815-8).

Method(s) 8260B: The laboratory control sample (LCS) for 304202 recovered outside control limits for several analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. MW-75S\_11082017 (240-87815-1), MW-75D\_11082017 (240-87815-2), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5), MW-82D\_11082017 (240-87815-6), MW-79S\_11092017 (240-87815-7), MW-79D\_11092017 (240-87815-8) and (LCSD 240-304202/9)

Method(s) 8260B: The laboratory control sample (LCS) for 304206 recovered outside control limits for multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. TRIP BLANK (240-87815-9), (LCS 240-304206/4) and (LCSD 240-304206/7)

Method(s) 8260B: Surrogate recovery for the following sample was outside of acceptance limits: MW-75D\_11082017 (240-87815-2). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

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-75S\_11082017 (240-87815-1), MW-75D\_11082017 (240-87815-2), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5), MW-82D\_11082017 (240-87815-6), MW-79S\_11092017 (240-87815-7) and MW-79D\_11092017 (240-87815-8) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/15/2017.

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

### DISSOLVED GASES

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for dissolved gases in accordance with RSK\_175. The samples were analyzed on 11/17/2017 and 11/19/2017.

Method(s) RSK-175: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-304185.

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

### DISSOLVED METALS (ICPMS)

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for dissolved metals (ICPMS) in accordance with EPA SW-846 Method 6020. The samples were prepared on 11/13/2017 and analyzed on 11/14/2017.

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

### TOTAL RECOVERABLE METALS (ICPMS)

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for total recoverable metals (ICPMS) in accordance with EPA

# Case Narrative

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

TestAmerica Job ID: 240-87815-1

## Job ID: 240-87815-1 (Continued)

### Laboratory: TestAmerica Canton (Continued)

SW-846 Method 6020. The samples were prepared on 11/13/2017 and analyzed on 11/14/2017.

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

### **TOTAL ORGANIC CARBON**

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for total organic carbon in accordance with SM 5310. The samples were analyzed on 11/15/2017.

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

### **ANIONS**

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for anions in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 11/10/2017.

Sample MW-76\_11082017 (240-87815-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method(s) 300.0, 9056A: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3) and MW-82S\_11082017 (240-87815-5).

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

### **ANIONS**

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for anions in accordance with EPA SW-846 Method 9056A. The samples were analyzed on 11/10/2017.

Samples MW-76\_11082017 (240-87815-3)[5X] and MW-82S\_11082017 (240-87815-5)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

### **DISSOLVED ORGANIC CARBON**

Samples MW-75S\_11082017 (240-87815-1), MW-76\_11082017 (240-87815-3), MW-80S\_11082017 (240-87815-4), MW-82S\_11082017 (240-87815-5) and MW-79S\_11092017 (240-87815-7) were analyzed for dissolved organic carbon in accordance with SM 5310\_DOC\_C. The samples were analyzed on 11/16/2017.

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

# Method Summary

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

TestAmerica Job ID: 240-87815-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
6020	Metals (ICP/MS)	SW846	TAL CAN
5310 C-2000	Organic Carbon, Dissolved (DOC)	SM	TAL CAN
5310C-2000	Total Organic Carbon/Persulfate - Ultrav	SM	TAL CAN
9056A	Anions, Ion Chromatography	SW846	TAL CAN

#### Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab  
SM = "Standard Methods For The Examination Of Water And Wastewater",  
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

TestAmerica Job ID: 240-87815-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-87815-1	MW-75S_11082017	Water	11/08/17 09:15	11/10/17 14:15
240-87815-2	MW-75D_11082017	Water	11/08/17 10:45	11/10/17 14:15
240-87815-3	MW-76_11082017	Water	11/08/17 11:45	11/10/17 14:15
240-87815-4	MW-80S_11082017	Water	11/08/17 13:55	11/10/17 14:15
240-87815-5	MW-82S_11082017	Water	11/08/17 15:30	11/10/17 14:15
240-87815-6	MW-82D_11082017	Water	11/08/17 16:30	11/10/17 14:15
240-87815-7	MW-79S_11092017	Water	11/09/17 09:00	11/10/17 14:15
240-87815-8	MW-79D_11092017	Water	11/09/17 10:00	11/10/17 14:15
240-87815-9	TRIP BLANK	Water	11/09/17 00:00	11/10/17 14:15





# Detection Summary

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

TestAmerica Job ID: 240-87815-1

## Client Sample ID: MW-75S\_11082017

## Lab Sample ID: 240-87815-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	3200		1.0	0.17	ug/L	1		RSK-175	Total/NA
Ethane	0.95	J	1.0	0.10	ug/L	1		RSK-175	Total/NA
Iron	350		100	47	ug/L	1		6020	Total Recoverable
Manganese	42		5.0	2.1	ug/L	1		6020	Total Recoverable
Iron	330		100	47	ug/L	1		6020	Dissolved
Manganese	42		5.0	2.1	ug/L	1		6020	Dissolved
Total Organic Carbon	13		1.0	0.14	mg/L	1		5310C-2000	Total/NA
Nitrate as N	8.0	H	0.10	0.014	mg/L	1		9056A	Total/NA
Sulfate	110		1.0	0.35	mg/L	1		9056A	Total/NA
Dissolved Organic Carbon	13		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 1	13		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 2	13		1.0	0.14	mg/L	1		5310 C-2000	Dissolved

## Client Sample ID: MW-75D\_11082017

## Lab Sample ID: 240-87815-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.8	J	2.0	0.24	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	4.9		1.0	0.45	ug/L	1		8260B	Total/NA

## Client Sample ID: MW-76\_11082017

## Lab Sample ID: 240-87815-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	4.0		1.0	0.30	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.49	J	1.0	0.29	ug/L	1		8260B	Total/NA
Methane	1.5		1.0	0.17	ug/L	1		RSK-175	Total/NA
Iron	280		100	47	ug/L	1		6020	Total Recoverable
Manganese	770		5.0	2.1	ug/L	1		6020	Total Recoverable
Iron	270		100	47	ug/L	1		6020	Dissolved
Manganese	760		5.0	2.1	ug/L	1		6020	Dissolved
Total Organic Carbon	1.3		1.0	0.14	mg/L	1		5310C-2000	Total/NA
Nitrate as N	3.3	H	0.50	0.070	mg/L	5		9056A	Total/NA
Sulfate	160		5.0	1.7	mg/L	5		9056A	Total/NA
Dissolved Organic Carbon	4.1		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 1	4.1		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 2	4.1		1.0	0.14	mg/L	1		5310 C-2000	Dissolved

## Client Sample ID: MW-80S\_11082017

## Lab Sample ID: 240-87815-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.55	J	2.0	0.24	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	7.6		1.0	0.45	ug/L	1		8260B	Total/NA
Methane	55		1.0	0.17	ug/L	1		RSK-175	Total/NA
Iron	3600		100	47	ug/L	1		6020	Total Recoverable
Manganese	230		5.0	2.1	ug/L	1		6020	Total Recoverable
Iron	3600		100	47	ug/L	1		6020	Dissolved
Manganese	230		5.0	2.1	ug/L	1		6020	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

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

TestAmerica Job ID: 240-87815-1

## Client Sample ID: MW-80S\_11082017 (Continued)

Lab Sample ID: 240-87815-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	5.2		1.0	0.14	mg/L	1		5310C-2000	Total/NA
Sulfate	110		1.0	0.35	mg/L	1		9056A	Total/NA
Dissolved Organic Carbon	5.7		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 1	5.7		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 2	5.6		1.0	0.14	mg/L	1		5310 C-2000	Dissolved

## Client Sample ID: MW-82S\_11082017

Lab Sample ID: 240-87815-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	10		1.0	0.17	ug/L	1		RSK-175	Total/NA
Iron	720		100	47	ug/L	1		6020	Total Recoverable
Manganese	380		5.0	2.1	ug/L	1		6020	Total Recoverable
Iron	710		100	47	ug/L	1		6020	Dissolved
Manganese	390		5.0	2.1	ug/L	1		6020	Dissolved
Total Organic Carbon	2.2		1.0	0.14	mg/L	1		5310C-2000	Total/NA
Sulfate	270		5.0	1.7	mg/L	5		9056A	Total/NA
Dissolved Organic Carbon	4.8		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 1	4.8		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 2	4.8		1.0	0.14	mg/L	1		5310 C-2000	Dissolved

## Client Sample ID: MW-82D\_11082017

Lab Sample ID: 240-87815-6

No Detections.

## Client Sample ID: MW-79S\_11092017

Lab Sample ID: 240-87815-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	6.6		1.0	0.17	ug/L	1		RSK-175	Total/NA
Iron	2900		100	47	ug/L	1		6020	Total Recoverable
Manganese	200		5.0	2.1	ug/L	1		6020	Total Recoverable
Iron	2500		100	47	ug/L	1		6020	Dissolved
Manganese	200		5.0	2.1	ug/L	1		6020	Dissolved
Total Organic Carbon	4.4		1.0	0.14	mg/L	1		5310C-2000	Total/NA
Sulfate	69		1.0	0.35	mg/L	1		9056A	Total/NA
Dissolved Organic Carbon	4.9		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 1	4.9		1.0	0.14	mg/L	1		5310 C-2000	Dissolved
DOC Result 2	4.9		1.0	0.14	mg/L	1		5310 C-2000	Dissolved

## Client Sample ID: MW-79D\_11092017

Lab Sample ID: 240-87815-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	3.6		1.0	0.45	ug/L	1		8260B	Total/NA

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-87815-9

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-75S\_11082017**

**Lab Sample ID: 240-87815-1**

**Date Collected: 11/08/17 09:15**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 17:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		63 - 125					11/15/17 17:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 20:29	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 20:29	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 20:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 20:29	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 20:29	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 20:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		69 - 120					11/19/17 20:29	1
Dibromofluoromethane (Surr)	106		69 - 124					11/19/17 20:29	1
1,2-Dichloroethane-d4 (Surr)	107		61 - 138					11/19/17 20:29	1
Toluene-d8 (Surr)	106		73 - 120					11/19/17 20:29	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	3200		1.0	0.17	ug/L			11/17/17 18:44	1
Ethane	0.95	J	1.0	0.10	ug/L			11/17/17 18:44	1
Ethene	1.0	U	1.0	0.11	ug/L			11/17/17 18:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	82		60 - 140					11/17/17 18:44	1

### Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	350		100	47	ug/L		11/13/17 14:00	11/14/17 21:49	1
Manganese	42		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 21:49	1

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	330		100	47	ug/L		11/13/17 14:00	11/14/17 21:53	1
Manganese	42		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 21:53	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	13		1.0	0.14	mg/L			11/15/17 14:44	1
Nitrate as N	8.0	H	0.10	0.014	mg/L			11/10/17 18:37	1
Sulfate	110		1.0	0.35	mg/L			11/10/17 18:37	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	13		1.0	0.14	mg/L			11/16/17 10:16	1
DOC Result 1	13		1.0	0.14	mg/L			11/16/17 10:16	1
DOC Result 2	13		1.0	0.14	mg/L			11/16/17 10:16	1

