

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 240-103550-1

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

For:

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

Attn: Kristoffer Hinskey



Authorized for release by:
11/14/2018 11:39:52 AM

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 240-103550-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

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

TestAmerica Job ID: 240-103550-1

Job ID: 240-103550-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-103550-1

Revision

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

This report was revised on 11/14/2018 to include the full list of VOCs via 8260B.

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

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

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

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

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

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

RECEIPT

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

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-48_102518 (240-103550-1), MW-67_102518 (240-103550-2), MW-57_102518 (240-103550-3), MW-47_102518 (240-103550-4), MW-68_102518 (240-103550-5), MW-29_102618 (240-103550-6), MW-26_102618 (240-103550-7), MW-21_102618 (240-103550-8), MW-19_102618 (240-103550-9) and TRIP BLANK (240-103550-10) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/06/2018, 11/07/2018 and 11/08/2018.

Samples MW-67_102518 (240-103550-2)[3.33X], MW-47_102518 (240-103550-4)[5X] and MW-21_102618 (240-103550-8)[1666.67X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Case Narrative

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

TestAmerica Job ID: 240-103550-1

Job ID: 240-103550-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-48_102518 (240-103550-1), MW-67_102518 (240-103550-2), MW-57_102518 (240-103550-3), MW-47_102518 (240-103550-4), MW-68_102518 (240-103550-5), MW-29_102618 (240-103550-6), MW-26_102618 (240-103550-7), MW-21_102618 (240-103550-8) and MW-19_102618 (240-103550-9) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/05/2018.

1,4-Dioxane exceeded the RPD limit for the MSD of sample MW-29_102618MSD (240-103550-6) in batch 240-353689.

Refer to the QC report for details.

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



Method Summary

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

TestAmerica Job ID: 240-103550-1

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

Protocol References:

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

Laboratory References:

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



Sample Summary

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

TestAmerica Job ID: 240-103550-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-103550-1	MW-48_102518	Water	10/25/18 09:35	10/30/18 10:50
240-103550-2	MW-67_102518	Water	10/25/18 11:09	10/30/18 10:50
240-103550-3	MW-57_102518	Water	10/25/18 12:52	10/30/18 10:50
240-103550-4	MW-47_102518	Water	10/25/18 14:33	10/30/18 10:50
240-103550-5	MW-68_102518	Water	10/25/18 00:00	10/30/18 10:50
240-103550-6	MW-29_102618	Water	10/26/18 09:48	10/30/18 10:50
240-103550-7	MW-26_102618	Water	10/26/18 11:27	10/30/18 10:50
240-103550-8	MW-21_102618	Water	10/26/18 13:53	10/30/18 10:50
240-103550-9	MW-19_102618	Water	10/26/18 15:15	10/30/18 10:50
240-103550-10	TRIP BLANK	Water	10/25/18 00:00	10/30/18 10:50

Detection Summary

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-48_102518

Lab Sample ID: 240-103550-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.5		2.0	0.86	ug/L	1		8260B SIM	Total/NA
1,3-Dichlorobenzene	0.27	J	1.0	0.15	ug/L	1		8260B	Total/NA
Vinyl chloride	6.6		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-67_102518

Lab Sample ID: 240-103550-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.6		3.3	0.53	ug/L	3.33		8260B	Total/NA
trans-1,2-Dichloroethene	0.88	J	3.3	0.63	ug/L	3.33		8260B	Total/NA
1,1,1-Trichloroethane	1.3	J	3.3	0.80	ug/L	3.33		8260B	Total/NA
Trichloroethene	69		3.3	0.33	ug/L	3.33		8260B	Total/NA

Client Sample ID: MW-57_102518

Lab Sample ID: 240-103550-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.6		2.0	0.86	ug/L	1		8260B SIM	Total/NA
1,3-Dichlorobenzene	0.16	J	1.0	0.15	ug/L	1		8260B	Total/NA
Methylene Chloride	2.6	J	5.0	2.6	ug/L	1		8260B	Total/NA
Vinyl chloride	0.64	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-47_102518

Lab Sample ID: 240-103550-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	48		5.0	0.80	ug/L	5		8260B	Total/NA
1,1-Dichloroethane	5.1		5.0	0.85	ug/L	5		8260B	Total/NA
trans-1,2-Dichloroethene	7.1		5.0	0.95	ug/L	5		8260B	Total/NA
1,1,1-Trichloroethane	3.1	J	5.0	1.2	ug/L	5		8260B	Total/NA
Vinyl chloride	100		5.0	1.0	ug/L	5		8260B	Total/NA

Client Sample ID: MW-68_102518

Lab Sample ID: 240-103550-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	17		1.0	0.16	ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	0.25	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	2.1		1.0	0.17	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	2.1		1.0	0.19	ug/L	1		8260B	Total/NA
Vinyl chloride	2.1		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-29_102618

Lab Sample ID: 240-103550-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.3	F2	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.20	J	1.0	0.16	ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	0.27	J	1.0	0.15	ug/L	1		8260B	Total/NA
Methylene Chloride	3.4	J	5.0	2.6	ug/L	1		8260B	Total/NA
Vinyl chloride	0.20	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-26_102618

Lab Sample ID: 240-103550-7

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Detection Summary

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-26_102618 (Continued)

Lab Sample ID: 240-103550-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.1	J	5.0	2.6	ug/L	1		8260B	Total/NA

Client Sample ID: MW-21_102618

Lab Sample ID: 240-103550-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	14		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	40000		1700	270	ug/L	1666.67		8260B	Total/NA
Trichloroethene	1900		1700	170	ug/L	1666.67		8260B	Total/NA
Vinyl chloride	7800		1700	330	ug/L	1666.67		8260B	Total/NA

Client Sample ID: MW-19_102618

Lab Sample ID: 240-103550-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	150		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Chloroethane	4.1		1.0	0.83	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.6		1.0	0.16	ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	0.34	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	6.6		1.0	0.17	ug/L	1		8260B	Total/NA
1,2-Dichloroethane	0.47	J	1.0	0.21	ug/L	1		8260B	Total/NA
Trichloroethene	0.97	J	1.0	0.10	ug/L	1		8260B	Total/NA
Vinyl chloride	1.6		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-103550-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.2	J	5.0	2.6	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-48_102518

Lab Sample ID: 240-103550-1

Date Collected: 10/25/18 09:35

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	6.5		2.0	0.86	ug/L			11/05/18 15:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		63 - 125					11/05/18 15:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/06/18 18:53	1
Benzene	1.0	U	1.0	0.13	ug/L			11/06/18 18:53	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/06/18 18:53	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/06/18 18:53	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/06/18 18:53	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/06/18 18:53	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/06/18 18:53	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/06/18 18:53	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/06/18 18:53	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/06/18 18:53	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/06/18 18:53	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/06/18 18:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/06/18 18:53	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/06/18 18:53	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/06/18 18:53	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/06/18 18:53	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/06/18 18:53	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/06/18 18:53	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 18:53	1
1,3-Dichlorobenzene	0.27	J	1.0	0.15	ug/L			11/06/18 18:53	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/06/18 18:53	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/06/18 18:53	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/06/18 18:53	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/06/18 18:53	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 18:53	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/06/18 18:53	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/06/18 18:53	1
2-Hexanone	10	U	10	0.54	ug/L			11/06/18 18:53	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/06/18 18:53	1
Methyl acetate	10	U	10	1.7	ug/L			11/06/18 18:53	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/06/18 18:53	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			11/06/18 18:53	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/06/18 18:53	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/06/18 18:53	1
Styrene	1.0	U	1.0	0.10	ug/L			11/06/18 18:53	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/06/18 18:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/06/18 18:53	1
Toluene	1.0	U	1.0	0.14	ug/L			11/06/18 18:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 18:53	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/06/18 18:53	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/06/18 18:53	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/06/18 18:53	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/06/18 18:53	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-48_102518

Lab Sample ID: 240-103550-1

Date Collected: 10/25/18 09:35

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/06/18 18:53	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/06/18 18:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/06/18 18:53	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/06/18 18:53	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/06/18 18:53	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/06/18 18:53	1
Vinyl chloride	6.6		1.0	0.20	ug/L			11/06/18 18:53	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/06/18 18:53	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/06/18 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	77		59 - 120					11/06/18 18:53	1
Dibromofluoromethane (Surr)	121		75 - 128					11/06/18 18:53	1
1,2-Dichloroethane-d4 (Surr)	115		70 - 121					11/06/18 18:53	1
Toluene-d8 (Surr)	93		70 - 123					11/06/18 18:53	1