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-75D\_11082017**

**Lab Sample ID: 240-87815-2**

**Date Collected: 11/08/17 10:45**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.8	J	2.0	0.24	ug/L			11/15/17 18:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		63 - 125					11/15/17 18:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 20:52	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 20:52	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 20:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 20:52	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 20:52	1
Vinyl chloride	4.9		1.0	0.45	ug/L			11/20/17 14:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		69 - 120					11/19/17 20:52	1
4-Bromofluorobenzene (Surr)	68	X	69 - 120					11/20/17 14:48	1
Dibromofluoromethane (Surr)	100		69 - 124					11/19/17 20:52	1
Dibromofluoromethane (Surr)	99		69 - 124					11/20/17 14:48	1
1,2-Dichloroethane-d4 (Surr)	98		61 - 138					11/19/17 20:52	1
1,2-Dichloroethane-d4 (Surr)	92		61 - 138					11/20/17 14:48	1
Toluene-d8 (Surr)	104		73 - 120					11/19/17 20:52	1
Toluene-d8 (Surr)	96		73 - 120					11/20/17 14:48	1

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-76\_11082017**

**Lab Sample ID: 240-87815-3**

**Date Collected: 11/08/17 11:45**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 18:46	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	84		63 - 125					11/15/17 18:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>cis-1,2-Dichloroethene</b>	<b>4.0</b>		1.0	0.30	ug/L			11/19/17 21:14	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 21:14	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 21:14	1
<b>trans-1,2-Dichloroethene</b>	<b>0.49</b>	<b>J</b>	1.0	0.29	ug/L			11/19/17 21:14	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 21:14	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 21:14	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)	78		69 - 120					11/19/17 21:14	1
Dibromofluoromethane (Surr)	103		69 - 124					11/19/17 21:14	1
1,2-Dichloroethane-d4 (Surr)	103		61 - 138					11/19/17 21:14	1
Toluene-d8 (Surr)	104		73 - 120					11/19/17 21:14	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>1.5</b>		1.0	0.17	ug/L			11/19/17 12:38	1
Ethane	1.0	U	1.0	0.10	ug/L			11/19/17 12:38	1
Ethene	1.0	U	1.0	0.11	ug/L			11/19/17 12:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,1,1-Trifluoroethane	84		60 - 140					11/19/17 12:38	1

### Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Iron</b>	<b>280</b>		100	47	ug/L		11/13/17 14:00	11/14/17 21:58	1
<b>Manganese</b>	<b>770</b>		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 21:58	1

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Iron</b>	<b>270</b>		100	47	ug/L		11/13/17 14:00	11/14/17 22:02	1
<b>Manganese</b>	<b>760</b>		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:02	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>1.3</b>		1.0	0.14	mg/L			11/15/17 15:00	1
<b>Nitrate as N</b>	<b>3.3</b>	<b>H</b>	0.50	0.070	mg/L			11/10/17 20:00	5
<b>Sulfate</b>	<b>160</b>		5.0	1.7	mg/L			11/10/17 20:00	5

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>4.1</b>		1.0	0.14	mg/L			11/16/17 10:32	1
<b>DOC Result 1</b>	<b>4.1</b>		1.0	0.14	mg/L			11/16/17 10:32	1
<b>DOC Result 2</b>	<b>4.1</b>		1.0	0.14	mg/L			11/16/17 10:32	1

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-80S\_11082017**

**Lab Sample ID: 240-87815-4**

**Date Collected: 11/08/17 13:55**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>1,4-Dioxane</b>	<b>0.55</b>	<b>J</b>	2.0	0.24	ug/L			11/15/17 19:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		63 - 125					11/15/17 19:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 21:36	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 21:36	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 21:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 21:36	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 21:36	1
<b>Vinyl chloride</b>	<b>7.6</b>		1.0	0.45	ug/L			11/20/17 15:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		69 - 120					11/19/17 21:36	1
4-Bromofluorobenzene (Surr)	73		69 - 120					11/20/17 15:10	1
Dibromofluoromethane (Surr)	99		69 - 124					11/19/17 21:36	1
Dibromofluoromethane (Surr)	102		69 - 124					11/20/17 15:10	1
1,2-Dichloroethane-d4 (Surr)	99		61 - 138					11/19/17 21:36	1
1,2-Dichloroethane-d4 (Surr)	99		61 - 138					11/20/17 15:10	1
Toluene-d8 (Surr)	101		73 - 120					11/19/17 21:36	1
Toluene-d8 (Surr)	100		73 - 120					11/20/17 15:10	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>55</b>		1.0	0.17	ug/L			11/19/17 12:55	1
Ethane	1.0	U	1.0	0.10	ug/L			11/19/17 12:55	1
Ethene	1.0	U	1.0	0.11	ug/L			11/19/17 12:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	82		60 - 140					11/19/17 12:55	1

### Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Iron</b>	<b>3600</b>		100	47	ug/L		11/13/17 14:00	11/14/17 22:07	1
<b>Manganese</b>	<b>230</b>		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:07	1

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Iron</b>	<b>3600</b>		100	47	ug/L		11/13/17 14:00	11/14/17 22:11	1
<b>Manganese</b>	<b>230</b>		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:11	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>5.2</b>		1.0	0.14	mg/L			11/15/17 12:11	1
Nitrate as N	0.10	U	0.10	0.014	mg/L			11/10/17 13:46	1
<b>Sulfate</b>	<b>110</b>		1.0	0.35	mg/L			11/10/17 13:46	1

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-80S\_11082017**

**Lab Sample ID: 240-87815-4**

**Date Collected: 11/08/17 13:55**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

## General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.7		1.0	0.14	mg/L			11/16/17 10:49	1
DOC Result 1	5.7		1.0	0.14	mg/L			11/16/17 10:49	1
DOC Result 2	5.6		1.0	0.14	mg/L			11/16/17 10:49	1

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

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-82S\_11082017**

**Lab Sample ID: 240-87815-5**

**Date Collected: 11/08/17 15:30**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125					11/15/17 19:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 21:59	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 21:59	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 21:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 21:59	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 21:59	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 21:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		69 - 120					11/19/17 21:59	1
Dibromofluoromethane (Surr)	104		69 - 124					11/19/17 21:59	1
1,2-Dichloroethane-d4 (Surr)	103		61 - 138					11/19/17 21:59	1
Toluene-d8 (Surr)	104		73 - 120					11/19/17 21:59	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	10		1.0	0.17	ug/L			11/19/17 13:12	1
Ethane	1.0	U	1.0	0.10	ug/L			11/19/17 13:12	1
Ethene	1.0	U	1.0	0.11	ug/L			11/19/17 13:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	81		60 - 140					11/19/17 13:12	1

### Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	720		100	47	ug/L		11/13/17 14:00	11/14/17 22:16	1
Manganese	380		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:16	1

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	710		100	47	ug/L		11/13/17 14:00	11/14/17 22:20	1
Manganese	390		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:20	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.2		1.0	0.14	mg/L			11/15/17 15:16	1
Nitrate as N	0.10	U H	0.10	0.014	mg/L			11/10/17 17:56	1
Sulfate	270		5.0	1.7	mg/L			11/10/17 18:16	5

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.8		1.0	0.14	mg/L			11/16/17 11:04	1
DOC Result 1	4.8		1.0	0.14	mg/L			11/16/17 11:04	1
DOC Result 2	4.8		1.0	0.14	mg/L			11/16/17 11:04	1

TestAmerica Canton



# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-82D\_11082017**

**Lab Sample ID: 240-87815-6**

**Date Collected: 11/08/17 16:30**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 20:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		63 - 125					11/15/17 20:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 22:22	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 22:22	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 22:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 22:22	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 22:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 22:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		69 - 120					11/19/17 22:22	1
Dibromofluoromethane (Surr)	107		69 - 124					11/19/17 22:22	1
1,2-Dichloroethane-d4 (Surr)	105		61 - 138					11/19/17 22:22	1
Toluene-d8 (Surr)	105		73 - 120					11/19/17 22:22	1

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-79S\_11092017**

**Lab Sample ID: 240-87815-7**

**Date Collected: 11/09/17 09:00**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 20:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	87		63 - 125					11/15/17 20:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 22:45	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 22:45	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 22:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 22:45	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 22:45	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 22:45	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)	75		69 - 120					11/19/17 22:45	1
Dibromofluoromethane (Surr)	105		69 - 124					11/19/17 22:45	1
1,2-Dichloroethane-d4 (Surr)	103		61 - 138					11/19/17 22:45	1
Toluene-d8 (Surr)	100		73 - 120					11/19/17 22:45	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>6.6</b>		1.0	0.17	ug/L			11/19/17 13:29	1
Ethane	1.0	U	1.0	0.10	ug/L			11/19/17 13:29	1
Ethene	1.0	U	1.0	0.11	ug/L			11/19/17 13:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,1,1-Trifluoroethane	81		60 - 140					11/19/17 13:29	1

### Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Iron</b>	<b>2900</b>		100	47	ug/L		11/13/17 14:00	11/14/17 22:25	1
<b>Manganese</b>	<b>200</b>		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:25	1

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Iron</b>	<b>2500</b>		100	47	ug/L		11/13/17 14:00	11/14/17 22:29	1
<b>Manganese</b>	<b>200</b>		5.0	2.1	ug/L		11/13/17 14:00	11/14/17 22:29	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Organic Carbon</b>	<b>4.4</b>		1.0	0.14	mg/L			11/15/17 15:31	1
Nitrate as N	0.10	U	0.10	0.014	mg/L			11/10/17 14:07	1
<b>Sulfate</b>	<b>69</b>		1.0	0.35	mg/L			11/10/17 14:07	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Dissolved Organic Carbon</b>	<b>4.9</b>		1.0	0.14	mg/L			11/16/17 11:49	1
<b>DOC Result 1</b>	<b>4.9</b>		1.0	0.14	mg/L			11/16/17 11:49	1
<b>DOC Result 2</b>	<b>4.9</b>		1.0	0.14	mg/L			11/16/17 11:49	1

TestAmerica Canton

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-79D\_11092017**

**Lab Sample ID: 240-87815-8**

**Date Collected: 11/09/17 10:00**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 20:51	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	87		63 - 125					11/15/17 20:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 23:07	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 23:07	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 23:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 23:07	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 23:07	1
<b>Vinyl chloride</b>	<b>3.6</b>		1.0	0.45	ug/L			11/20/17 15:33	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)	77		69 - 120					11/19/17 23:07	1
4-Bromofluorobenzene (Surr)	83		69 - 120					11/20/17 15:33	1
Dibromofluoromethane (Surr)	101		69 - 124					11/19/17 23:07	1
Dibromofluoromethane (Surr)	112		69 - 124					11/20/17 15:33	1
1,2-Dichloroethane-d4 (Surr)	99		61 - 138					11/19/17 23:07	1
1,2-Dichloroethane-d4 (Surr)	107		61 - 138					11/20/17 15:33	1
Toluene-d8 (Surr)	102		73 - 120					11/19/17 23:07	1
Toluene-d8 (Surr)	110		73 - 120					11/20/17 15:33	1

# Client Sample Results

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-87815-9**

**Date Collected: 11/09/17 00:00**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 18:54	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 18:54	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 18:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 18:54	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 18:54	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		69 - 120		11/19/17 18:54	1
Dibromofluoromethane (Surr)	101		69 - 124		11/19/17 18:54	1
1,2-Dichloroethane-d4 (Surr)	109		61 - 138		11/19/17 18:54	1
Toluene-d8 (Surr)	85		73 - 120		11/19/17 18:54	1