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-67_102518

Lab Sample ID: 240-103550-2

Date Collected: 10/25/18 11:09

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/05/18 15:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125					11/05/18 15:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	33	U	33	18	ug/L			11/07/18 15:59	3.33
Benzene	3.3	U	3.3	0.43	ug/L			11/07/18 15:59	3.33
Bromodichloromethane	3.3	U	3.3	0.57	ug/L			11/07/18 15:59	3.33
Bromoform	3.3	U	3.3	2.5	ug/L			11/07/18 15:59	3.33
Bromomethane	3.3	U	3.3	1.4	ug/L			11/07/18 15:59	3.33
2-Butanone (MEK)	33	U	33	3.9	ug/L			11/07/18 15:59	3.33
Carbon disulfide	17	U	17	0.93	ug/L			11/07/18 15:59	3.33
Carbon tetrachloride	3.3	U	3.3	0.87	ug/L			11/07/18 15:59	3.33
Chlorobenzene	3.3	U	3.3	0.47	ug/L			11/07/18 15:59	3.33
Chloroethane	3.3	U	3.3	2.8	ug/L			11/07/18 15:59	3.33
Chloroform	3.3	U	3.3	0.43	ug/L			11/07/18 15:59	3.33
Chloromethane	3.3	U	3.3	0.67	ug/L			11/07/18 15:59	3.33
cis-1,2-Dichloroethene	5.6		3.3	0.53	ug/L			11/07/18 15:59	3.33
cis-1,3-Dichloropropene	3.3	U	3.3	2.0	ug/L			11/07/18 15:59	3.33
Cyclohexane	3.3	U	3.3	0.80	ug/L			11/07/18 15:59	3.33
Dibromochloromethane	3.3	U	3.3	1.3	ug/L			11/07/18 15:59	3.33
1,2-Dibromo-3-Chloropropane	3.3	U	3.3	3.0	ug/L			11/07/18 15:59	3.33
1,2-Dibromoethane	3.3	U	3.3	0.40	ug/L			11/07/18 15:59	3.33
1,2-Dichlorobenzene	3.3	U	3.3	0.50	ug/L			11/07/18 15:59	3.33
1,3-Dichlorobenzene	3.3	U	3.3	0.50	ug/L			11/07/18 15:59	3.33
1,4-Dichlorobenzene	3.3	U	3.3	0.53	ug/L			11/07/18 15:59	3.33
Dichlorodifluoromethane	3.3	U	3.3	1.2	ug/L			11/07/18 15:59	3.33
1,1-Dichloroethane	3.3	U	3.3	0.57	ug/L			11/07/18 15:59	3.33
1,2-Dichloroethane	3.3	U	3.3	0.70	ug/L			11/07/18 15:59	3.33
1,1-Dichloroethene	3.3	U	3.3	0.63	ug/L			11/07/18 15:59	3.33
1,2-Dichloropropane	3.3	U	3.3	0.50	ug/L			11/07/18 15:59	3.33
Ethylbenzene	3.3	U	3.3	0.37	ug/L			11/07/18 15:59	3.33
2-Hexanone	33	U	33	1.8	ug/L			11/07/18 15:59	3.33
Isopropylbenzene	3.3	U	3.3	0.30	ug/L			11/07/18 15:59	3.33
Methyl acetate	33	U	33	5.7	ug/L			11/07/18 15:59	3.33
Methylcyclohexane	3.3	U	3.3	1.1	ug/L			11/07/18 15:59	3.33
Methylene Chloride	17	U	17	8.7	ug/L			11/07/18 15:59	3.33
4-Methyl-2-pentanone (MIBK)	33	U	33	1.4	ug/L			11/07/18 15:59	3.33
Methyl tert-butyl ether	3.3	U	3.3	0.23	ug/L			11/07/18 15:59	3.33
Styrene	3.3	U	3.3	0.33	ug/L			11/07/18 15:59	3.33
1,1,2,2-Tetrachloroethane	3.3	U	3.3	0.43	ug/L			11/07/18 15:59	3.33
Tetrachloroethene	3.3	U	3.3	0.50	ug/L			11/07/18 15:59	3.33
Toluene	3.3	U	3.3	0.47	ug/L			11/07/18 15:59	3.33
trans-1,2-Dichloroethene	0.88	J	3.3	0.63	ug/L			11/07/18 15:59	3.33
trans-1,3-Dichloropropene	3.3	U	3.3	2.2	ug/L			11/07/18 15:59	3.33
1,2,4-Trichlorobenzene	3.3	U	3.3	0.87	ug/L			11/07/18 15:59	3.33
1,1,1-Trichloroethane	1.3	J	3.3	0.80	ug/L			11/07/18 15:59	3.33
1,1,2-Trichloroethane	3.3	U	3.3	0.30	ug/L			11/07/18 15:59	3.33

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-67_102518

Lab Sample ID: 240-103550-2

Date Collected: 10/25/18 11:09

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	69		3.3	0.33	ug/L			11/07/18 15:59	3.33
Trichlorofluoromethane	3.3	U	3.3	1.5	ug/L			11/07/18 15:59	3.33
1,1,2-Trichloro-1,2,2-trifluoroethane	3.3	U	3.3	1.4	ug/L			11/07/18 15:59	3.33
1,2,3-Trimethylbenzene	17	U	17	0.47	ug/L			11/07/18 15:59	3.33
1,2,4-Trimethylbenzene	3.3	U	3.3	0.23	ug/L			11/07/18 15:59	3.33
1,3,5-Trimethylbenzene	3.3	U	3.3	0.40	ug/L			11/07/18 15:59	3.33
Vinyl chloride	3.3	U	3.3	0.67	ug/L			11/07/18 15:59	3.33
Xylenes, Total	6.7	U	6.7	0.50	ug/L			11/07/18 15:59	3.33
Diethyl ether	6.7	U	6.7	0.63	ug/L			11/07/18 15:59	3.33
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120					11/07/18 15:59	3.33
Dibromofluoromethane (Surr)	117		75 - 128					11/07/18 15:59	3.33
1,2-Dichloroethane-d4 (Surr)	110		70 - 121					11/07/18 15:59	3.33
Toluene-d8 (Surr)	93		70 - 123					11/07/18 15:59	3.33

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-57_102518

Lab Sample ID: 240-103550-3

Date Collected: 10/25/18 12:52

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.6		2.0	0.86	ug/L			11/05/18 16:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		63 - 125					11/05/18 16:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/06/18 19:41	1
Benzene	1.0	U	1.0	0.13	ug/L			11/06/18 19:41	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/06/18 19:41	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/06/18 19:41	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/06/18 19:41	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/06/18 19:41	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/06/18 19:41	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/06/18 19:41	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/06/18 19:41	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/06/18 19:41	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/06/18 19:41	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/06/18 19:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/06/18 19:41	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/06/18 19:41	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/06/18 19:41	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/06/18 19:41	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/06/18 19:41	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/06/18 19:41	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 19:41	1
1,3-Dichlorobenzene	0.16	J	1.0	0.15	ug/L			11/06/18 19:41	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/06/18 19:41	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/06/18 19:41	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/06/18 19:41	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/06/18 19:41	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 19:41	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/06/18 19:41	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/06/18 19:41	1
2-Hexanone	10	U	10	0.54	ug/L			11/06/18 19:41	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/06/18 19:41	1
Methyl acetate	10	U	10	1.7	ug/L			11/06/18 19:41	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/06/18 19:41	1
Methylene Chloride	2.6	J	5.0	2.6	ug/L			11/06/18 19:41	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/06/18 19:41	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/06/18 19:41	1
Styrene	1.0	U	1.0	0.10	ug/L			11/06/18 19:41	1
1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/06/18 19:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/06/18 19:41	1
Toluene	1.0	U	1.0	0.14	ug/L			11/06/18 19:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 19:41	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/06/18 19:41	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/06/18 19:41	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/06/18 19:41	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/06/18 19:41	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-57_102518

Lab Sample ID: 240-103550-3

Date Collected: 10/25/18 12:52

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/06/18 19:41	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/06/18 19:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/06/18 19:41	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/06/18 19:41	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/06/18 19:41	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/06/18 19:41	1
Vinyl chloride	0.64	J	1.0	0.20	ug/L			11/06/18 19:41	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/06/18 19:41	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/06/18 19:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120					11/06/18 19:41	1
Dibromofluoromethane (Surr)	119		75 - 128					11/06/18 19:41	1
1,2-Dichloroethane-d4 (Surr)	109		70 - 121					11/06/18 19:41	1
Toluene-d8 (Surr)	91		70 - 123					11/06/18 19:41	1

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-47_102518

Lab Sample ID: 240-103550-4

Date Collected: 10/25/18 14:33

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/05/18 16:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		63 - 125					11/05/18 16:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	50	U	50	27	ug/L			11/07/18 16:29	5
Benzene	5.0	U	5.0	0.65	ug/L			11/07/18 16:29	5
Bromodichloromethane	5.0	U	5.0	0.85	ug/L			11/07/18 16:29	5
Bromoform	5.0	U	5.0	3.8	ug/L			11/07/18 16:29	5
Bromomethane	5.0	U	5.0	2.1	ug/L			11/07/18 16:29	5
2-Butanone (MEK)	50	U	50	5.8	ug/L			11/07/18 16:29	5
Carbon disulfide	25	U	25	1.4	ug/L			11/07/18 16:29	5
Carbon tetrachloride	5.0	U	5.0	1.3	ug/L			11/07/18 16:29	5
Chlorobenzene	5.0	U	5.0	0.70	ug/L			11/07/18 16:29	5
Chloroethane	5.0	U	5.0	4.2	ug/L			11/07/18 16:29	5
Chloroform	5.0	U	5.0	0.65	ug/L			11/07/18 16:29	5
Chloromethane	5.0	U	5.0	1.0	ug/L			11/07/18 16:29	5
cis-1,2-Dichloroethene	48		5.0	0.80	ug/L			11/07/18 16:29	5
cis-1,3-Dichloropropene	5.0	U	5.0	3.1	ug/L			11/07/18 16:29	5
Cyclohexane	5.0	U	5.0	1.2	ug/L			11/07/18 16:29	5
Dibromochloromethane	5.0	U	5.0	2.0	ug/L			11/07/18 16:29	5
1,2-Dibromo-3-Chloropropane	5.0	U	5.0	4.6	ug/L			11/07/18 16:29	5
1,2-Dibromoethane	5.0	U	5.0	0.60	ug/L			11/07/18 16:29	5
1,2-Dichlorobenzene	5.0	U	5.0	0.75	ug/L			11/07/18 16:29	5
1,3-Dichlorobenzene	5.0	U	5.0	0.75	ug/L			11/07/18 16:29	5
1,4-Dichlorobenzene	5.0	U	5.0	0.80	ug/L			11/07/18 16:29	5
Dichlorodifluoromethane	5.0	U	5.0	1.8	ug/L			11/07/18 16:29	5
1,1-Dichloroethane	5.1		5.0	0.85	ug/L			11/07/18 16:29	5
1,2-Dichloroethane	5.0	U	5.0	1.1	ug/L			11/07/18 16:29	5
1,1-Dichloroethene	5.0	U	5.0	0.95	ug/L			11/07/18 16:29	5
1,2-Dichloropropane	5.0	U	5.0	0.75	ug/L			11/07/18 16:29	5
Ethylbenzene	5.0	U	5.0	0.55	ug/L			11/07/18 16:29	5
2-Hexanone	50	U	50	2.7	ug/L			11/07/18 16:29	5
Isopropylbenzene	5.0	U	5.0	0.45	ug/L			11/07/18 16:29	5
Methyl acetate	50	U	50	8.6	ug/L			11/07/18 16:29	5
Methylcyclohexane	5.0	U	5.0	1.7	ug/L			11/07/18 16:29	5
Methylene Chloride	25	U	25	13	ug/L			11/07/18 16:29	5
4-Methyl-2-pentanone (MIBK)	50	U	50	2.1	ug/L			11/07/18 16:29	5
Methyl tert-butyl ether	5.0	U	5.0	0.35	ug/L			11/07/18 16:29	5
Styrene	5.0	U	5.0	0.50	ug/L			11/07/18 16:29	5
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.65	ug/L			11/07/18 16:29	5
Tetrachloroethene	5.0	U	5.0	0.75	ug/L			11/07/18 16:29	5
Toluene	5.0	U	5.0	0.70	ug/L			11/07/18 16:29	5
trans-1,2-Dichloroethene	7.1		5.0	0.95	ug/L			11/07/18 16:29	5
trans-1,3-Dichloropropene	5.0	U	5.0	3.4	ug/L			11/07/18 16:29	5
1,2,4-Trichlorobenzene	5.0	U	5.0	1.3	ug/L			11/07/18 16:29	5
1,1,1-Trichloroethane	3.1	J	5.0	1.2	ug/L			11/07/18 16:29	5
1,1,2-Trichloroethane	5.0	U	5.0	0.45	ug/L			11/07/18 16:29	5

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-47_102518

Lab Sample ID: 240-103550-4

Date Collected: 10/25/18 14:33

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	5.0	U	5.0	0.50	ug/L			11/07/18 16:29	5
Trichlorofluoromethane	5.0	U	5.0	2.3	ug/L			11/07/18 16:29	5
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	5.0	2.1	ug/L			11/07/18 16:29	5
1,2,3-Trimethylbenzene	25	U	25	0.70	ug/L			11/07/18 16:29	5
1,2,4-Trimethylbenzene	5.0	U	5.0	0.35	ug/L			11/07/18 16:29	5
1,3,5-Trimethylbenzene	5.0	U	5.0	0.60	ug/L			11/07/18 16:29	5
Vinyl chloride	100		5.0	1.0	ug/L			11/07/18 16:29	5
Xylenes, Total	10	U	10	0.75	ug/L			11/07/18 16:29	5
Diethyl ether	10	U	10	0.95	ug/L			11/07/18 16:29	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120					11/07/18 16:29	5
Dibromofluoromethane (Surr)	113		75 - 128					11/07/18 16:29	5
1,2-Dichloroethane-d4 (Surr)	105		70 - 121					11/07/18 16:29	5
Toluene-d8 (Surr)	92		70 - 123					11/07/18 16:29	5

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-68_102518

Lab Sample ID: 240-103550-5

Date Collected: 10/25/18 00:00

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/05/18 17:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125					11/05/18 17:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/06/18 20:29	1
Benzene	1.0	U	1.0	0.13	ug/L			11/06/18 20:29	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/06/18 20:29	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/06/18 20:29	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/06/18 20:29	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/06/18 20:29	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/06/18 20:29	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/06/18 20:29	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/06/18 20:29	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/06/18 20:29	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/06/18 20:29	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/06/18 20:29	1
cis-1,2-Dichloroethene	17		1.0	0.16	ug/L			11/06/18 20:29	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/06/18 20:29	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/06/18 20:29	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/06/18 20:29	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/06/18 20:29	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/06/18 20:29	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 20:29	1
1,3-Dichlorobenzene	0.25 J		1.0	0.15	ug/L			11/06/18 20:29	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/06/18 20:29	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/06/18 20:29	1
1,1-Dichloroethane	2.1		1.0	0.17	ug/L			11/06/18 20:29	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/06/18 20:29	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 20:29	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/06/18 20:29	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/06/18 20:29	1
2-Hexanone	10	U	10	0.54	ug/L			11/06/18 20:29	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/06/18 20:29	1
Methyl acetate	10	U	10	1.7	ug/L			11/06/18 20:29	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/06/18 20:29	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			11/06/18 20:29	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/06/18 20:29	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/06/18 20:29	1
Styrene	1.0	U	1.0	0.10	ug/L			11/06/18 20:29	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/06/18 20:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/06/18 20:29	1
Toluene	1.0	U	1.0	0.14	ug/L			11/06/18 20:29	1
trans-1,2-Dichloroethene	2.1		1.0	0.19	ug/L			11/06/18 20:29	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/06/18 20:29	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/06/18 20:29	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/06/18 20:29	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/06/18 20:29	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-68_102518

Lab Sample ID: 240-103550-5

Date Collected: 10/25/18 00:00

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/06/18 20:29	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/06/18 20:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/06/18 20:29	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/06/18 20:29	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/06/18 20:29	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/06/18 20:29	1
Vinyl chloride	2.1		1.0	0.20	ug/L			11/06/18 20:29	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/06/18 20:29	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/06/18 20:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120					11/06/18 20:29	1
Dibromofluoromethane (Surr)	117		75 - 128					11/06/18 20:29	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 121					11/06/18 20:29	1
Toluene-d8 (Surr)	93		70 - 123					11/06/18 20:29	1

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-29_102618

Lab Sample ID: 240-103550-6

Date Collected: 10/26/18 09:48

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.3	F2	2.0	0.86	ug/L			11/05/18 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		63 - 125					11/05/18 17:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/07/18 16:52	1
Benzene	1.0	U	1.0	0.13	ug/L			11/07/18 16:52	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/07/18 16:52	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/07/18 16:52	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/07/18 16:52	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/07/18 16:52	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/07/18 16:52	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/07/18 16:52	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/07/18 16:52	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/07/18 16:52	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/07/18 16:52	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/07/18 16:52	1
cis-1,2-Dichloroethene	0.20	J	1.0	0.16	ug/L			11/07/18 16:52	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/07/18 16:52	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/07/18 16:52	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/07/18 16:52	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/07/18 16:52	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/07/18 16:52	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/07/18 16:52	1
1,3-Dichlorobenzene	0.27	J	1.0	0.15	ug/L			11/07/18 16:52	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/07/18 16:52	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/07/18 16:52	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/07/18 16:52	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/07/18 16:52	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/07/18 16:52	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/07/18 16:52	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/07/18 16:52	1
2-Hexanone	10	U	10	0.54	ug/L			11/07/18 16:52	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/07/18 16:52	1
Methyl acetate	10	U	10	1.7	ug/L			11/07/18 16:52	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/07/18 16:52	1
Methylene Chloride	3.4	J	5.0	2.6	ug/L			11/07/18 16:52	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/07/18 16:52	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/07/18 16:52	1
Styrene	1.0	U	1.0	0.10	ug/L			11/07/18 16:52	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/07/18 16:52	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/07/18 16:52	1
Toluene	1.0	U	1.0	0.14	ug/L			11/07/18 16:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/07/18 16:52	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/07/18 16:52	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/07/18 16:52	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/07/18 16:52	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/07/18 16:52	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-29_102618

Lab Sample ID: 240-103550-6

Date Collected: 10/26/18 09:48

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/07/18 16:52	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/07/18 16:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/07/18 16:52	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/07/18 16:52	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/07/18 16:52	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/07/18 16:52	1
Vinyl chloride	0.20	J	1.0	0.20	ug/L			11/07/18 16:52	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/07/18 16:52	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/07/18 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120					11/07/18 16:52	1
Dibromofluoromethane (Surr)	119		75 - 128					11/07/18 16:52	1
1,2-Dichloroethane-d4 (Surr)	109		70 - 121					11/07/18 16:52	1
Toluene-d8 (Surr)	91		70 - 123					11/07/18 16:52	1

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-26_102618

Lab Sample ID: 240-103550-7

Date Collected: 10/26/18 11:27

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/05/18 18:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		63 - 125					11/05/18 18:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/07/18 17:16	1
Benzene	1.0	U	1.0	0.13	ug/L			11/07/18 17:16	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/07/18 17:16	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/07/18 17:16	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/07/18 17:16	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/07/18 17:16	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/07/18 17:16	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/07/18 17:16	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/07/18 17:16	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/07/18 17:16	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/07/18 17:16	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/07/18 17:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/07/18 17:16	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/07/18 17:16	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/07/18 17:16	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/07/18 17:16	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/07/18 17:16	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/07/18 17:16	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/07/18 17:16	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/07/18 17:16	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/07/18 17:16	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/07/18 17:16	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/07/18 17:16	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/07/18 17:16	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/07/18 17:16	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/07/18 17:16	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/07/18 17:16	1
2-Hexanone	10	U	10	0.54	ug/L			11/07/18 17:16	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/07/18 17:16	1
Methyl acetate	10	U	10	1.7	ug/L			11/07/18 17:16	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/07/18 17:16	1
Methylene Chloride	3.1	J	5.0	2.6	ug/L			11/07/18 17:16	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/07/18 17:16	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/07/18 17:16	1
Styrene	1.0	U	1.0	0.10	ug/L			11/07/18 17:16	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/07/18 17:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/07/18 17:16	1
Toluene	1.0	U	1.0	0.14	ug/L			11/07/18 17:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/07/18 17:16	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/07/18 17:16	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/07/18 17:16	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/07/18 17:16	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/07/18 17:16	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-26_102618

Lab Sample ID: 240-103550-7

Date Collected: 10/26/18 11:27

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/07/18 17:16	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/07/18 17:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/07/18 17:16	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/07/18 17:16	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/07/18 17:16	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/07/18 17:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/07/18 17:16	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/07/18 17:16	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/07/18 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		59 - 120					11/07/18 17:16	1
Dibromofluoromethane (Surr)	120		75 - 128					11/07/18 17:16	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 121					11/07/18 17:16	1
Toluene-d8 (Surr)	91		70 - 123					11/07/18 17:16	1