# Surrogate Summary

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

TestAmerica Job ID: 240-87815-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (69-120)	DBFM (69-124)	12DCE (61-138)	TOL (73-120)
240-87764-B-5 MS	Matrix Spike	83	105	99	104
240-87764-B-5 MSD	Matrix Spike Duplicate	79	96	96	99
240-87765-E-3 MSD	Matrix Spike Duplicate	84	101	99	102
240-87765-H-3 MS	Matrix Spike	87	102	100	103
240-87815-1	MW-75S_11082017	82	106	107	106
240-87815-2	MW-75D_11082017	76	100	98	104
240-87815-2	MW-75D_11082017	68 X	99	92	96
240-87815-3	MW-76_11082017	78	103	103	104
240-87815-4	MW-80S_11082017	80	99	99	101
240-87815-4	MW-80S_11082017	73	102	99	100
240-87815-5	MW-82S_11082017	78	104	103	104
240-87815-6	MW-82D_11082017	79	107	105	105
240-87815-7	MW-79S_11092017	75	105	103	100
240-87815-8	MW-79D_11092017	77	101	99	102
240-87815-8	MW-79D_11092017	83	112	107	110
240-87815-9	TRIP BLANK	72	101	109	85
LCS 240-304202/4	Lab Control Sample	86	101	107	102
LCS 240-304206/4	Lab Control Sample	90	86	97	95
LCS 240-304282/4	Lab Control Sample	86	103	104	106
LCSD 240-304202/9	Lab Control Sample Dup	85	105	103	107
LCSD 240-304206/7	Lab Control Sample Dup	90	86	90	94
MB 240-304202/6	Method Blank	80	111	110	106
MB 240-304206/6	Method Blank	75	95	109	87
MB 240-304282/6	Method Blank	82	113	111	113

#### Surrogate Legend

- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- 12DCE = 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	12DCE
		(63-125)
240-87805-C-1 MS	Matrix Spike	83
240-87805-C-1 MSD	Matrix Spike Duplicate	87
240-87815-1	MW-75S_11082017	85
240-87815-2	MW-75D_11082017	85
240-87815-3	MW-76_11082017	84
240-87815-4	MW-80S_11082017	81
240-87815-5	MW-82S_11082017	86
240-87815-6	MW-82D_11082017	81
240-87815-7	MW-79S_11092017	87
240-87815-8	MW-79D_11092017	87
LCS 240-303611/4	Lab Control Sample	84
MB 240-303611/5	Method Blank	80

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# Surrogate Summary

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

TestAmerica Job ID: 240-87815-1

## Surrogate Legend

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

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroet (60-140)
180-72271-F-7 MSD	Matrix Spike Duplicate	84
180-72271-G-7 MS	Matrix Spike	85
240-87815-1	MW-75S_11082017	82
240-87815-3	MW-76_11082017	84
240-87815-4	MW-80S_11082017	82
240-87815-5	MW-82S_11082017	81
240-87815-7	MW-79S_11092017	81
LCS 240-304058/5	Lab Control Sample	85
LCS 240-304185/5	Lab Control Sample	87
LCSD 240-304058/6	Lab Control Sample Dup	86
LCSD 240-304185/6	Lab Control Sample Dup	87
MB 240-304058/4	Method Blank	89
MB 240-304185/4	Method Blank	87

## Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: MB 240-304202/6**

**Matrix: Water**

**Analysis Batch: 304202**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 14:05	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 14:05	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 14:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 14:05	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 14:05	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 14:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		69 - 120		11/19/17 14:05	1
Dibromofluoromethane (Surr)	111		69 - 124		11/19/17 14:05	1
1,2-Dichloroethane-d4 (Surr)	110		61 - 138		11/19/17 14:05	1
Toluene-d8 (Surr)	106		73 - 120		11/19/17 14:05	1

**Lab Sample ID: LCS 240-304202/4**

**Matrix: Water**

**Analysis Batch: 304202**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.5		ug/L		93	35 - 131
Benzene	10.0	10.8		ug/L		108	79 - 120
Bromodichloromethane	10.0	10.9		ug/L		109	79 - 125
Bromoform	10.0	9.40		ug/L		94	55 - 145
Bromomethane	10.0	12.7		ug/L		127	17 - 158
2-Butanone (MEK)	20.0	22.2		ug/L		111	43 - 149
Carbon disulfide	10.0	12.3		ug/L		123	49 - 141
Carbon tetrachloride	10.0	11.5		ug/L		115	55 - 171
Chlorobenzene	10.0	10.6		ug/L		106	80 - 120
Chloroethane	10.0	15.2	*	ug/L		152	10 - 149
Chloroform	10.0	10.7		ug/L		107	80 - 120
Chloromethane	10.0	6.92		ug/L		69	59 - 124
cis-1,2-Dichloroethene	10.0	11.3		ug/L		113	77 - 120
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	75 - 120
Cyclohexane	10.0	11.1		ug/L		111	66 - 135
Dibromochloromethane	10.0	10.3		ug/L		103	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	8.66		ug/L		87	50 - 130
1,2-Dibromoethane	10.0	11.0		ug/L		110	80 - 120
1,2-Dichlorobenzene	10.0	9.60		ug/L		96	80 - 120
1,3-Dichlorobenzene	10.0	9.65		ug/L		97	80 - 120
1,4-Dichlorobenzene	10.0	9.87		ug/L		99	80 - 120
Dichlorodifluoromethane	10.0	10.9		ug/L		109	42 - 141
1,1-Dichloroethane	10.0	10.7		ug/L		107	74 - 120
1,2-Dichloroethane	10.0	11.2		ug/L		112	68 - 133
1,1-Dichloroethene	10.0	10.8		ug/L		108	65 - 127
1,2-Dichloropropane	10.0	11.0		ug/L		110	78 - 127
Diethyl ether	10.0	10.8		ug/L		108	72 - 125
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
2-Hexanone	20.0	19.5		ug/L		98	28 - 169
Isopropylbenzene	10.0	9.36		ug/L		94	80 - 128

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: LCS 240-304202/4**  
**Matrix: Water**  
**Analysis Batch: 304202**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl acetate	20.0	24.6		ug/L		123	63 - 137
Methylcyclohexane	10.0	10.3		ug/L		103	63 - 141
Methylene Chloride	10.0	11.1		ug/L		111	64 - 140
4-Methyl-2-pentanone (MIBK)	20.0	22.3		ug/L		112	53 - 144
Methyl tert-butyl ether	10.0	10.3		ug/L		103	73 - 120
Styrene	10.0	9.50		ug/L		95	80 - 121
1,1,2,2-Tetrachloroethane	10.0	13.2	*	ug/L		132	58 - 122
Tetrachloroethene	10.0	10.6		ug/L		106	80 - 122
Toluene	10.0	10.7		ug/L		107	78 - 120
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	74 - 124
trans-1,3-Dichloropropene	10.0	9.79		ug/L		98	67 - 120
1,2,4-Trichlorobenzene	10.0	7.75		ug/L		78	34 - 141
1,1,1-Trichloroethane	10.0	11.5		ug/L		115	64 - 147
1,1,2-Trichloroethane	10.0	12.2	*	ug/L		122	76 - 121
Trichloroethene	10.0	10.8		ug/L		108	76 - 124
Trichlorofluoromethane	10.0	12.7		ug/L		127	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	13.0		ug/L		130	65 - 144
1,2,4-Trimethylbenzene	10.0	9.24		ug/L		92	80 - 120
1,3,5-Trimethylbenzene	10.0	9.61		ug/L		96	79 - 120
Vinyl chloride	10.0	11.7		ug/L		117	65 - 124
Xylenes, Total	20.0	20.1		ug/L		100	80 - 120
1,4-Dioxane	200	223		ug/L		111	35 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		69 - 120
Dibromofluoromethane (Surr)	101		69 - 124
1,2-Dichloroethane-d4 (Surr)	107		61 - 138
Toluene-d8 (Surr)	102		73 - 120

**Lab Sample ID: LCSD 240-304202/9**  
**Matrix: Water**  
**Analysis Batch: 304202**

**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	20.0	14.9		ug/L		75	35 - 131	21	35
Benzene	10.0	11.3		ug/L		113	79 - 120	4	35
Bromodichloromethane	10.0	10.9		ug/L		109	79 - 125	0	35
Bromoform	10.0	7.84		ug/L		78	55 - 145	18	35
Bromomethane	10.0	14.0		ug/L		140	17 - 158	10	35
2-Butanone (MEK)	20.0	18.3		ug/L		92	43 - 149	19	35
Carbon disulfide	10.0	12.7		ug/L		127	49 - 141	3	35
Carbon tetrachloride	10.0	11.4		ug/L		114	55 - 171	1	35
Chlorobenzene	10.0	10.8		ug/L		108	80 - 120	1	35
Chloroethane	10.0	15.8	*	ug/L		158	10 - 149	4	35
Chloroform	10.0	11.4		ug/L		114	80 - 120	6	35
Chloromethane	10.0	7.12		ug/L		71	59 - 124	3	35
cis-1,2-Dichloroethene	10.0	11.1		ug/L		111	77 - 120	1	35

TestAmerica Canton



# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

Lab Sample ID: LCSD 240-304202/9

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 304202

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,3-Dichloropropene	10.0	10.3		ug/L		103	75 - 120	0	35
Cyclohexane	10.0	10.3		ug/L		103	66 - 135	8	35
Dibromochloromethane	10.0	10.1		ug/L		101	64 - 129	2	35
1,2-Dibromo-3-Chloropropane	10.0	8.17		ug/L		82	50 - 130	6	35
1,2-Dibromoethane	10.0	10.4		ug/L		104	80 - 120	6	35
1,2-Dichlorobenzene	10.0	9.94		ug/L		99	80 - 120	4	35
1,3-Dichlorobenzene	10.0	10.4		ug/L		104	80 - 120	7	35
1,4-Dichlorobenzene	10.0	10.2		ug/L		102	80 - 120	3	35
Dichlorodifluoromethane	10.0	9.64		ug/L		96	42 - 141	12	35
1,1-Dichloroethane	10.0	11.1		ug/L		111	74 - 120	4	35
1,2-Dichloroethane	10.0	11.4		ug/L		114	68 - 133	2	35
1,1-Dichloroethene	10.0	10.9		ug/L		109	65 - 127	1	35
1,2-Dichloropropane	10.0	11.6		ug/L		116	78 - 127	5	35
Diethyl ether	10.0	10.2		ug/L		102	72 - 125	6	35
Ethylbenzene	10.0	10.7		ug/L		107	80 - 120	5	35
2-Hexanone	20.0	15.4		ug/L		77	28 - 169	24	35
Isopropylbenzene	10.0	9.49		ug/L		95	80 - 128	1	35
Methyl acetate	20.0	20.2		ug/L		101	63 - 137	20	35
Methylcyclohexane	10.0	8.74		ug/L		87	63 - 141	17	35
Methylene Chloride	10.0	12.1		ug/L		121	64 - 140	9	35
4-Methyl-2-pentanone (MIBK)	20.0	18.0		ug/L		90	53 - 144	22	35
Methyl tert-butyl ether	10.0	10.2		ug/L		102	73 - 120	1	35
Styrene	10.0	9.95		ug/L		99	80 - 121	5	35
1,1,2,2-Tetrachloroethane	10.0	11.9		ug/L		119	58 - 122	10	35
Tetrachloroethene	10.0	10.7		ug/L		107	80 - 122	1	35
Toluene	10.0	11.5		ug/L		115	78 - 120	7	35
trans-1,2-Dichloroethene	10.0	11.1		ug/L		111	74 - 124	3	35
trans-1,3-Dichloropropene	10.0	9.67		ug/L		97	67 - 120	1	35
1,2,4-Trichlorobenzene	10.0	8.23		ug/L		82	34 - 141	6	35
1,1,1-Trichloroethane	10.0	11.5		ug/L		115	64 - 147	0	35
1,1,2-Trichloroethane	10.0	12.1		ug/L		121	76 - 121	1	35
Trichloroethene	10.0	11.0		ug/L		110	76 - 124	1	35
Trichlorofluoromethane	10.0	12.3		ug/L		123	27 - 176	3	35
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.6		ug/L		116	65 - 144	11	35
1,2,4-Trimethylbenzene	10.0	9.73		ug/L		97	80 - 120	5	35
1,3,5-Trimethylbenzene	10.0	10.1		ug/L		101	79 - 120	5	35
Vinyl chloride	10.0	11.7		ug/L		117	65 - 124	1	35
Xylenes, Total	20.0	20.6		ug/L		103	80 - 120	3	35
1,4-Dioxane	200	134 *		ug/L		67	35 - 134	50	35