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-21_102618

Lab Sample ID: 240-103550-8

Date Collected: 10/26/18 13:53

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	14		2.0	0.86	ug/L			11/05/18 19:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		63 - 125					11/05/18 19:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	17000	U	17000	9000	ug/L			11/08/18 13:16	1666.67
Benzene	1700	U	1700	220	ug/L			11/08/18 13:16	1666.67
Bromodichloromethane	1700	U	1700	280	ug/L			11/08/18 13:16	1666.67
Bromoform	1700	U	1700	1300	ug/L			11/08/18 13:16	1666.67
Bromomethane	1700	U	1700	700	ug/L			11/08/18 13:16	1666.67
2-Butanone (MEK)	17000	U	17000	1900	ug/L			11/08/18 13:16	1666.67
Carbon disulfide	8300	U	8300	470	ug/L			11/08/18 13:16	1666.67
Carbon tetrachloride	1700	U	1700	430	ug/L			11/08/18 13:16	1666.67
Chlorobenzene	1700	U	1700	230	ug/L			11/08/18 13:16	1666.67
Chloroethane	1700	U	1700	1400	ug/L			11/08/18 13:16	1666.67
Chloroform	1700	U	1700	220	ug/L			11/08/18 13:16	1666.67
Chloromethane	1700	U	1700	330	ug/L			11/08/18 13:16	1666.67
cis-1,2-Dichloroethene	40000		1700	270	ug/L			11/08/18 13:16	1666.67
cis-1,3-Dichloropropene	1700	U	1700	1000	ug/L			11/08/18 13:16	1666.67
Cyclohexane	1700	U	1700	400	ug/L			11/08/18 13:16	1666.67
Dibromochloromethane	1700	U	1700	650	ug/L			11/08/18 13:16	1666.67
1,2-Dibromo-3-Chloropropane	1700	U	1700	1500	ug/L			11/08/18 13:16	1666.67
1,2-Dibromoethane	1700	U	1700	200	ug/L			11/08/18 13:16	1666.67
1,2-Dichlorobenzene	1700	U	1700	250	ug/L			11/08/18 13:16	1666.67
1,3-Dichlorobenzene	1700	U	1700	250	ug/L			11/08/18 13:16	1666.67
1,4-Dichlorobenzene	1700	U	1700	270	ug/L			11/08/18 13:16	1666.67
Dichlorodifluoromethane	1700	U	1700	580	ug/L			11/08/18 13:16	1666.67
1,1-Dichloroethane	1700	U	1700	280	ug/L			11/08/18 13:16	1666.67
1,2-Dichloroethane	1700	U	1700	350	ug/L			11/08/18 13:16	1666.67
1,1-Dichloroethene	1700	U	1700	320	ug/L			11/08/18 13:16	1666.67
1,2-Dichloropropane	1700	U	1700	250	ug/L			11/08/18 13:16	1666.67
Ethylbenzene	1700	U	1700	180	ug/L			11/08/18 13:16	1666.67
2-Hexanone	17000	U	17000	900	ug/L			11/08/18 13:16	1666.67
Isopropylbenzene	1700	U	1700	150	ug/L			11/08/18 13:16	1666.67
Methyl acetate	17000	U	17000	2900	ug/L			11/08/18 13:16	1666.67
Methylcyclohexane	1700	U	1700	550	ug/L			11/08/18 13:16	1666.67
Methylene Chloride	8300	U	8300	4400	ug/L			11/08/18 13:16	1666.67
4-Methyl-2-pentanone (MIBK)	17000	U	17000	700	ug/L			11/08/18 13:16	1666.67
Methyl tert-butyl ether	1700	U	1700	120	ug/L			11/08/18 13:16	1666.67
Styrene	1700	U	1700	170	ug/L			11/08/18 13:16	1666.67
1,1,2,2-Tetrachloroethane	1700	U	1700	220	ug/L			11/08/18 13:16	1666.67
Tetrachloroethene	1700	U	1700	250	ug/L			11/08/18 13:16	1666.67
Toluene	1700	U	1700	230	ug/L			11/08/18 13:16	1666.67
trans-1,2-Dichloroethene	1700	U	1700	320	ug/L			11/08/18 13:16	1666.67
trans-1,3-Dichloropropene	1700	U	1700	1100	ug/L			11/08/18 13:16	1666.67
1,2,4-Trichlorobenzene	1700	U	1700	430	ug/L			11/08/18 13:16	1666.67
1,1,1-Trichloroethane	1700	U	1700	400	ug/L			11/08/18 13:16	1666.67
1,1,2-Trichloroethane	1700	U	1700	150	ug/L			11/08/18 13:16	1666.67

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-21_102618

Lab Sample ID: 240-103550-8

Date Collected: 10/26/18 13:53

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	1900		1700	170	ug/L			11/08/18 13:16	1666.67
Trichlorofluoromethane	1700	U	1700	750	ug/L			11/08/18 13:16	1666.67
1,1,2-Trichloro-1,2,2-trifluoroethane	1700	U	1700	680	ug/L			11/08/18 13:16	1666.67
1,2,3-Trimethylbenzene	8300	U	8300	230	ug/L			11/08/18 13:16	1666.67
1,2,4-Trimethylbenzene	1700	U	1700	120	ug/L			11/08/18 13:16	1666.67
1,3,5-Trimethylbenzene	1700	U	1700	200	ug/L			11/08/18 13:16	1666.67
Vinyl chloride	7800		1700	330	ug/L			11/08/18 13:16	1666.67
Xylenes, Total	3300	U	3300	250	ug/L			11/08/18 13:16	1666.67
Diethyl ether	3300	U	3300	320	ug/L			11/08/18 13:16	1666.67
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		59 - 120					11/08/18 13:16	1666.67
Dibromofluoromethane (Surr)	108		75 - 128					11/08/18 13:16	1666.67
1,2-Dichloroethane-d4 (Surr)	100		70 - 121					11/08/18 13:16	1666.67
Toluene-d8 (Surr)	96		70 - 123					11/08/18 13:16	1666.67

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-19_102618

Lab Sample ID: 240-103550-9

Date Collected: 10/26/18 15:15

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	150		2.0	0.86	ug/L			11/05/18 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		63 - 125					11/05/18 19:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/06/18 20:53	1
Benzene	1.0	U	1.0	0.13	ug/L			11/06/18 20:53	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/06/18 20:53	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/06/18 20:53	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/06/18 20:53	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/06/18 20:53	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/06/18 20:53	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/06/18 20:53	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/06/18 20:53	1
Chloroethane	4.1		1.0	0.83	ug/L			11/06/18 20:53	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/06/18 20:53	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/06/18 20:53	1
cis-1,2-Dichloroethene	1.6		1.0	0.16	ug/L			11/06/18 20:53	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/06/18 20:53	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/06/18 20:53	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/06/18 20:53	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/06/18 20:53	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/06/18 20:53	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 20:53	1
1,3-Dichlorobenzene	0.34	J	1.0	0.15	ug/L			11/06/18 20:53	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/06/18 20:53	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/06/18 20:53	1
1,1-Dichloroethane	6.6		1.0	0.17	ug/L			11/06/18 20:53	1
1,2-Dichloroethane	0.47	J	1.0	0.21	ug/L			11/06/18 20:53	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 20:53	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/06/18 20:53	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/06/18 20:53	1
2-Hexanone	10	U	10	0.54	ug/L			11/06/18 20:53	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/06/18 20:53	1
Methyl acetate	10	U	10	1.7	ug/L			11/06/18 20:53	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/06/18 20:53	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			11/06/18 20:53	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/06/18 20:53	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/06/18 20:53	1
Styrene	1.0	U	1.0	0.10	ug/L			11/06/18 20:53	1
1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/06/18 20:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/06/18 20:53	1
Toluene	1.0	U	1.0	0.14	ug/L			11/06/18 20:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 20:53	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/06/18 20:53	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/06/18 20:53	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/06/18 20:53	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/06/18 20:53	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-19_102618

Lab Sample ID: 240-103550-9

Date Collected: 10/26/18 15:15

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.97	J	1.0	0.10	ug/L			11/06/18 20:53	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/06/18 20:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/06/18 20:53	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/06/18 20:53	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/06/18 20:53	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/06/18 20:53	1
Vinyl chloride	1.6		1.0	0.20	ug/L			11/06/18 20:53	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/06/18 20:53	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/06/18 20:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120					11/06/18 20:53	1
Dibromofluoromethane (Surr)	116		75 - 128					11/06/18 20:53	1
1,2-Dichloroethane-d4 (Surr)	112		70 - 121					11/06/18 20:53	1
Toluene-d8 (Surr)	93		70 - 123					11/06/18 20:53	1

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-103550-10

Date Collected: 10/25/18 00:00

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/06/18 21:16	1
Benzene	1.0	U	1.0	0.13	ug/L			11/06/18 21:16	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/06/18 21:16	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/06/18 21:16	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/06/18 21:16	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/06/18 21:16	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/06/18 21:16	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/06/18 21:16	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/06/18 21:16	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/06/18 21:16	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/06/18 21:16	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/06/18 21:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/06/18 21:16	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/06/18 21:16	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/06/18 21:16	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/06/18 21:16	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/06/18 21:16	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/06/18 21:16	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 21:16	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 21:16	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/06/18 21:16	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/06/18 21:16	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/06/18 21:16	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/06/18 21:16	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 21:16	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/06/18 21:16	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/06/18 21:16	1
2-Hexanone	10	U	10	0.54	ug/L			11/06/18 21:16	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/06/18 21:16	1
Methyl acetate	10	U	10	1.7	ug/L			11/06/18 21:16	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/06/18 21:16	1
Methylene Chloride	3.2	J	5.0	2.6	ug/L			11/06/18 21:16	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/06/18 21:16	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/06/18 21:16	1
Styrene	1.0	U	1.0	0.10	ug/L			11/06/18 21:16	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/06/18 21:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/06/18 21:16	1
Toluene	1.0	U	1.0	0.14	ug/L			11/06/18 21:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 21:16	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/06/18 21:16	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/06/18 21:16	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/06/18 21:16	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/06/18 21:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/06/18 21:16	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/06/18 21:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/06/18 21:16	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/06/18 21:16	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/06/18 21:16	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/06/18 21:16	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-103550-10

Date Collected: 10/25/18 00:00

Matrix: Water

Date Received: 10/30/18 10:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/06/18 21:16	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/06/18 21:16	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/06/18 21:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		59 - 120					11/06/18 21:16	1
Dibromofluoromethane (Surr)	118		75 - 128					11/06/18 21:16	1
1,2-Dichloroethane-d4 (Surr)	113		70 - 121					11/06/18 21:16	1
Toluene-d8 (Surr)	93		70 - 123					11/06/18 21:16	1

Surrogate Summary

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

TestAmerica Job ID: 240-103550-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (59-120)	DBFM (75-128)	DCA (70-121)	TOL (70-123)
240-103424-B-7 MS	Matrix Spike	100	96	89	102
240-103424-B-7 MSD	Matrix Spike Duplicate	100	97	88	101
240-103550-1	MW-48_102518	77	121	115	93
240-103550-2	MW-67_102518	76	117	110	93
240-103550-3	MW-57_102518	75	119	109	91
240-103550-4	MW-47_102518	75	113	105	92
240-103550-5	MW-68_102518	75	117	111	93
240-103550-6	MW-29_102618	75	119	109	91
240-103550-7	MW-26_102618	75	120	111	91
240-103550-8	MW-21_102618	82	108	100	96
240-103550-9	MW-19_102618	76	116	112	93
240-103550-10	TRIP BLANK	78	118	113	93
240-103555-D-4 MS	Matrix Spike	104	99	92	105
240-103555-E-4 MSD	Matrix Spike Duplicate	103	96	89	102
240-103638-B-8 MS	Matrix Spike	100	97	88	102
240-103638-C-8 MSD	Matrix Spike Duplicate	99	96	88	100
LCS 240-353882/4	Lab Control Sample	101	97	87	101
LCS 240-354118/4	Lab Control Sample	101	97	88	103
LCS 240-354323/4	Lab Control Sample	98	94	87	101
MB 240-353882/6	Method Blank	76	110	104	93
MB 240-354118/6	Method Blank	80	112	105	94
MB 240-354323/6	Method Blank	78	110	105	94

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (63-125)
240-103550-1	MW-48_102518	104
240-103550-2	MW-67_102518	108
240-103550-3	MW-57_102518	104
240-103550-4	MW-47_102518	107
240-103550-5	MW-68_102518	108
240-103550-6	MW-29_102618	110
240-103550-6 MS	MW-29_102618	109
240-103550-6 MSD	MW-29_102618	108
240-103550-7	MW-26_102618	105
240-103550-8	MW-21_102618	93
240-103550-9	MW-19_102618	109
LCS 240-353689/4	Lab Control Sample	103
MB 240-353689/5	Method Blank	106

Surrogate Legend

TestAmerica Canton

Surrogate Summary

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

TestAmerica Job ID: 240-103550-1

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

- 1
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QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: MB 240-353882/6

Matrix: Water

Analysis Batch: 353882

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/06/18 13:04	1
Benzene	1.0	U	1.0	0.13	ug/L			11/06/18 13:04	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/06/18 13:04	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/06/18 13:04	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/06/18 13:04	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/06/18 13:04	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/06/18 13:04	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/06/18 13:04	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/06/18 13:04	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/06/18 13:04	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/06/18 13:04	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/06/18 13:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/06/18 13:04	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/06/18 13:04	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/06/18 13:04	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/06/18 13:04	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/06/18 13:04	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/06/18 13:04	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 13:04	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/06/18 13:04	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/06/18 13:04	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/06/18 13:04	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/06/18 13:04	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/06/18 13:04	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 13:04	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/06/18 13:04	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/06/18 13:04	1
2-Hexanone	10	U	10	0.54	ug/L			11/06/18 13:04	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/06/18 13:04	1
Methyl acetate	10	U	10	1.7	ug/L			11/06/18 13:04	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/06/18 13:04	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			11/06/18 13:04	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/06/18 13:04	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/06/18 13:04	1
Styrene	1.0	U	1.0	0.10	ug/L			11/06/18 13:04	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/06/18 13:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/06/18 13:04	1
Toluene	1.0	U	1.0	0.14	ug/L			11/06/18 13:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/06/18 13:04	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/06/18 13:04	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/06/18 13:04	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/06/18 13:04	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/06/18 13:04	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/06/18 13:04	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/06/18 13:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/06/18 13:04	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/06/18 13:04	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/06/18 13:04	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: MB 240-353882/6
Matrix: Water
Analysis Batch: 353882

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/06/18 13:04	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/06/18 13:04	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/06/18 13:04	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/06/18 13:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		59 - 120		11/06/18 13:04	1
Dibromofluoromethane (Surr)	110		75 - 128		11/06/18 13:04	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 121		11/06/18 13:04	1
Toluene-d8 (Surr)	93		70 - 123		11/06/18 13:04	1

Lab Sample ID: LCS 240-353882/4
Matrix: Water
Analysis Batch: 353882

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	19.3		ug/L		96	21 - 162
Benzene	10.0	10.8		ug/L		108	80 - 123
Bromodichloromethane	10.0	9.29		ug/L		93	77 - 125
Bromoform	10.0	8.09		ug/L		81	49 - 141
Bromomethane	10.0	8.50		ug/L		85	41 - 175
2-Butanone (MEK)	20.0	19.7		ug/L		98	39 - 163
Carbon disulfide	10.0	10.5		ug/L		105	60 - 138
Carbon tetrachloride	10.0	10.1		ug/L		101	63 - 140
Chlorobenzene	10.0	10.7		ug/L		107	80 - 121
Chloroethane	10.0	7.57		ug/L		76	33 - 173
Chloroform	10.0	10.3		ug/L		103	79 - 127
Chloromethane	10.0	12.2		ug/L		122	54 - 143
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
cis-1,3-Dichloropropene	10.0	9.20		ug/L		92	64 - 132
Cyclohexane	10.0	10.7		ug/L		107	58 - 145
Dibromochloromethane	10.0	9.10		ug/L		91	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	7.79		ug/L		78	46 - 132
1,2-Dibromoethane	10.0	10.4		ug/L		104	77 - 123
1,2-Dichlorobenzene	10.0	10.2		ug/L		102	78 - 120
1,3-Dichlorobenzene	10.0	10.0		ug/L		100	78 - 120
1,4-Dichlorobenzene	10.0	9.89		ug/L		99	78 - 120
Dichlorodifluoromethane	10.0	10.4		ug/L		104	29 - 148
1,1-Dichloroethane	10.0	10.6		ug/L		106	75 - 133
1,2-Dichloroethane	10.0	9.17		ug/L		92	71 - 135
1,1-Dichloroethene	10.0	11.3		ug/L		113	65 - 139
1,2-Dichloropropane	10.0	11.3		ug/L		113	78 - 133
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
2-Hexanone	20.0	18.5		ug/L		93	43 - 148
Isopropylbenzene	10.0	10.2		ug/L		102	74 - 120
Methyl acetate	20.0	21.9		ug/L		110	52 - 145
Methylcyclohexane	10.0	9.64		ug/L		96	60 - 125
Methylene Chloride	10.0	11.2		ug/L		112	70 - 134

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QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: LCS 240-353882/4

Matrix: Water

Analysis Batch: 353882

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	17.9		ug/L		90	49 - 143
Methyl tert-butyl ether	10.0	5.93		ug/L		59	51 - 133
Styrene	10.0	10.9		ug/L		109	79 - 120
1,1,2,2-Tetrachloroethane	10.0	10.4		ug/L		104	65 - 139
Tetrachloroethene	10.0	10.7		ug/L		107	74 - 130
Toluene	10.0	11.0		ug/L		110	78 - 129
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
trans-1,3-Dichloropropene	10.0	9.07		ug/L		91	55 - 128
1,2,4-Trichlorobenzene	10.0	8.02		ug/L		80	42 - 133
1,1,1-Trichloroethane	10.0	9.62		ug/L		96	69 - 134
1,1,2-Trichloroethane	10.0	11.7		ug/L		117	78 - 133
Trichloroethene	10.0	9.86		ug/L		99	76 - 125
Trichlorofluoromethane	10.0	10.4		ug/L		104	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.5		ug/L		115	50 - 156
1,2,4-Trimethylbenzene	10.0	9.85		ug/L		99	74 - 120
1,3,5-Trimethylbenzene	10.0	9.93		ug/L		99	75 - 121
Vinyl chloride	10.0	10.9		ug/L		109	58 - 143
Xylenes, Total	20.0	21.2		ug/L		106	80 - 120
1,4-Dioxane	200	141		ug/L		70	10 - 175
Diethyl ether	10.0	11.1		ug/L		111	70 - 146

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
4-Bromofluorobenzene (Surr)	101		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	87		70 - 121
Toluene-d8 (Surr)	101		70 - 123

Lab Sample ID: 240-103424-B-7 MS

Matrix: Water

Analysis Batch: 353882

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	500	U	1000	951		ug/L		95	10 - 168
Benzene	50	U	500	541		ug/L		108	71 - 122
Bromodichloromethane	50	U	500	458		ug/L		92	64 - 125
Bromoform	50	U	500	412		ug/L		82	44 - 129
Bromomethane	50	U	500	408		ug/L		82	19 - 187
2-Butanone (MEK)	500	U	1000	935		ug/L		93	37 - 156
Carbon disulfide	250	U	500	504		ug/L		101	43 - 144
Carbon tetrachloride	50	U	500	483		ug/L		97	41 - 143
Chlorobenzene	50	U	500	541		ug/L		108	70 - 123
Chloroethane	50	U	500	370		ug/L		74	11 - 189
Chloroform	50	U	500	515		ug/L		103	68 - 130
Chloromethane	50	U	500	583		ug/L		117	31 - 154
cis-1,2-Dichloroethene	1200		500	1560		ug/L		71	64 - 130
cis-1,3-Dichloropropene	50	U	500	422		ug/L		84	48 - 127
Cyclohexane	50	U	500	490		ug/L		98	42 - 135

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: 240-103424-B-7 MS

Matrix: Water

Analysis Batch: 353882

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Dibromochloromethane	50	U	500	475		ug/L		95	60 - 129
1,2-Dibromo-3-Chloropropane	50	U	500	407		ug/L		81	38 - 124
1,2-Dibromoethane	50	U	500	537		ug/L		107	71 - 123
1,2-Dichlorobenzene	50	U	500	526		ug/L		105	64 - 120
1,3-Dichlorobenzene	50	U	500	500		ug/L		100	62 - 120
1,4-Dichlorobenzene	50	U	500	496		ug/L		99	63 - 120
Dichlorodifluoromethane	50	U	500	496		ug/L		99	28 - 136
1,1-Dichloroethane	50	U	500	528		ug/L		106	63 - 136
1,2-Dichloroethane	50	U	500	472		ug/L		94	65 - 135
1,1-Dichloroethene	50	U	500	560		ug/L		112	53 - 140
1,2-Dichloropropane	50	U	500	546		ug/L		109	70 - 132
Ethylbenzene	50	U	500	525		ug/L		105	66 - 120
2-Hexanone	500	U	1000	1030		ug/L		103	42 - 150
Isopropylbenzene	50	U	500	500		ug/L		100	59 - 120
Methyl acetate	500	U	1000	1120		ug/L		112	41 - 142
Methylcyclohexane	50	U	500	440		ug/L		88	37 - 123
Methylene Chloride	250	U	500	579		ug/L		116	61 - 130
4-Methyl-2-pentanone (MIBK)	500	U	1000	905		ug/L		90	44 - 143
Methyl tert-butyl ether	50	U	500	296		ug/L		59	41 - 136
Styrene	50	U	500	546		ug/L		109	68 - 120
1,1,2,2-Tetrachloroethane	50	U	500	539		ug/L		108	60 - 137
Tetrachloroethene	50	U	500	542		ug/L		108	51 - 136
Toluene	50	U	500	564		ug/L		113	62 - 132
trans-1,2-Dichloroethene	50	U	500	553		ug/L		111	68 - 133
trans-1,3-Dichloropropene	50	U	500	450		ug/L		90	40 - 125
1,2,4-Trichlorobenzene	50	U	500	385		ug/L		77	30 - 126
1,1,1-Trichloroethane	50	U	500	470		ug/L		94	51 - 138
1,1,2-Trichloroethane	50	U	500	604		ug/L		121	76 - 132
Trichloroethene	560		500	969		ug/L		81	55 - 131
Trichlorofluoromethane	50	U	500	509		ug/L		102	37 - 174
1,1,2-Trichloro-1,2,2-trifluoroethane	50	U	500	541		ug/L		108	31 - 156
Vinyl chloride	50	U	500	516		ug/L		103	43 - 154
Xylenes, Total	100	U	1000	1060		ug/L		106	67 - 120

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		59 - 120
Dibromofluoromethane (Surr)	96		75 - 128
1,2-Dichloroethane-d4 (Surr)	89		70 - 121
Toluene-d8 (Surr)	102		70 - 123