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
4-Bromofluorobenzene (Surr)	85		69 - 120
Dibromofluoromethane (Surr)	105		69 - 124
1,2-Dichloroethane-d4 (Surr)	103		61 - 138
Toluene-d8 (Surr)	107		73 - 120

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: 240-87765-E-3 MSD**

**Matrix: Water**

**Analysis Batch: 304202**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		
Benzene	1.0	U	10.0	10.6		ug/L		106	69 - 127	2	10
2-Butanone (MEK)	10	U F2	20.0	15.5	F2	ug/L		78	34 - 153	35	23
Carbon disulfide	5.0	U	10.0	12.0		ug/L		120	46 - 143	2	18
Chlorobenzene	1.0	U	10.0	10.1		ug/L		101	76 - 120	1	12
Chloroform	1.0	U	10.0	10.6		ug/L		106	74 - 125	0	11
1,2-Dichloroethane	1.0	U	10.0	10.9		ug/L		109	64 - 138	1	11
Ethylbenzene	1.0	U	10.0	9.69		ug/L		97	72 - 121	4	15
Styrene	1.0	U	10.0	8.93		ug/L		89	74 - 125	1	14
Toluene	1.0	U	10.0	10.3		ug/L		103	69 - 125	2	14
Xylenes, Total	2.0	U	20.0	19.1		ug/L		95	71 - 122	2	14

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	84		69 - 120
Dibromofluoromethane (Surr)	101		69 - 124
1,2-Dichloroethane-d4 (Surr)	99		61 - 138
Toluene-d8 (Surr)	102		73 - 120

**Lab Sample ID: 240-87765-H-3 MS**

**Matrix: Water**

**Analysis Batch: 304202**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits		
Benzene	1.0	U	10.0	10.4		ug/L		104	69 - 127		
2-Butanone (MEK)	10	U F2	20.0	22.2		ug/L		111	34 - 153		
Carbon disulfide	5.0	U	10.0	11.8		ug/L		118	46 - 143		
Chlorobenzene	1.0	U	10.0	10.1		ug/L		101	76 - 120		
Chloroform	1.0	U	10.0	10.6		ug/L		106	74 - 125		
1,2-Dichloroethane	1.0	U	10.0	10.9		ug/L		109	64 - 138		
Ethylbenzene	1.0	U	10.0	9.32		ug/L		93	72 - 121		
Styrene	1.0	U	10.0	9.05		ug/L		91	74 - 125		
Toluene	1.0	U	10.0	10.1		ug/L		101	69 - 125		
Xylenes, Total	2.0	U	20.0	18.7		ug/L		93	71 - 122		

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	87		69 - 120
Dibromofluoromethane (Surr)	102		69 - 124
1,2-Dichloroethane-d4 (Surr)	100		61 - 138
Toluene-d8 (Surr)	103		73 - 120

**Lab Sample ID: MB 240-304206/6**

**Matrix: Water**

**Analysis Batch: 304206**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 14:24	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/19/17 14:24	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/19/17 14:24	1

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: MB 240-304206/6**  
**Matrix: Water**  
**Analysis Batch: 304206**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/19/17 14:24	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/19/17 14:24	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/19/17 14:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		69 - 120		11/19/17 14:24	1
Dibromofluoromethane (Surr)	95		69 - 124		11/19/17 14:24	1
1,2-Dichloroethane-d4 (Surr)	109		61 - 138		11/19/17 14:24	1
Toluene-d8 (Surr)	87		73 - 120		11/19/17 14:24	1

**Lab Sample ID: LCS 240-304206/4**  
**Matrix: Water**  
**Analysis Batch: 304206**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.5		ug/L		117	35 - 131
Benzene	10.0	10.3		ug/L		103	79 - 120
Bromodichloromethane	10.0	10.1		ug/L		101	79 - 125
Bromoform	10.0	8.64		ug/L		86	55 - 145
Bromomethane	10.0	9.68		ug/L		97	17 - 158
2-Butanone (MEK)	20.0	25.6		ug/L		128	43 - 149
Carbon disulfide	10.0	9.54		ug/L		95	49 - 141
Carbon tetrachloride	10.0	9.51		ug/L		95	55 - 171
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120
Chloroethane	10.0	10.2		ug/L		102	10 - 149
Chloroform	10.0	10.3		ug/L		103	80 - 120
Chloromethane	10.0	10.9		ug/L		109	59 - 124
cis-1,2-Dichloroethene	10.0	9.54		ug/L		95	77 - 120
cis-1,3-Dichloropropene	10.0	9.52		ug/L		95	75 - 120
Cyclohexane	10.0	10.0		ug/L		100	66 - 135
Dibromochloromethane	10.0	10.7		ug/L		107	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	7.52		ug/L		75	50 - 130
1,2-Dibromoethane	10.0	11.2		ug/L		112	80 - 120
1,2-Dichlorobenzene	10.0	9.64		ug/L		96	80 - 120
1,3-Dichlorobenzene	10.0	9.49		ug/L		95	80 - 120
1,4-Dichlorobenzene	10.0	9.50		ug/L		95	80 - 120
Dichlorodifluoromethane	10.0	6.81		ug/L		68	42 - 141
1,1-Dichloroethane	10.0	10.5		ug/L		105	74 - 120
1,2-Dichloroethane	10.0	11.4		ug/L		114	68 - 133
1,1-Dichloroethene	10.0	11.0		ug/L		110	65 - 127
1,2-Dichloropropane	10.0	11.5		ug/L		115	78 - 127
Diethyl ether	10.0	14.6 *		ug/L		146	72 - 125
Ethylbenzene	10.0	9.94		ug/L		99	80 - 120
2-Hexanone	20.0	23.8		ug/L		119	28 - 169
Isopropylbenzene	10.0	9.23		ug/L		92	80 - 128
Methyl acetate	20.0	24.4		ug/L		122	63 - 137
Methylcyclohexane	10.0	8.38		ug/L		84	63 - 141
Methylene Chloride	10.0	9.55		ug/L		95	64 - 140

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: LCS 240-304206/4**

**Matrix: Water**

**Analysis Batch: 304206**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	20.0	21.8		ug/L		109	53 - 144
Methyl tert-butyl ether	10.0	8.80		ug/L		88	73 - 120
Styrene	10.0	9.79		ug/L		98	80 - 121
1,1,2,2-Tetrachloroethane	10.0	12.6	*	ug/L		126	58 - 122
Tetrachloroethene	10.0	9.69		ug/L		97	80 - 122
Toluene	10.0	11.0		ug/L		110	78 - 120
trans-1,2-Dichloroethene	10.0	10.0		ug/L		100	74 - 124
trans-1,3-Dichloropropene	10.0	10.1		ug/L		101	67 - 120
1,2,4-Trichlorobenzene	10.0	5.64		ug/L		56	34 - 141
1,1,1-Trichloroethane	10.0	8.88		ug/L		89	64 - 147
1,1,2-Trichloroethane	10.0	12.2	*	ug/L		122	76 - 121
Trichloroethene	10.0	8.99		ug/L		90	76 - 124
Trichlorofluoromethane	10.0	8.82		ug/L		88	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.8		ug/L		108	65 - 144
1,2,4-Trimethylbenzene	10.0	9.41		ug/L		94	80 - 120
1,3,5-Trimethylbenzene	10.0	9.40		ug/L		94	79 - 120
Vinyl chloride	10.0	9.87		ug/L		99	65 - 124
Xylenes, Total	20.0	19.5		ug/L		97	80 - 120
1,4-Dioxane	200	102		ug/L		51	35 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		69 - 120
Dibromofluoromethane (Surr)	86		69 - 124
1,2-Dichloroethane-d4 (Surr)	97		61 - 138
Toluene-d8 (Surr)	95		73 - 120

**Lab Sample ID: LCSD 240-304206/7**

**Matrix: Water**

**Analysis Batch: 304206**

**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	20.0	12.2	*	ug/L		61	35 - 131	63	35
Benzene	10.0	10.5		ug/L		105	79 - 120	2	35
Bromodichloromethane	10.0	10.1		ug/L		101	79 - 125	0	35
Bromoform	10.0	8.52		ug/L		85	55 - 145	1	35
Bromomethane	10.0	11.5		ug/L		115	17 - 158	17	35
2-Butanone (MEK)	20.0	19.7		ug/L		98	43 - 149	26	35
Carbon disulfide	10.0	9.90		ug/L		99	49 - 141	4	35
Carbon tetrachloride	10.0	10.5		ug/L		105	55 - 171	10	35
Chlorobenzene	10.0	10.4		ug/L		104	80 - 120	1	35
Chloroethane	10.0	12.2		ug/L		122	10 - 149	18	35
Chloroform	10.0	10.7		ug/L		107	80 - 120	4	35
Chloromethane	10.0	12.1		ug/L		121	59 - 124	11	35
cis-1,2-Dichloroethene	10.0	9.98		ug/L		100	77 - 120	4	35
cis-1,3-Dichloropropene	10.0	9.14		ug/L		91	75 - 120	4	35
Cyclohexane	10.0	11.1		ug/L		111	66 - 135	10	35
Dibromochloromethane	10.0	10.3		ug/L		103	64 - 129	4	35