Lab Sample ID: 240-103424-B-7 MSD

Matrix: Water

Analysis Batch: 353882

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Acetone	500	U	1000	817		ug/L		82	10 - 168	15	35
Benzene	50	U	500	525		ug/L		105	71 - 122	3	22

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: 240-103424-B-7 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 353882

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Bromodichloromethane	50	U	500	460		ug/L		92	64 - 125	1	27
Bromoform	50	U	500	378		ug/L		76	44 - 129	9	28
Bromomethane	50	U	500	437		ug/L		87	19 - 187	7	35
2-Butanone (MEK)	500	U	1000	919		ug/L		92	37 - 156	2	35
Carbon disulfide	250	U	500	505		ug/L		101	43 - 144	0	33
Carbon tetrachloride	50	U	500	483		ug/L		97	41 - 143	0	30
Chlorobenzene	50	U	500	526		ug/L		105	70 - 123	3	23
Chloroethane	50	U	500	412		ug/L		82	11 - 189	11	35
Chloroform	50	U	500	511		ug/L		102	68 - 130	1	23
Chloromethane	50	U	500	587		ug/L		117	31 - 154	1	35
cis-1,2-Dichloroethene	1200		500	1560		ug/L		71	64 - 130	0	21
cis-1,3-Dichloropropene	50	U	500	420		ug/L		84	48 - 127	0	30
Cyclohexane	50	U	500	481		ug/L		96	42 - 135	2	35
Dibromochloromethane	50	U	500	461		ug/L		92	60 - 129	3	26
1,2-Dibromo-3-Chloropropane	50	U	500	391		ug/L		78	38 - 124	4	35
1,2-Dibromoethane	50	U	500	518		ug/L		104	71 - 123	4	27
1,2-Dichlorobenzene	50	U	500	504		ug/L		101	64 - 120	4	30
1,3-Dichlorobenzene	50	U	500	487		ug/L		97	62 - 120	3	31
1,4-Dichlorobenzene	50	U	500	484		ug/L		97	63 - 120	2	28
Dichlorodifluoromethane	50	U	500	486		ug/L		97	28 - 136	2	35
1,1-Dichloroethane	50	U	500	518		ug/L		104	63 - 136	2	23
1,2-Dichloroethane	50	U	500	453		ug/L		91	65 - 135	4	24
1,1-Dichloroethene	50	U	500	553		ug/L		111	53 - 140	1	35
1,2-Dichloropropane	50	U	500	544		ug/L		109	70 - 132	0	26
Ethylbenzene	50	U	500	521		ug/L		104	66 - 120	1	24
2-Hexanone	500	U	1000	935		ug/L		94	42 - 150	10	35
Isopropylbenzene	50	U	500	493		ug/L		99	59 - 120	1	31
Methyl acetate	500	U	1000	1040		ug/L		104	41 - 142	7	35
Methylcyclohexane	50	U	500	429		ug/L		86	37 - 123	3	35
Methylene Chloride	250	U	500	558		ug/L		112	61 - 130	4	29
4-Methyl-2-pentanone (MIBK)	500	U	1000	866		ug/L		87	44 - 143	4	35
Methyl tert-butyl ether	50	U	500	274		ug/L		55	41 - 136	8	29
Styrene	50	U	500	532		ug/L		106	68 - 120	3	26
1,1,2,2-Tetrachloroethane	50	U	500	512		ug/L		102	60 - 137	5	31
Tetrachloroethene	50	U	500	531		ug/L		106	51 - 136	2	23
Toluene	50	U	500	547		ug/L		109	62 - 132	3	23
trans-1,2-Dichloroethene	50	U	500	540		ug/L		108	68 - 133	2	24
trans-1,3-Dichloropropene	50	U	500	432		ug/L		86	40 - 125	4	27
1,2,4-Trichlorobenzene	50	U	500	393		ug/L		79	30 - 126	2	35
1,1,1-Trichloroethane	50	U	500	467		ug/L		93	51 - 138	1	27
1,1,2-Trichloroethane	50	U	500	571		ug/L		114	76 - 132	6	25
Trichloroethene	560		500	976		ug/L		83	55 - 131	1	23
Trichlorofluoromethane	50	U	500	526		ug/L		105	37 - 174	3	35
1,1,2-Trichloro-1,2,2-trifluoroethane	50	U	500	531		ug/L		106	31 - 156	2	35
Vinyl chloride	50	U	500	540		ug/L		108	43 - 154	5	29
Xylenes, Total	100	U	1000	1050		ug/L		105	67 - 120	1	25

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: 240-103424-B-7 MSD
Matrix: Water
Analysis Batch: 353882

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
Toluene-d8 (Surr)	101		70 - 123

Lab Sample ID: MB 240-354118/6
Matrix: Water
Analysis Batch: 354118

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	10	U	10	5.4	ug/L			11/07/18 12:36	1
Benzene	1.0	U	1.0	0.13	ug/L			11/07/18 12:36	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/07/18 12:36	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/07/18 12:36	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/07/18 12:36	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/07/18 12:36	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/07/18 12:36	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/07/18 12:36	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/07/18 12:36	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/07/18 12:36	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/07/18 12:36	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/07/18 12:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/07/18 12:36	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/07/18 12:36	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/07/18 12:36	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/07/18 12:36	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/07/18 12:36	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/07/18 12:36	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/07/18 12:36	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/07/18 12:36	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/07/18 12:36	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/07/18 12:36	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/07/18 12:36	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/07/18 12:36	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/07/18 12:36	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/07/18 12:36	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/07/18 12:36	1
2-Hexanone	10	U	10	0.54	ug/L			11/07/18 12:36	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/07/18 12:36	1
Methyl acetate	10	U	10	1.7	ug/L			11/07/18 12:36	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/07/18 12:36	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			11/07/18 12:36	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/07/18 12:36	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/07/18 12:36	1
Styrene	1.0	U	1.0	0.10	ug/L			11/07/18 12:36	1
1,1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/07/18 12:36	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/07/18 12:36	1
Toluene	1.0	U	1.0	0.14	ug/L			11/07/18 12:36	1

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QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: MB 240-354118/6
Matrix: Water
Analysis Batch: 354118

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/07/18 12:36	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/07/18 12:36	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/07/18 12:36	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/07/18 12:36	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/07/18 12:36	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/07/18 12:36	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/07/18 12:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/07/18 12:36	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/07/18 12:36	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/07/18 12:36	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/07/18 12:36	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/07/18 12:36	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/07/18 12:36	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/07/18 12:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	80		59 - 120		11/07/18 12:36	1
Dibromofluoromethane (Surr)	112		75 - 128		11/07/18 12:36	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		11/07/18 12:36	1
Toluene-d8 (Surr)	94		70 - 123		11/07/18 12:36	1

Lab Sample ID: LCS 240-354118/4
Matrix: Water
Analysis Batch: 354118

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	80 - 123
Bromodichloromethane	10.0	9.18		ug/L		92	77 - 125
Bromoform	10.0	7.83		ug/L		78	49 - 141
Bromomethane	10.0	7.90		ug/L		79	41 - 175
2-Butanone (MEK)	20.0	18.3		ug/L		91	39 - 163
Carbon disulfide	10.0	9.90		ug/L		99	60 - 138
Carbon tetrachloride	10.0	9.85		ug/L		98	63 - 140
Chlorobenzene	10.0	10.6		ug/L		106	80 - 121
Chloroethane	10.0	7.43		ug/L		74	33 - 173
Chloroform	10.0	10.1		ug/L		101	79 - 127
Chloromethane	10.0	11.2		ug/L		112	54 - 143
cis-1,2-Dichloroethene	10.0	9.97		ug/L		100	76 - 128
cis-1,3-Dichloropropene	10.0	9.21		ug/L		92	64 - 132
Cyclohexane	10.0	10.5		ug/L		105	58 - 145
Dibromochloromethane	10.0	9.12		ug/L		91	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	7.80		ug/L		78	46 - 132
1,2-Dibromoethane	10.0	10.6		ug/L		106	77 - 123
1,2-Dichlorobenzene	10.0	10.3		ug/L		103	78 - 120
1,3-Dichlorobenzene	10.0	9.87		ug/L		99	78 - 120
1,4-Dichlorobenzene	10.0	9.73		ug/L		97	78 - 120
Dichlorodifluoromethane	10.0	9.68		ug/L		97	29 - 148

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QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: LCS 240-354118/4
Matrix: Water
Analysis Batch: 354118

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	10.0	10.2		ug/L		102	75 - 133
1,2-Dichloroethane	10.0	9.05		ug/L		91	71 - 135
1,1-Dichloroethene	10.0	11.1		ug/L		111	65 - 139
1,2-Dichloropropane	10.0	11.0		ug/L		110	78 - 133
Ethylbenzene	10.0	10.5		ug/L		105	80 - 120
2-Hexanone	20.0	18.2		ug/L		91	43 - 148
Isopropylbenzene	10.0	10.1		ug/L		101	74 - 120
Methyl acetate	20.0	21.3		ug/L		107	52 - 145
Methylcyclohexane	10.0	9.42		ug/L		94	60 - 125
Methylene Chloride	10.0	11.2		ug/L		112	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	17.5		ug/L		88	49 - 143
Methyl tert-butyl ether	10.0	5.92		ug/L		59	51 - 133
Styrene	10.0	10.5		ug/L		105	79 - 120
1,1,1,2-Tetrachloroethane	10.0	10.4		ug/L		104	65 - 139
Tetrachloroethene	10.0	10.7		ug/L		107	74 - 130
Toluene	10.0	10.9		ug/L		109	78 - 129
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	78 - 133
trans-1,3-Dichloropropene	10.0	9.01		ug/L		90	55 - 128
1,2,4-Trichlorobenzene	10.0	8.25		ug/L		82	42 - 133
1,1,1-Trichloroethane	10.0	9.47		ug/L		95	69 - 134
1,1,2-Trichloroethane	10.0	11.6		ug/L		116	78 - 133
Trichloroethene	10.0	9.60		ug/L		96	76 - 125
Trichlorofluoromethane	10.0	10.4		ug/L		104	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.2		ug/L		112	50 - 156
1,2,4-Trimethylbenzene	10.0	9.79		ug/L		98	74 - 120
1,3,5-Trimethylbenzene	10.0	9.66		ug/L		97	75 - 121
Vinyl chloride	10.0	9.97		ug/L		100	58 - 143
Xylenes, Total	20.0	21.0		ug/L		105	80 - 120
1,4-Dioxane	200	146		ug/L		73	10 - 175
Diethyl ether	10.0	10.8		ug/L		108	70 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
Toluene-d8 (Surr)	103		70 - 123

Lab Sample ID: 240-103638-B-8 MS
Matrix: Water
Analysis Batch: 354118

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	10	U	20.0	20.3		ug/L		102	10 - 168
Benzene	1.0	U	10.0	10.7		ug/L		107	71 - 122
Bromodichloromethane	1.0	U	10.0	9.08		ug/L		91	64 - 125
Bromoform	1.0	U	10.0	7.89		ug/L		79	44 - 129
Bromomethane	1.0	U	10.0	6.76		ug/L		68	19 - 187

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QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: 240-103638-B-8 MS

Matrix: Water

Analysis Batch: 354118

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
2-Butanone (MEK)	10	U	20.0	18.0		ug/L		90	37 - 156
Carbon disulfide	5.0	U	10.0	10.7		ug/L		107	43 - 144
Carbon tetrachloride	1.0	U	10.0	9.48		ug/L		95	41 - 143
Chlorobenzene	1.0	U	10.0	10.6		ug/L		106	70 - 123
Chloroethane	1.0	U	10.0	6.36		ug/L		64	11 - 189
Chloroform	1.0	U	10.0	10.3		ug/L		103	68 - 130
Chloromethane	1.0	U	10.0	9.56		ug/L		96	31 - 154
cis-1,2-Dichloroethene	1.0	U	10.0	9.98		ug/L		100	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	8.01		ug/L		80	48 - 127
Cyclohexane	1.0	U	10.0	9.29		ug/L		93	42 - 135
Dibromochloromethane	1.0	U	10.0	9.25		ug/L		92	60 - 129
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	8.12		ug/L		81	38 - 124
1,2-Dibromoethane	1.0	U	10.0	10.6		ug/L		106	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	10.0		ug/L		100	64 - 120
1,3-Dichlorobenzene	0.38	J	10.0	10.2		ug/L		99	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	9.89		ug/L		99	63 - 120
Dichlorodifluoromethane	1.0	U	10.0	8.63		ug/L		86	28 - 136
1,1-Dichloroethane	1.0	U	10.0	10.3		ug/L		103	63 - 136
1,2-Dichloroethane	1.0	U	10.0	9.37		ug/L		94	65 - 135
1,1-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	53 - 140
1,2-Dichloropropane	1.0	U	10.0	11.0		ug/L		110	70 - 132
Ethylbenzene	1.0	U	10.0	10.6		ug/L		106	66 - 120
2-Hexanone	10	U	20.0	18.9		ug/L		94	42 - 150
Isopropylbenzene	1.0	U	10.0	10.0		ug/L		100	59 - 120
Methyl acetate	10	U	20.0	20.6		ug/L		103	41 - 142
Methylcyclohexane	1.0	U	10.0	8.09		ug/L		81	37 - 123
Methylene Chloride	5.0	U	10.0	11.1		ug/L		111	61 - 130
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.3		ug/L		87	44 - 143
Methyl tert-butyl ether	1.0	U	10.0	5.78		ug/L		58	41 - 136
Styrene	1.0	U	10.0	10.9		ug/L		109	68 - 120
1,1,2,2-Tetrachloroethane	1.0	U	10.0	10.4		ug/L		104	60 - 137
Tetrachloroethene	1.0	U	10.0	10.7		ug/L		107	51 - 136
Toluene	1.0	U	10.0	11.1		ug/L		111	62 - 132
trans-1,2-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	68 - 133
trans-1,3-Dichloropropene	1.0	U	10.0	8.48		ug/L		85	40 - 125
1,2,4-Trichlorobenzene	1.0	U	10.0	7.51		ug/L		75	30 - 126
1,1,1-Trichloroethane	1.0	U	10.0	9.73		ug/L		97	51 - 138
1,1,2-Trichloroethane	1.0	U	10.0	12.0		ug/L		120	76 - 132
Trichloroethene	1.0	U	10.0	9.60		ug/L		96	55 - 131
Trichlorofluoromethane	1.0	U	10.0	9.61		ug/L		96	37 - 174
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	10.4		ug/L		104	31 - 156
1,2,4-Trimethylbenzene	1.0	U	10.0	9.78		ug/L		98	62 - 120
1,3,5-Trimethylbenzene	1.0	U	10.0	9.67		ug/L		97	64 - 120
Vinyl chloride	1.0	U	10.0	10.0		ug/L		100	43 - 154
Xylenes, Total	2.0	U	20.0	21.2		ug/L		106	67 - 120
1,4-Dioxane	50	U	200	160		ug/L		80	10 - 143
Diethyl ether	2.0	U	10.0	11.0		ug/L		110	65 - 134

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QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: 240-103638-B-8 MS

Matrix: Water

Analysis Batch: 354118

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		59 - 120
Dibromofluoromethane (Surr)	97		75 - 128
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
Toluene-d8 (Surr)	102		70 - 123

Lab Sample ID: 240-103638-C-8 MSD

Matrix: Water

Analysis Batch: 354118

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	10	U	20.0	20.6		ug/L		103	10 - 168	1	35
Benzene	1.0	U	10.0	10.5		ug/L		105	71 - 122	2	22
Bromodichloromethane	1.0	U	10.0	9.04		ug/L		90	64 - 125	0	27
Bromoform	1.0	U	10.0	7.93		ug/L		79	44 - 129	0	28
Bromomethane	1.0	U	10.0	6.77		ug/L		68	19 - 187	0	35
2-Butanone (MEK)	10	U	20.0	18.4		ug/L		92	37 - 156	2	35
Carbon disulfide	5.0	U	10.0	10.4		ug/L		104	43 - 144	2	33
Carbon tetrachloride	1.0	U	10.0	9.13		ug/L		91	41 - 143	4	30
Chlorobenzene	1.0	U	10.0	10.3		ug/L		103	70 - 123	3	23
Chloroethane	1.0	U	10.0	6.43		ug/L		64	11 - 189	1	35
Chloroform	1.0	U	10.0	10.0		ug/L		100	68 - 130	3	23
Chloromethane	1.0	U	10.0	10.6		ug/L		106	31 - 154	10	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.95		ug/L		99	64 - 130	0	21
cis-1,3-Dichloropropene	1.0	U	10.0	7.74		ug/L		77	48 - 127	3	30
Cyclohexane	1.0	U	10.0	8.98		ug/L		90	42 - 135	3	35
Dibromochloromethane	1.0	U	10.0	8.72		ug/L		87	60 - 129	6	26
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	7.70		ug/L		77	38 - 124	5	35
1,2-Dibromoethane	1.0	U	10.0	10.3		ug/L		103	71 - 123	3	27
1,2-Dichlorobenzene	1.0	U	10.0	9.88		ug/L		99	64 - 120	2	30
1,3-Dichlorobenzene	0.38	J	10.0	9.90		ug/L		95	62 - 120	3	31
1,4-Dichlorobenzene	1.0	U	10.0	9.46		ug/L		95	63 - 120	4	28
Dichlorodifluoromethane	1.0	U	10.0	8.50		ug/L		85	28 - 136	1	35
1,1-Dichloroethane	1.0	U	10.0	10.1		ug/L		101	63 - 136	2	23
1,2-Dichloroethane	1.0	U	10.0	9.02		ug/L		90	65 - 135	4	24
1,1-Dichloroethene	1.0	U	10.0	10.6		ug/L		106	53 - 140	4	35
1,2-Dichloropropane	1.0	U	10.0	10.6		ug/L		106	70 - 132	4	26
Ethylbenzene	1.0	U	10.0	10.2		ug/L		102	66 - 120	4	24
2-Hexanone	10	U	20.0	18.9		ug/L		95	42 - 150	0	35
Isopropylbenzene	1.0	U	10.0	9.66		ug/L		97	59 - 120	4	31
Methyl acetate	10	U	20.0	21.0		ug/L		105	41 - 142	2	35
Methylcyclohexane	1.0	U	10.0	7.70		ug/L		77	37 - 123	5	35
Methylene Chloride	5.0	U	10.0	10.8		ug/L		108	61 - 130	3	29
4-Methyl-2-pentanone (MIBK)	10	U	20.0	17.3		ug/L		87	44 - 143	0	35
Methyl tert-butyl ether	1.0	U	10.0	5.74		ug/L		57	41 - 136	1	29
Styrene	1.0	U	10.0	10.4		ug/L		104	68 - 120	5	26
1,1,2,2-Tetrachloroethane	1.0	U	10.0	10.3		ug/L		103	60 - 137	0	31
Tetrachloroethene	1.0	U	10.0	10.0		ug/L		100	51 - 136	6	23
Toluene	1.0	U	10.0	10.7		ug/L		107	62 - 132	4	23

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: 240-103638-C-8 MSD

Matrix: Water

Analysis Batch: 354118

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
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	68 - 133	3	24
trans-1,3-Dichloropropene	1.0	U	10.0	8.09		ug/L		81	40 - 125	5	27
1,2,4-Trichlorobenzene	1.0	U	10.0	7.66		ug/L		77	30 - 126	2	35
1,1,1-Trichloroethane	1.0	U	10.0	9.11		ug/L		91	51 - 138	7	27
1,1,2-Trichloroethane	1.0	U	10.0	11.4		ug/L		114	76 - 132	5	25
Trichloroethene	1.0	U	10.0	9.47		ug/L		95	55 - 131	1	23
Trichlorofluoromethane	1.0	U	10.0	9.31		ug/L		93	37 - 174	3	35
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	9.48		ug/L		95	31 - 156	10	35
1,2,4-Trimethylbenzene	1.0	U	10.0	9.57		ug/L		96	62 - 120	2	27
1,3,5-Trimethylbenzene	1.0	U	10.0	9.43		ug/L		94	64 - 120	3	23
Vinyl chloride	1.0	U	10.0	10.2		ug/L		102	43 - 154	1	29
Xylenes, Total	2.0	U	20.0	20.5		ug/L		103	67 - 120	3	25
1,4-Dioxane	50	U	200	171		ug/L		85	10 - 143	6	35
Diethyl ether	2.0	U	10.0	10.8		ug/L		108	65 - 134	1	33

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	99		59 - 120
Dibromofluoromethane (Surr)	96		75 - 128
1,2-Dichloroethane-d4 (Surr)	88		70 - 121
Toluene-d8 (Surr)	100		70 - 123