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

Lab Sample ID: LCSD 240-304206/7

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 304206

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	10.0	7.12		ug/L		71	50 - 130	5	35
1,2-Dibromoethane	10.0	10.5		ug/L		105	80 - 120	7	35
1,2-Dichlorobenzene	10.0	9.90		ug/L		99	80 - 120	3	35
1,3-Dichlorobenzene	10.0	9.86		ug/L		99	80 - 120	4	35
1,4-Dichlorobenzene	10.0	9.80		ug/L		98	80 - 120	3	35
Dichlorodifluoromethane	10.0	8.14		ug/L		81	42 - 141	18	35
1,1-Dichloroethane	10.0	11.2		ug/L		112	74 - 120	6	35
1,2-Dichloroethane	10.0	11.2		ug/L		112	68 - 133	1	35
1,1-Dichloroethene	10.0	11.1		ug/L		111	65 - 127	1	35
1,2-Dichloropropane	10.0	11.6		ug/L		116	78 - 127	1	35
Diethyl ether	10.0	14.5	*	ug/L		145	72 - 125	1	35
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120	4	35
2-Hexanone	20.0	20.3		ug/L		102	28 - 169	16	35
Isopropylbenzene	10.0	9.77		ug/L		98	80 - 128	6	35
Methyl acetate	20.0	20.6		ug/L		103	63 - 137	17	35
Methylcyclohexane	10.0	9.22		ug/L		92	63 - 141	10	35
Methylene Chloride	10.0	10.5		ug/L		105	64 - 140	9	35
4-Methyl-2-pentanone (MIBK)	20.0	19.3		ug/L		97	53 - 144	12	35
Methyl tert-butyl ether	10.0	8.90		ug/L		89	73 - 120	1	35
Styrene	10.0	9.92		ug/L		99	80 - 121	1	35
1,1,2,2-Tetrachloroethane	10.0	11.2		ug/L		112	58 - 122	11	35
Tetrachloroethene	10.0	10.1		ug/L		101	80 - 122	4	35
Toluene	10.0	11.3		ug/L		113	78 - 120	2	35
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	74 - 124	5	35
trans-1,3-Dichloropropene	10.0	9.29		ug/L		93	67 - 120	8	35
1,2,4-Trichlorobenzene	10.0	6.59		ug/L		66	34 - 141	16	35
1,1,1-Trichloroethane	10.0	9.98		ug/L		100	64 - 147	12	35
1,1,2-Trichloroethane	10.0	12.0		ug/L		120	76 - 121	2	35
Trichloroethene	10.0	9.30		ug/L		93	76 - 124	3	35
Trichlorofluoromethane	10.0	11.9		ug/L		119	27 - 176	30	35
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.5		ug/L		125	65 - 144	15	35
1,2,4-Trimethylbenzene	10.0	9.59		ug/L		96	80 - 120	2	35
1,3,5-Trimethylbenzene	10.0	9.60		ug/L		96	79 - 120	2	35
Vinyl chloride	10.0	11.4		ug/L		114	65 - 124	14	35
Xylenes, Total	20.0	20.4		ug/L		102	80 - 120	4	35
1,4-Dioxane	200	50	U *	ug/L		0	35 - 134	200	35

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	90		69 - 120
Dibromofluoromethane (Surr)	86		69 - 124
1,2-Dichloroethane-d4 (Surr)	90		61 - 138
Toluene-d8 (Surr)	94		73 - 120

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: MB 240-304282/6**

**Matrix: Water**

**Analysis Batch: 304282**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	1.0	U	1.0	0.30	ug/L			11/20/17 12:40	1
1,1-Dichloroethene	1.0	U	1.0	0.27	ug/L			11/20/17 12:40	1
Tetrachloroethene	1.0	U	1.0	0.30	ug/L			11/20/17 12:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.29	ug/L			11/20/17 12:40	1
Trichloroethene	1.0	U	1.0	0.33	ug/L			11/20/17 12:40	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/20/17 12:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		69 - 120		11/20/17 12:40	1
Dibromofluoromethane (Surr)	113		69 - 124		11/20/17 12:40	1
1,2-Dichloroethane-d4 (Surr)	111		61 - 138		11/20/17 12:40	1
Toluene-d8 (Surr)	113		73 - 120		11/20/17 12:40	1

**Lab Sample ID: LCS 240-304282/4**

**Matrix: Water**

**Analysis Batch: 304282**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	13.2		ug/L		66	35 - 131
Benzene	10.0	10.6		ug/L		106	79 - 120
Bromodichloromethane	10.0	10.3		ug/L		103	79 - 125
Bromoform	10.0	8.19		ug/L		82	55 - 145
Bromomethane	10.0	14.8		ug/L		148	17 - 158
2-Butanone (MEK)	20.0	16.6		ug/L		83	43 - 149
Carbon disulfide	10.0	12.3		ug/L		123	49 - 141
Carbon tetrachloride	10.0	10.9		ug/L		109	55 - 171
Chlorobenzene	10.0	10.1		ug/L		101	80 - 120
Chloroethane	10.0	15.7	*	ug/L		157	10 - 149
Chloroform	10.0	10.5		ug/L		105	80 - 120
Chloromethane	10.0	7.04		ug/L		70	59 - 124
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	77 - 120
cis-1,3-Dichloropropene	10.0	9.84		ug/L		98	75 - 120
Cyclohexane	10.0	11.0		ug/L		110	66 - 135
Dibromochloromethane	10.0	9.79		ug/L		98	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	7.14		ug/L		71	50 - 130
1,2-Dibromoethane	10.0	9.71		ug/L		97	80 - 120
1,2-Dichlorobenzene	10.0	9.27		ug/L		93	80 - 120
1,3-Dichlorobenzene	10.0	9.59		ug/L		96	80 - 120
1,4-Dichlorobenzene	10.0	9.52		ug/L		95	80 - 120
Dichlorodifluoromethane	10.0	11.1		ug/L		111	42 - 141
1,1-Dichloroethane	10.0	10.4		ug/L		104	74 - 120
1,2-Dichloroethane	10.0	10.3		ug/L		103	68 - 133
1,1-Dichloroethene	10.0	10.3		ug/L		103	65 - 127
1,2-Dichloropropane	10.0	10.8		ug/L		108	78 - 127
Diethyl ether	10.0	9.77		ug/L		98	72 - 125
Ethylbenzene	10.0	9.89		ug/L		99	80 - 120
2-Hexanone	20.0	13.5		ug/L		68	28 - 169
Isopropylbenzene	10.0	8.94		ug/L		89	80 - 128

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: LCS 240-304282/4**

**Matrix: Water**

**Analysis Batch: 304282**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl acetate	20.0	18.9		ug/L		95	63 - 137
Methylcyclohexane	10.0	10.0		ug/L		100	63 - 141
Methylene Chloride	10.0	11.5		ug/L		115	64 - 140
4-Methyl-2-pentanone (MIBK)	20.0	16.6		ug/L		83	53 - 144
Methyl tert-butyl ether	10.0	9.57		ug/L		96	73 - 120
Styrene	10.0	8.97		ug/L		90	80 - 121
1,1,2,2-Tetrachloroethane	10.0	11.0		ug/L		110	58 - 122
Tetrachloroethene	10.0	10.3		ug/L		103	80 - 122
Toluene	10.0	10.9		ug/L		109	78 - 120
trans-1,2-Dichloroethene	10.0	10.1		ug/L		101	74 - 124
trans-1,3-Dichloropropene	10.0	9.33		ug/L		93	67 - 120
1,2,4-Trichlorobenzene	10.0	7.83		ug/L		78	34 - 141
1,1,1-Trichloroethane	10.0	10.7		ug/L		107	64 - 147
1,1,2-Trichloroethane	10.0	11.0		ug/L		110	76 - 121
Trichloroethene	10.0	10.2		ug/L		102	76 - 124
Trichlorofluoromethane	10.0	12.9		ug/L		129	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.7		ug/L		127	65 - 144
1,2,4-Trimethylbenzene	10.0	9.08		ug/L		91	80 - 120
1,3,5-Trimethylbenzene	10.0	9.57		ug/L		96	79 - 120
Vinyl chloride	10.0	12.2		ug/L		122	65 - 124
Xylenes, Total	20.0	19.3		ug/L		96	80 - 120
1,4-Dioxane	200	172		ug/L		86	35 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		69 - 120
Dibromofluoromethane (Surr)	103		69 - 124
1,2-Dichloroethane-d4 (Surr)	104		61 - 138
Toluene-d8 (Surr)	106		73 - 120

**Lab Sample ID: 240-87764-B-5 MS**

**Matrix: Water**

**Analysis Batch: 304282**

**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	670	U	1330	894		ug/L		67	19 - 133
Benzene	67	U	667	664		ug/L		100	69 - 127
Bromodichloromethane	67	U	667	640		ug/L		96	75 - 128
Bromoform	67	U	667	483		ug/L		72	61 - 135
Bromomethane	67	U F1	667	1090	F1	ug/L		163	10 - 148
2-Butanone (MEK)	670	U	1330	1080		ug/L		81	34 - 153
Carbon disulfide	330	U	667	766		ug/L		115	46 - 143
Carbon tetrachloride	67	U	667	666		ug/L		100	53 - 175
Chlorobenzene	67	U	667	628		ug/L		94	76 - 120
Chloroethane	67	U F1 *	667	1160	F1	ug/L		174	10 - 141
Chloroform	67	U	667	664		ug/L		100	74 - 125
Chloromethane	67	U	667	537		ug/L		81	34 - 127
cis-1,2-Dichloroethene	1100		667	1750		ug/L		91	69 - 127

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# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: 240-87764-B-5 MS**

**Matrix: Water**

**Analysis Batch: 304282**

**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
cis-1,3-Dichloropropene	67	U	667	614		ug/L		92	68 - 120
Dibromochloromethane	67	U	667	591		ug/L		89	62 - 131
1,2-Dibromo-3-Chloropropane	67	U	667	426		ug/L		64	48 - 130
1,2-Dibromoethane	67	U	667	603		ug/L		90	73 - 121
1,2-Dichlorobenzene	67	U	667	595		ug/L		89	70 - 120
1,3-Dichlorobenzene	67	U	667	606		ug/L		91	71 - 120
1,4-Dichlorobenzene	67	U	667	605		ug/L		91	72 - 120
Dichlorodifluoromethane	67	U	667	787		ug/L		118	45 - 130
1,1-Dichloroethane	67	U	667	669		ug/L		100	69 - 122
1,2-Dichloroethane	67	U	667	673		ug/L		101	64 - 138
1,1-Dichloroethene	67	U	667	660		ug/L		99	62 - 127
1,2-Dichloropropane	67	U	667	677		ug/L		102	72 - 131
Ethylbenzene	67	U	667	611		ug/L		92	72 - 121
2-Hexanone	670	U F2	1330	933		ug/L		70	21 - 184
Isopropylbenzene	67	U	667	537		ug/L		81	70 - 132
Methylene Chloride	330	U	667	682		ug/L		102	52 - 137
4-Methyl-2-pentanone (MIBK)	670	U	1330	1070		ug/L		80	53 - 147
Methyl tert-butyl ether	67	U	667	619		ug/L		93	67 - 125
Styrene	67	U	667	552		ug/L		83	74 - 125
1,1,2,2-Tetrachloroethane	67	U	667	719		ug/L		108	51 - 123
Tetrachloroethene	67	U	667	630		ug/L		94	69 - 126
Toluene	67	U	667	664		ug/L		100	69 - 125
trans-1,2-Dichloroethene	23	J	667	680		ug/L		98	66 - 131
trans-1,3-Dichloropropene	67	U	667	569		ug/L		85	59 - 120
1,2,4-Trichlorobenzene	67	U	667	473		ug/L		71	26 - 138
1,1,1-Trichloroethane	67	U	667	673		ug/L		101	57 - 156
1,1,2-Trichloroethane	67	U	667	694		ug/L		104	68 - 127
Trichloroethene	67	U	667	637		ug/L		96	68 - 129
Trichlorofluoromethane	67	U	667	934		ug/L		140	28 - 172
1,2,4-Trimethylbenzene	67	U	667	572		ug/L		86	64 - 120
1,3,5-Trimethylbenzene	67	U	667	584		ug/L		88	67 - 120
Vinyl chloride	74	F1	667	962	F1	ug/L		133	55 - 123
Xylenes, Total	130	U	1330	1190		ug/L		89	71 - 122
1,4-Dioxane	3300	U	13300	10500		ug/L		79	13 - 155

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	83		69 - 120
Dibromofluoromethane (Surr)	105		69 - 124
1,2-Dichloroethane-d4 (Surr)	99		61 - 138
Toluene-d8 (Surr)	104		73 - 120

**Lab Sample ID: 240-87764-B-5 MSD**

**Matrix: Water**

**Analysis Batch: 304282**

**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	670	U	1330	786		ug/L		59	19 - 133	13	35
Benzene	67	U	667	618		ug/L		93	69 - 127	7	10

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# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: 240-87764-B-5 MSD**

**Matrix: Water**

**Analysis Batch: 304282**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Bromodichloromethane	67	U	667	610		ug/L		91	75 - 128	5	13
Bromoform	67	U	667	451		ug/L		68	61 - 135	7	13
Bromomethane	67	U F1	667	1010	F1	ug/L		152	10 - 148	7	35
2-Butanone (MEK)	670	U	1330	983		ug/L		74	34 - 153	9	23
Carbon disulfide	330	U	667	723		ug/L		109	46 - 143	6	18
Carbon tetrachloride	67	U	667	628		ug/L		94	53 - 175	6	17
Chlorobenzene	67	U	667	604		ug/L		91	76 - 120	4	12
Chloroethane	67	U F1 *	667	1070	F1	ug/L		160	10 - 141	9	35
Chloroform	67	U	667	621		ug/L		93	74 - 125	7	11
Chloromethane	67	U	667	485		ug/L		73	34 - 127	10	25
cis-1,2-Dichloroethene	1100		667	1650		ug/L		76	69 - 127	6	11
cis-1,3-Dichloropropene	67	U	667	580		ug/L		87	68 - 120	6	13
Dibromochloromethane	67	U	667	572		ug/L		86	62 - 131	3	15
1,2-Dibromo-3-Chloropropane	67	U	667	420		ug/L		63	48 - 130	1	31
1,2-Dibromoethane	67	U	667	576		ug/L		86	73 - 121	4	12
1,2-Dichlorobenzene	67	U	667	577		ug/L		87	70 - 120	3	19
1,3-Dichlorobenzene	67	U	667	570		ug/L		86	71 - 120	6	18
1,4-Dichlorobenzene	67	U	667	573		ug/L		86	72 - 120	5	17
Dichlorodifluoromethane	67	U	667	768		ug/L		115	45 - 130	3	34
1,1-Dichloroethane	67	U	667	618		ug/L		93	69 - 122	8	11
1,2-Dichloroethane	67	U	667	617		ug/L		93	64 - 138	9	11
1,1-Dichloroethene	67	U	667	642		ug/L		96	62 - 127	3	14
1,2-Dichloropropane	67	U	667	656		ug/L		98	72 - 131	3	12
Ethylbenzene	67	U	667	586		ug/L		88	72 - 121	4	15
2-Hexanone	670	U F2	1330	819	F2	ug/L		61	21 - 184	13	12
Isopropylbenzene	67	U	667	532		ug/L		80	70 - 132	1	16
Methylene Chloride	330	U	667	660		ug/L		99	52 - 137	3	12
4-Methyl-2-pentanone (MIBK)	670	U	1330	986		ug/L		74	53 - 147	8	16
Methyl tert-butyl ether	67	U	667	563		ug/L		85	67 - 125	9	12
Styrene	67	U	667	548		ug/L		82	74 - 125	1	14
1,1,2,2-Tetrachloroethane	67	U	667	690		ug/L		103	51 - 123	4	17
Tetrachloroethene	67	U	667	633		ug/L		95	69 - 126	1	18
Toluene	67	U	667	638		ug/L		96	69 - 125	4	14
trans-1,2-Dichloroethene	23	J	667	645		ug/L		93	66 - 131	5	11
trans-1,3-Dichloropropene	67	U	667	539		ug/L		81	59 - 120	5	14
1,2,4-Trichlorobenzene	67	U	667	459		ug/L		69	26 - 138	3	35
1,1,1-Trichloroethane	67	U	667	639		ug/L		96	57 - 156	5	13
1,1,2-Trichloroethane	67	U	667	661		ug/L		99	68 - 127	5	11
Trichloroethene	67	U	667	612		ug/L		92	68 - 129	4	12
Trichlorofluoromethane	67	U	667	916		ug/L		137	28 - 172	2	26
1,2,4-Trimethylbenzene	67	U	667	556		ug/L		83	64 - 120	3	22
1,3,5-Trimethylbenzene	67	U	667	583		ug/L		87	67 - 120	0	25
Vinyl chloride	74	F1	667	941	F1	ug/L		130	55 - 123	2	12
Xylenes, Total	130	U	1330	1170		ug/L		88	71 - 122	1	14
1,4-Dioxane	3300	U	13300	9050		ug/L		68	13 - 155	15	35

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	79		69 - 120

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# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

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

**Lab Sample ID: 240-87764-B-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 304282**

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

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

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

**Lab Sample ID: MB 240-303611/5**  
**Matrix: Water**  
**Analysis Batch: 303611**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.24	ug/L			11/15/17 14:13	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	80		63 - 125		11/15/17 14:13	1

**Lab Sample ID: LCS 240-303611/4**  
**Matrix: Water**  
**Analysis Batch: 303611**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.45		ug/L		94	59 - 131

Surrogate	LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	84		63 - 125

**Lab Sample ID: 240-87805-C-1 MS**  
**Matrix: Water**  
**Analysis Batch: 303611**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	9.78		ug/L		98	52 - 129

Surrogate	MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	83		63 - 125

**Lab Sample ID: 240-87805-C-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 303611**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.3		ug/L		103	52 - 129	5	13

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	87		63 - 125

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# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-304058/4**  
**Matrix: Water**  
**Analysis Batch: 304058**

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methane	1.0	U	1.0	0.17	ug/L			11/17/17 14:45	1
Ethane	1.0	U	1.0	0.10	ug/L			11/17/17 14:45	1
Ethene	1.0	U	1.0	0.11	ug/L			11/17/17 14:45	1
Surrogate	MB MB		Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
1,1,1-Trifluoroethane	89		60 - 140					11/17/17 14:45	1

**Lab Sample ID: LCS 240-304058/5**  
**Matrix: Water**  
**Analysis Batch: 304058**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
								RPD	Limit
Methane	285	275		ug/L		96	80 - 120		
Ethane	536	583		ug/L		109	80 - 120		
Ethene	501	536		ug/L		107	80 - 120		
Surrogate	LCS LCS		Limits			D	%Rec	%Rec. Limits	RPD
	%Recovery	Qualifier							
1,1,1-Trifluoroethane	85		60 - 140						

**Lab Sample ID: LCSD 240-304058/6**  
**Matrix: Water**  
**Analysis Batch: 304058**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ethane	536	593		ug/L		110	80 - 120	2	35
Ethene	501	544		ug/L		109	80 - 120	2	35
Surrogate	LCSD LCSD		Limits			D	%Rec	%Rec. Limits	RPD
	%Recovery	Qualifier							
1,1,1-Trifluoroethane	86		60 - 140						

**Lab Sample ID: 180-72271-F-7 MSD**  
**Matrix: Water**  
**Analysis Batch: 304058**

**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	Limit
Ethane	0.43	J	536	579		ug/L		108	50 - 150	2	30
Ethene	3.7		501	538		ug/L		107	50 - 150	1	30
Surrogate	MSD MSD		Limits			D	%Rec	%Rec. Limits	RPD		
	%Recovery	Qualifier									
1,1,1-Trifluoroethane	84		60 - 140								

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# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: 180-72271-G-7 MS**

**Matrix: Water**

**Analysis Batch: 304058**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Methane	46		285	346		ug/L		105	50 - 150
Ethane	0.43	J	536	588		ug/L		110	50 - 150
Ethene	3.7		501	546		ug/L		108	50 - 150
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,1,1-Trifluoroethane	85		60 - 140						

**Lab Sample ID: MB 240-304185/4**

**Matrix: Water**

**Analysis Batch: 304185**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methane	1.0	U	1.0	0.17	ug/L			11/19/17 11:46	1
Ethane	1.0	U	1.0	0.10	ug/L			11/19/17 11:46	1
Ethene	1.0	U	1.0	0.11	ug/L			11/19/17 11:46	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
1,1,1-Trifluoroethane	87		60 - 140				11/19/17 11:46	1	

**Lab Sample ID: LCS 240-304185/5**

**Matrix: Water**

**Analysis Batch: 304185**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
Methane	285	279		ug/L		98	80 - 120
Ethane	536	595		ug/L		111	80 - 120
Ethene	501	549		ug/L		110	80 - 120
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
1,1,1-Trifluoroethane	87		60 - 140				

**Lab Sample ID: LCSD 240-304185/6**

**Matrix: Water**

**Analysis Batch: 304185**

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

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	285	273		ug/L		96	80 - 120	2	35
Ethane	536	586		ug/L		109	80 - 120	2	35
Ethene	501	538		ug/L		108	80 - 120	2	35
<b>LCSD LCSD</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,1,1-Trifluoroethane	87		60 - 140						

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# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-303242/1-A**  
**Matrix: Water**  
**Analysis Batch: 303525**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 303242**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	100	U	100	47	ug/L		11/13/17 14:00	11/14/17 20:46	1
Manganese	5.0	U	5.0	2.1	ug/L		11/13/17 14:00	11/14/17 20:46	1

**Lab Sample ID: LCS 240-303242/2-A**  
**Matrix: Water**  
**Analysis Batch: 303525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 303242**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10000	10100		ug/L		101	80 - 120
Manganese	1000	1040		ug/L		104	80 - 120

**Lab Sample ID: 240-87805-O-14-B MS**  
**Matrix: Water**  
**Analysis Batch: 303525**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 303242**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	3900		10000	13500		ug/L		96	75 - 125
Manganese	200		1000	1180		ug/L		98	75 - 125

**Lab Sample ID: 240-87805-O-14-C MSD**  
**Matrix: Water**  
**Analysis Batch: 303525**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 303242**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	3900		10000	13600		ug/L		96	75 - 125	0	20
Manganese	200		1000	1170		ug/L		97	75 - 125	1	20

## Method: 5310 C-2000 - Organic Carbon, Dissolved (DOC)

**Lab Sample ID: MB 240-303877/4**  
**Matrix: Water**  
**Analysis Batch: 303877**

**Client Sample ID: Method Blank**  
**Prep Type: Dissolved**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0	0.14	mg/L			11/16/17 08:43	1
DOC Result 1	1.0	U	1.0	0.14	mg/L			11/16/17 08:43	1
DOC Result 2	1.0	U	1.0	0.14	mg/L			11/16/17 08:43	1

**Lab Sample ID: LCS 240-303877/6**  
**Matrix: Water**  
**Analysis Batch: 303877**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Dissolved**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	21.8	21.9		mg/L		100	80 - 120
DOC Result 1	21.8	21.9		mg/L		101	80 - 120
DOC Result 2	21.8	21.8		mg/L		100	80 - 120

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

## Method: 5310 C-2000 - Organic Carbon, Dissolved (DOC) (Continued)

**Lab Sample ID: LLCS 240-303877/5**

**Matrix: Water**

**Analysis Batch: 303877**

**Client Sample ID: Lab Control Sample**

**Prep Type: Dissolved**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	2.18	2.30		mg/L		106	88 - 115
DOC Result 1	2.18	2.31		mg/L		106	88 - 115
DOC Result 2	2.18	2.29		mg/L		105	88 - 115

**Lab Sample ID: 240-87717-M-2 MS**

**Matrix: Water**

**Analysis Batch: 303877**

**Client Sample ID: Matrix Spike**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	4.8		25.0	33.0		mg/L		113	65 - 134
DOC Result 1	4.8		25.0	32.8		mg/L		112	65 - 134
DOC Result 2	4.8		25.0	33.2		mg/L		114	65 - 134

**Lab Sample ID: 240-87717-M-2 MSD**

**Matrix: Water**

**Analysis Batch: 303877**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Dissolved**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	4.8		25.0	33.2		mg/L		114	65 - 134	1	10
DOC Result 1	4.8		25.0	33.3		mg/L		114	65 - 134	2	10
DOC Result 2	4.8		25.0	33.0		mg/L		113	65 - 134	0	10

## Method: 5310C-2000 - Total Organic Carbon/Persulfate - Ultrav

**Lab Sample ID: MB 240-303727/4**

**Matrix: Water**

**Analysis Batch: 303727**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0	0.14	mg/L			11/15/17 11:26	1

**Lab Sample ID: LCS 240-303727/6**

**Matrix: Water**

**Analysis Batch: 303727**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	21.8	21.9		mg/L		101	80 - 120

**Lab Sample ID: LLCS 240-303727/5**

**Matrix: Water**

**Analysis Batch: 303727**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.18	2.34		mg/L		108	88 - 115

TestAmerica Canton

# QC Sample Results

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

TestAmerica Job ID: 240-87815-1

## Method: 5310C-2000 - Total Organic Carbon/Persulfate - Ultrav (Continued)

**Lab Sample ID: 240-87815-4 MS**  
**Matrix: Water**  
**Analysis Batch: 303727**

**Client Sample ID: MW-80S\_11082017**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	5.2		25.0	33.0		mg/L		111	65 - 134

**Lab Sample ID: 240-87815-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 303727**

**Client Sample ID: MW-80S\_11082017**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	5.2		25.0	33.1		mg/L		112	65 - 134	0	10

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 240-302920/3**  
**Matrix: Water**  
**Analysis Batch: 302920**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.0	U	1.0	0.35	mg/L			11/10/17 12:03	1

**Lab Sample ID: LCS 240-302920/4**  
**Matrix: Water**  
**Analysis Batch: 302920**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	53.3		mg/L		107	90 - 110

**Lab Sample ID: MB 240-302921/3**  
**Matrix: Water**  
**Analysis Batch: 302921**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.10	U	0.10	0.014	mg/L			11/10/17 12:03	1

**Lab Sample ID: LCS 240-302921/4**  
**Matrix: Water**  
**Analysis Batch: 302921**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.70		mg/L		108	90 - 110

# QC Association Summary

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

TestAmerica Job ID: 240-87815-1

## GC/MS VOA

### Analysis Batch: 303611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Total/NA	Water	8260B SIM	
240-87815-2	MW-75D_11082017	Total/NA	Water	8260B SIM	
240-87815-3	MW-76_11082017	Total/NA	Water	8260B SIM	
240-87815-4	MW-80S_11082017	Total/NA	Water	8260B SIM	
240-87815-5	MW-82S_11082017	Total/NA	Water	8260B SIM	
240-87815-6	MW-82D_11082017	Total/NA	Water	8260B SIM	
240-87815-7	MW-79S_11092017	Total/NA	Water	8260B SIM	
240-87815-8	MW-79D_11092017	Total/NA	Water	8260B SIM	
MB 240-303611/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-303611/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-87805-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-87805-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 304202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Total/NA	Water	8260B	
240-87815-2	MW-75D_11082017	Total/NA	Water	8260B	
240-87815-3	MW-76_11082017	Total/NA	Water	8260B	
240-87815-4	MW-80S_11082017	Total/NA	Water	8260B	
240-87815-5	MW-82S_11082017	Total/NA	Water	8260B	
240-87815-6	MW-82D_11082017	Total/NA	Water	8260B	
240-87815-7	MW-79S_11092017	Total/NA	Water	8260B	
240-87815-8	MW-79D_11092017	Total/NA	Water	8260B	
MB 240-304202/6	Method Blank	Total/NA	Water	8260B	
LCS 240-304202/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 240-304202/9	Lab Control Sample Dup	Total/NA	Water	8260B	
240-87765-E-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-87765-H-3 MS	Matrix Spike	Total/NA	Water	8260B	

### Analysis Batch: 304206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-9	TRIP BLANK	Total/NA	Water	8260B	
MB 240-304206/6	Method Blank	Total/NA	Water	8260B	
LCS 240-304206/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 240-304206/7	Lab Control Sample Dup	Total/NA	Water	8260B	

### Analysis Batch: 304282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-2	MW-75D_11082017	Total/NA	Water	8260B	
240-87815-4	MW-80S_11082017	Total/NA	Water	8260B	
240-87815-8	MW-79D_11092017	Total/NA	Water	8260B	
MB 240-304282/6	Method Blank	Total/NA	Water	8260B	
LCS 240-304282/4	Lab Control Sample	Total/NA	Water	8260B	
240-87764-B-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-87764-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	



# QC Association Summary

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

TestAmerica Job ID: 240-87815-1

## GC VOA

### Analysis Batch: 304058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Total/NA	Water	RSK-175	
MB 240-304058/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-304058/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-304058/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
180-72271-F-7 MSD	Matrix Spike Duplicate	Total/NA	Water	RSK-175	
180-72271-G-7 MS	Matrix Spike	Total/NA	Water	RSK-175	

### Analysis Batch: 304185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-3	MW-76_11082017	Total/NA	Water	RSK-175	
240-87815-4	MW-80S_11082017	Total/NA	Water	RSK-175	
240-87815-5	MW-82S_11082017	Total/NA	Water	RSK-175	
240-87815-7	MW-79S_11092017	Total/NA	Water	RSK-175	
MB 240-304185/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-304185/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-304185/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

## Metals

### Prep Batch: 303242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Dissolved	Water	3005A	
240-87815-1	MW-75S_11082017	Total Recoverable	Water	3005A	
240-87815-3	MW-76_11082017	Dissolved	Water	3005A	
240-87815-3	MW-76_11082017	Total Recoverable	Water	3005A	
240-87815-4	MW-80S_11082017	Dissolved	Water	3005A	
240-87815-4	MW-80S_11082017	Total Recoverable	Water	3005A	
240-87815-5	MW-82S_11082017	Dissolved	Water	3005A	
240-87815-5	MW-82S_11082017	Total Recoverable	Water	3005A	
240-87815-7	MW-79S_11092017	Dissolved	Water	3005A	
240-87815-7	MW-79S_11092017	Total Recoverable	Water	3005A	
MB 240-303242/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-303242/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-87805-O-14-B MS	Matrix Spike	Total Recoverable	Water	3005A	
240-87805-O-14-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 303525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Dissolved	Water	6020	303242
240-87815-1	MW-75S_11082017	Total Recoverable	Water	6020	303242
240-87815-3	MW-76_11082017	Dissolved	Water	6020	303242
240-87815-3	MW-76_11082017	Total Recoverable	Water	6020	303242
240-87815-4	MW-80S_11082017	Dissolved	Water	6020	303242
240-87815-4	MW-80S_11082017	Total Recoverable	Water	6020	303242
240-87815-5	MW-82S_11082017	Dissolved	Water	6020	303242
240-87815-5	MW-82S_11082017	Total Recoverable	Water	6020	303242
240-87815-7	MW-79S_11092017	Dissolved	Water	6020	303242
240-87815-7	MW-79S_11092017	Total Recoverable	Water	6020	303242
MB 240-303242/1-A	Method Blank	Total Recoverable	Water	6020	303242
LCS 240-303242/2-A	Lab Control Sample	Total Recoverable	Water	6020	303242

TestAmerica Canton

# QC Association Summary

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

TestAmerica Job ID: 240-87815-1

## Metals (Continued)

### Analysis Batch: 303525 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87805-O-14-B MS	Matrix Spike	Total Recoverable	Water	6020	303242
240-87805-O-14-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020	303242

## General Chemistry

### Analysis Batch: 302920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Total/NA	Water	9056A	
240-87815-3	MW-76_11082017	Total/NA	Water	9056A	
240-87815-4	MW-80S_11082017	Total/NA	Water	9056A	
240-87815-5	MW-82S_11082017	Total/NA	Water	9056A	
240-87815-7	MW-79S_11092017	Total/NA	Water	9056A	
MB 240-302920/3	Method Blank	Total/NA	Water	9056A	
LCS 240-302920/4	Lab Control Sample	Total/NA	Water	9056A	

### Analysis Batch: 302921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Total/NA	Water	9056A	
240-87815-3	MW-76_11082017	Total/NA	Water	9056A	
240-87815-4	MW-80S_11082017	Total/NA	Water	9056A	
240-87815-5	MW-82S_11082017	Total/NA	Water	9056A	
240-87815-7	MW-79S_11092017	Total/NA	Water	9056A	
MB 240-302921/3	Method Blank	Total/NA	Water	9056A	
LCS 240-302921/4	Lab Control Sample	Total/NA	Water	9056A	

### Analysis Batch: 303727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Total/NA	Water	5310C-2000	
240-87815-3	MW-76_11082017	Total/NA	Water	5310C-2000	
240-87815-4	MW-80S_11082017	Total/NA	Water	5310C-2000	
240-87815-5	MW-82S_11082017	Total/NA	Water	5310C-2000	
240-87815-7	MW-79S_11092017	Total/NA	Water	5310C-2000	
MB 240-303727/4	Method Blank	Total/NA	Water	5310C-2000	
LCS 240-303727/6	Lab Control Sample	Total/NA	Water	5310C-2000	
LLCS 240-303727/5	Lab Control Sample	Total/NA	Water	5310C-2000	
240-87815-4 MS	MW-80S_11082017	Total/NA	Water	5310C-2000	
240-87815-4 MSD	MW-80S_11082017	Total/NA	Water	5310C-2000	

### Analysis Batch: 303877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-87815-1	MW-75S_11082017	Dissolved	Water	5310 C-2000	
240-87815-3	MW-76_11082017	Dissolved	Water	5310 C-2000	
240-87815-4	MW-80S_11082017	Dissolved	Water	5310 C-2000	
240-87815-5	MW-82S_11082017	Dissolved	Water	5310 C-2000	
240-87815-7	MW-79S_11092017	Dissolved	Water	5310 C-2000	
MB 240-303877/4	Method Blank	Dissolved	Water	5310 C-2000	
LCS 240-303877/6	Lab Control Sample	Dissolved	Water	5310 C-2000	
LLCS 240-303877/5	Lab Control Sample	Dissolved	Water	5310 C-2000	
240-87717-M-2 MS	Matrix Spike	Dissolved	Water	5310 C-2000	
240-87717-M-2 MSD	Matrix Spike Duplicate	Dissolved	Water	5310 C-2000	

TestAmerica Canton

# Lab Chronicle

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-75S\_11082017**

**Date Collected: 11/08/17 09:15**

**Date Received: 11/10/17 14:15**

**Lab Sample ID: 240-87815-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 20:29	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 17:57	SAM	TAL CAN
Total/NA	Analysis	RSK-175		1	304058	11/17/17 18:44	BPM	TAL CAN
Dissolved	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Dissolved	Analysis	6020		1	303525	11/14/17 21:53	AS1	TAL CAN
Total Recoverable	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020		1	303525	11/14/17 21:49	AS1	TAL CAN
Dissolved	Analysis	5310 C-2000		1	303877	11/16/17 10:16	TPH	TAL CAN
Total/NA	Analysis	5310C-2000		1	303727	11/15/17 14:44	TPH	TAL CAN
Total/NA	Analysis	9056A		1	302920	11/10/17 18:37	LKG	TAL CAN
Total/NA	Analysis	9056A		1	302921	11/10/17 18:37	LKG	TAL CAN

**Client Sample ID: MW-75D\_11082017**

**Date Collected: 11/08/17 10:45**

**Date Received: 11/10/17 14:15**

**Lab Sample ID: 240-87815-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 20:52	LEE	TAL CAN
Total/NA	Analysis	8260B		1	304282	11/20/17 14:48	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 18:21	SAM	TAL CAN

**Client Sample ID: MW-76\_11082017**

**Date Collected: 11/08/17 11:45**

**Date Received: 11/10/17 14:15**

**Lab Sample ID: 240-87815-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 21:14	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 18:46	SAM	TAL CAN
Total/NA	Analysis	RSK-175		1	304185	11/19/17 12:38	BPM	TAL CAN
Dissolved	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Dissolved	Analysis	6020		1	303525	11/14/17 22:02	AS1	TAL CAN
Total Recoverable	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020		1	303525	11/14/17 21:58	AS1	TAL CAN
Dissolved	Analysis	5310 C-2000		1	303877	11/16/17 10:32	TPH	TAL CAN
Total/NA	Analysis	5310C-2000		1	303727	11/15/17 15:00	TPH	TAL CAN
Total/NA	Analysis	9056A		5	302920	11/10/17 20:00	LKG	TAL CAN
Total/NA	Analysis	9056A		5	302921	11/10/17 20:00	LKG	TAL CAN

TestAmerica Canton

# Lab Chronicle

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-80S\_11082017**

**Lab Sample ID: 240-87815-4**

**Date Collected: 11/08/17 13:55**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 21:36	LEE	TAL CAN
Total/NA	Analysis	8260B		1	304282	11/20/17 15:10	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 19:11	SAM	TAL CAN
Total/NA	Analysis	RSK-175		1	304185	11/19/17 12:55	BPM	TAL CAN
Dissolved	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Dissolved	Analysis	6020		1	303525	11/14/17 22:11	AS1	TAL CAN
Total Recoverable	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020		1	303525	11/14/17 22:07	AS1	TAL CAN
Dissolved	Analysis	5310 C-2000		1	303877	11/16/17 10:49	TPH	TAL CAN
Total/NA	Analysis	5310C-2000		1	303727	11/15/17 12:11	TPH	TAL CAN
Total/NA	Analysis	9056A		1	302920	11/10/17 13:46	LKG	TAL CAN
Total/NA	Analysis	9056A		1	302921	11/10/17 13:46	LKG	TAL CAN

**Client Sample ID: MW-82S\_11082017**

**Lab Sample ID: 240-87815-5**

**Date Collected: 11/08/17 15:30**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 21:59	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 19:36	SAM	TAL CAN
Total/NA	Analysis	RSK-175		1	304185	11/19/17 13:12	BPM	TAL CAN
Dissolved	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Dissolved	Analysis	6020		1	303525	11/14/17 22:20	AS1	TAL CAN
Total Recoverable	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020		1	303525	11/14/17 22:16	AS1	TAL CAN
Dissolved	Analysis	5310 C-2000		1	303877	11/16/17 11:04	TPH	TAL CAN
Total/NA	Analysis	5310C-2000		1	303727	11/15/17 15:16	TPH	TAL CAN
Total/NA	Analysis	9056A		1	302921	11/10/17 17:56	LKG	TAL CAN
Total/NA	Analysis	9056A		5	302920	11/10/17 18:16	LKG	TAL CAN

**Client Sample ID: MW-82D\_11082017**

**Lab Sample ID: 240-87815-6**

**Date Collected: 11/08/17 16:30**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 22:22	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 20:01	SAM	TAL CAN

TestAmerica Canton

# Lab Chronicle

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

TestAmerica Job ID: 240-87815-1

**Client Sample ID: MW-79S\_11092017**

**Lab Sample ID: 240-87815-7**

**Date Collected: 11/09/17 09:00**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 22:45	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 20:26	SAM	TAL CAN
Total/NA	Analysis	RSK-175		1	304185	11/19/17 13:29	BPM	TAL CAN
Dissolved	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Dissolved	Analysis	6020		1	303525	11/14/17 22:29	AS1	TAL CAN
Total Recoverable	Prep	3005A			303242	11/13/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	6020		1	303525	11/14/17 22:25	AS1	TAL CAN
Dissolved	Analysis	5310 C-2000		1	303877	11/16/17 11:49	TPH	TAL CAN
Total/NA	Analysis	5310C-2000		1	303727	11/15/17 15:31	TPH	TAL CAN
Total/NA	Analysis	9056A		1	302920	11/10/17 14:07	LKG	TAL CAN
Total/NA	Analysis	9056A		1	302921	11/10/17 14:07	LKG	TAL CAN

**Client Sample ID: MW-79D\_11092017**

**Lab Sample ID: 240-87815-8**

**Date Collected: 11/09/17 10:00**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304202	11/19/17 23:07	LEE	TAL CAN
Total/NA	Analysis	8260B		1	304282	11/20/17 15:33	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	303611	11/15/17 20:51	SAM	TAL CAN

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-87815-9**

**Date Collected: 11/09/17 00:00**

**Matrix: Water**

**Date Received: 11/10/17 14:15**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304206	11/19/17 18:54	LEE	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

# Accreditation/Certification Summary

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

TestAmerica Job ID: 240-87815-1

## Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *

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

TestAmerica Canton



Client Information  
Client Contact: Kristoffer Hinskey  
Company: ARCADIS U.S., Inc.  
Address: 28550 Cabot Drive Suite 500  
City: Novi  
State/Zip: MI, 48377  
Phone: MI001318 0002 00002  
WO #: E203631  
Project #: E204458  
Ford LTP Livonia MI - E203631  
Site: Livonia Ford

Lab PM: Pohl, Denise  
E-Mail: denise.pohl@testamericainc.com  
Phone: 618-201-0836  
Sampler: Severin, Resword  
Due Date Requested:  
TAT Requested (days):  
PO #:  
WO #:  
Cadena # - E203631  
Project #:  
SSOW#:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (W=water, S=solid, O=water, BT=issue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Carrier Tracking No(s)	Lab No
MW-755-11082017	11-8-17	915	6	Water	N	N	MEE (RSK.175) * total Fe, Mn (6020) * dissolved Fe, Mn (6020) * TOC (5310) * DOC (5M5310) * Nitrate + Sulfate (90564)	240-46823-20400 9	
MW-750-11082017	11-8-17	1045	6	Water	N	N			
MW-76-11082017	11-8-17	1145	6	Water	N	N			
MW-805-11082017	11-8-17	1355	6	Water	N	N			
MW-825-11082017	11-8-17	1530	6	Water	N	N			
MW-820-11082017	11-8-17	1630	6	Water	N	N			
MW-795-11092017	11-9-17	900	6	Water	N	N			
MW-790-11092017	11-9-17	1000	6	Water	N	N			

Special Instructions/Note:  
\* SHORT HOLD TIME

Preservation Codes:  
A - HCL  
B - NaOH  
C - Zn Acetate  
D - Nitric Acid  
E - NaHSO4  
F - MeOH  
G - Amchlor  
H - Ascorbic Acid  
I - Ice  
J - DI Water  
K - EDTA  
L - EDA  
Other:  
M - Hexane  
N - None  
O - AsNaO2  
P - Na2O4S  
Q - Na2SO3  
R - Na2S2O3  
S - H2SO4  
T - TSP Dodecylhydrate  
U - Acetone  
V - MCAA  
W - pH 4-5  
Z - other (specify)

Barcode: 240-87815 Chain of Custody

Possible Hazard Identification  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: Reswin, Resword  
Relinquished by: ASHLEY REISEL  
Relinquished by: DIVYA KAMATH  
Relinquished by: ARCADIS  
Date/Time: 11-9-17 1800  
Date/Time: 11/9/17 9:00  
Date/Time: 11/9/17 14:15  
Company: ARCADIS  
Company: ARCADIS  
Company: ARCADIS  
Company: ARCADIS

Custody Seals Intact  
Custody Seal No.:  
Relinq: MW  
Date: 11/9/17 15:20

Special Instructions/OC Requirements:  
Submit through Cadena est jim.tomejic@cadena.com

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

Method of Shipment:

Received by: Ashley Reisel  
Received by: DIVYA KAMATH  
Received by: MW  
Date/Time: 11/9/17 8:00  
Date/Time: 11/9/17 9:00  
Date/Time: 11/9/17 14:15  
Company: ARCADIS  
Company: ARCADIS  
Company: TAL

Cooler Temperature(s) °C and Other Remarks:



Login # : 87815

TestAmerica Canton Sample Receipt Form/Narrative  
Canton Facility


Client Accadis Site Name \_\_\_\_\_  
Cooler Received on 11/10/17 Opened on 11/10/17  
FedEx: 1<sup>st</sup>  Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by: [Signature]

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

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

- Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN #36 (CF +0.3°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN # 627 (CF -1.3°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
- Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea

Yes	No
<input checked="" type="radio"/>	<input type="radio"/>
-Were the seals on the outside of the cooler(s) signed & dated?	Yes No NA
<input checked="" type="radio"/>	<input type="radio"/>
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes <input checked="" type="radio"/> No
<input checked="" type="radio"/>	<input type="radio"/>
-Were tamper/custody seals intact and uncompromised?	Yes No NA
<input checked="" type="radio"/>	<input type="radio"/>
- Shippers' packing slip attached to the cooler(s)?  Yes  No
- Did custody papers accompany the sample(s)?  Yes  No
- Were the custody papers relinquished & signed in the appropriate place?  Yes  No
- Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No
- Did all bottles arrive in good condition (Unbroken)?  Yes  No
- Could all bottle labels be reconciled with the COC?  Yes  No
- Were correct bottle(s) used for the test(s) indicated?  Yes  No
- Sufficient quantity received to perform indicated analyses?  Yes  No
- Are these work share samples?  Yes  No
- If yes, Questions 11-15 have been checked at the originating laboratory.
- Were all preserved sample(s) at the correct pH upon receipt?  Yes  No NA pH Strip Lot# HC697954
- Were VOAs on the COC?  Yes  No
- Were air bubbles >6 mm in any VOA vials?  Yes  No NA   
 Larger than this. 
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # R712801V3  Yes  No
- 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 \_\_\_\_\_

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  
Received 3 TB not on COC. Will log at end  
Samples processed by: \_\_\_\_\_

17. 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)

18. SAMPLE PRESERVATION  
Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_





Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW-75S_11082017	240-87815-O-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
MW-75S_11082017	240-87815-P-1	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
MW-76_11082017	240-87815-O-3	Plastic 500ml - with Nitric Acid	<2	_____	_____
MW-76_11082017	240-87815-P-3	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
MW-80S_11082017	240-87815-O-4	Plastic 500ml - with Nitric Acid	<2	_____	_____
MW-80S_11082017	240-87815-P-4	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
MW-82S_11082017	240-87815-O-5	Plastic 500ml - with Nitric Acid	<2	_____	_____
MW-82S_11082017	240-87815-P-5	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
MW-79S_11092017	240-87815-O-7	Plastic 500ml - with Nitric Acid	<2	_____	_____
MW-79S_11092017	240-87815-P-7	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____