Lab Sample ID: MB 240-354323/6

Matrix: Water

Analysis Batch: 354323

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			11/08/18 12:04	1
Benzene	1.0	U	1.0	0.13	ug/L			11/08/18 12:04	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			11/08/18 12:04	1
Bromoform	1.0	U	1.0	0.76	ug/L			11/08/18 12:04	1
Bromomethane	1.0	U	1.0	0.42	ug/L			11/08/18 12:04	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			11/08/18 12:04	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			11/08/18 12:04	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			11/08/18 12:04	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			11/08/18 12:04	1
Chloroethane	1.0	U	1.0	0.83	ug/L			11/08/18 12:04	1
Chloroform	1.0	U	1.0	0.13	ug/L			11/08/18 12:04	1
Chloromethane	1.0	U	1.0	0.20	ug/L			11/08/18 12:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/08/18 12:04	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			11/08/18 12:04	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			11/08/18 12:04	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			11/08/18 12:04	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			11/08/18 12:04	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			11/08/18 12:04	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/08/18 12:04	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			11/08/18 12:04	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			11/08/18 12:04	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: MB 240-354323/6
Matrix: Water
Analysis Batch: 354323

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			11/08/18 12:04	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			11/08/18 12:04	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			11/08/18 12:04	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/08/18 12:04	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			11/08/18 12:04	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			11/08/18 12:04	1
2-Hexanone	10	U	10	0.54	ug/L			11/08/18 12:04	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			11/08/18 12:04	1
Methyl acetate	10	U	10	1.7	ug/L			11/08/18 12:04	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			11/08/18 12:04	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			11/08/18 12:04	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			11/08/18 12:04	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			11/08/18 12:04	1
Styrene	1.0	U	1.0	0.10	ug/L			11/08/18 12:04	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			11/08/18 12:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/08/18 12:04	1
Toluene	1.0	U	1.0	0.14	ug/L			11/08/18 12:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/08/18 12:04	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			11/08/18 12:04	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			11/08/18 12:04	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			11/08/18 12:04	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			11/08/18 12:04	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/08/18 12:04	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			11/08/18 12:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			11/08/18 12:04	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			11/08/18 12:04	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			11/08/18 12:04	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			11/08/18 12:04	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/08/18 12:04	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			11/08/18 12:04	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			11/08/18 12:04	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	78		59 - 120		11/08/18 12:04	1
Dibromofluoromethane (Surr)	110		75 - 128		11/08/18 12:04	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		11/08/18 12:04	1
Toluene-d8 (Surr)	94		70 - 123		11/08/18 12:04	1

Lab Sample ID: LCS 240-354323/4
Matrix: Water
Analysis Batch: 354323

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	80 - 123
Bromodichloromethane	10.0	9.10		ug/L		91	77 - 125
Bromoform	10.0	7.73		ug/L		77	49 - 141
Bromomethane	10.0	8.60		ug/L		86	41 - 175

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: LCS 240-354323/4
Matrix: Water
Analysis Batch: 354323

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	20.0	18.9		ug/L		94	39 - 163
Carbon disulfide	10.0	10.1		ug/L		101	60 - 138
Carbon tetrachloride	10.0	9.76		ug/L		98	63 - 140
Chlorobenzene	10.0	10.2		ug/L		102	80 - 121
Chloroethane	10.0	7.49		ug/L		75	33 - 173
Chloroform	10.0	10.2		ug/L		102	79 - 127
Chloromethane	10.0	12.0		ug/L		120	54 - 143
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	76 - 128
cis-1,3-Dichloropropene	10.0	9.12		ug/L		91	64 - 132
Cyclohexane	10.0	10.2		ug/L		102	58 - 145
Dibromochloromethane	10.0	8.78		ug/L		88	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	7.61		ug/L		76	46 - 132
1,2-Dibromoethane	10.0	10.5		ug/L		105	77 - 123
1,2-Dichlorobenzene	10.0	9.99		ug/L		100	78 - 120
1,3-Dichlorobenzene	10.0	9.89		ug/L		99	78 - 120
1,4-Dichlorobenzene	10.0	9.69		ug/L		97	78 - 120
Dichlorodifluoromethane	10.0	10.9		ug/L		109	29 - 148
1,1-Dichloroethane	10.0	10.3		ug/L		103	75 - 133
1,2-Dichloroethane	10.0	9.06		ug/L		91	71 - 135
1,1-Dichloroethene	10.0	10.9		ug/L		109	65 - 139
1,2-Dichloropropane	10.0	10.9		ug/L		109	78 - 133
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
2-Hexanone	20.0	17.9		ug/L		89	43 - 148
Isopropylbenzene	10.0	9.86		ug/L		99	74 - 120
Methyl acetate	20.0	21.9		ug/L		110	52 - 145
Methylcyclohexane	10.0	9.22		ug/L		92	60 - 125
Methylene Chloride	10.0	11.2		ug/L		112	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	17.6		ug/L		88	49 - 143
Methyl tert-butyl ether	10.0	5.60		ug/L		56	51 - 133
Styrene	10.0	10.6		ug/L		106	79 - 120
1,1,2,2-Tetrachloroethane	10.0	9.92		ug/L		99	65 - 139
Tetrachloroethene	10.0	10.4		ug/L		104	74 - 130
Toluene	10.0	10.7		ug/L		107	78 - 129
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
trans-1,3-Dichloropropene	10.0	8.66		ug/L		87	55 - 128
1,2,4-Trichlorobenzene	10.0	8.29		ug/L		83	42 - 133
1,1,1-Trichloroethane	10.0	9.53		ug/L		95	69 - 134
1,1,2-Trichloroethane	10.0	11.1		ug/L		111	78 - 133
Trichloroethene	10.0	9.64		ug/L		96	76 - 125
Trichlorofluoromethane	10.0	10.7		ug/L		107	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.0		ug/L		110	50 - 156
1,2,4-Trimethylbenzene	10.0	9.82		ug/L		98	74 - 120
1,3,5-Trimethylbenzene	10.0	9.65		ug/L		97	75 - 121
Vinyl chloride	10.0	10.7		ug/L		107	58 - 143
Xylenes, Total	20.0	20.6		ug/L		103	80 - 120
1,4-Dioxane	200	166		ug/L		83	10 - 175
Diethyl ether	10.0	10.7		ug/L		107	70 - 146

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: LCS 240-354323/4
Matrix: Water
Analysis Batch: 354323

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	98		59 - 120
Dibromofluoromethane (Surr)	94		75 - 128
1,2-Dichloroethane-d4 (Surr)	87		70 - 121
Toluene-d8 (Surr)	101		70 - 123

Lab Sample ID: 240-103555-D-4 MS
Matrix: Water
Analysis Batch: 354323

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

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
cis-1,2-Dichloroethene	23		10.0	30.3		ug/L		74	64 - 130
Tetrachloroethene	1.0	U	10.0	10.5		ug/L		105	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	68 - 133
Trichloroethene	3.2		10.0	12.4		ug/L		92	55 - 131
Vinyl chloride	1.5		10.0	11.8		ug/L		103	43 - 154

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		59 - 120
Dibromofluoromethane (Surr)	99		75 - 128
1,2-Dichloroethane-d4 (Surr)	92		70 - 121
Toluene-d8 (Surr)	105		70 - 123

Lab Sample ID: 240-103555-E-4 MSD
Matrix: Water
Analysis Batch: 354323

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
cis-1,2-Dichloroethene	23		10.0	30.5		ug/L		75	64 - 130	1	21
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	51 - 136	3	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	68 - 133	0	24
Trichloroethene	3.2		10.0	12.5		ug/L		93	55 - 131	1	23
Vinyl chloride	1.5		10.0	11.8		ug/L		103	43 - 154	0	29

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	103		59 - 120
Dibromofluoromethane (Surr)	96		75 - 128
1,2-Dichloroethane-d4 (Surr)	89		70 - 121
Toluene-d8 (Surr)	102		70 - 123

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

Lab Sample ID: MB 240-353689/5
Matrix: Water
Analysis Batch: 353689

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/05/18 13:37	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-103550-1

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

Lab Sample ID: MB 240-353689/5
Matrix: Water
Analysis Batch: 353689

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

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

Lab Sample ID: LCS 240-353689/4
Matrix: Water
Analysis Batch: 353689

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

Analyte	Spike Added	LCS LCS	Limits	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0		63 - 125	11.3		ug/L		113	59 - 131
Surrogate	LCS LCS		Limits	%Recovery	Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane-d4 (Surr)	103								

Lab Sample ID: 240-103550-6 MS
Matrix: Water
Analysis Batch: 353689

Client Sample ID: MW-29_102618
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	4.3	F2	10.0	16.4		ug/L		121	52 - 129
Surrogate	MS MS		Limits	%Recovery	Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane-d4 (Surr)	109								

Lab Sample ID: 240-103550-6 MSD
Matrix: Water
Analysis Batch: 353689

Client Sample ID: MW-29_102618
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	4.3	F2	10.0	13.4	F2	ug/L		91	52 - 129	20	13
Surrogate	MSD MSD		Limits	%Recovery	Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,2-Dichloroethane-d4 (Surr)	108										

QC Association Summary

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

TestAmerica Job ID: 240-103550-1

GC/MS VOA

Analysis Batch: 353689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-103550-1	MW-48_102518	Total/NA	Water	8260B SIM	
240-103550-2	MW-67_102518	Total/NA	Water	8260B SIM	
240-103550-3	MW-57_102518	Total/NA	Water	8260B SIM	
240-103550-4	MW-47_102518	Total/NA	Water	8260B SIM	
240-103550-5	MW-68_102518	Total/NA	Water	8260B SIM	
240-103550-6	MW-29_102618	Total/NA	Water	8260B SIM	
240-103550-7	MW-26_102618	Total/NA	Water	8260B SIM	
240-103550-8	MW-21_102618	Total/NA	Water	8260B SIM	
240-103550-9	MW-19_102618	Total/NA	Water	8260B SIM	
MB 240-353689/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-353689/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-103550-6 MS	MW-29_102618	Total/NA	Water	8260B SIM	
240-103550-6 MSD	MW-29_102618	Total/NA	Water	8260B SIM	

Analysis Batch: 353882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-103550-1	MW-48_102518	Total/NA	Water	8260B	
240-103550-3	MW-57_102518	Total/NA	Water	8260B	
240-103550-5	MW-68_102518	Total/NA	Water	8260B	
240-103550-9	MW-19_102618	Total/NA	Water	8260B	
240-103550-10	TRIP BLANK	Total/NA	Water	8260B	
MB 240-353882/6	Method Blank	Total/NA	Water	8260B	
LCS 240-353882/4	Lab Control Sample	Total/NA	Water	8260B	
240-103424-B-7 MS	Matrix Spike	Total/NA	Water	8260B	
240-103424-B-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 354118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-103550-2	MW-67_102518	Total/NA	Water	8260B	
240-103550-4	MW-47_102518	Total/NA	Water	8260B	
240-103550-6	MW-29_102618	Total/NA	Water	8260B	
240-103550-7	MW-26_102618	Total/NA	Water	8260B	
MB 240-354118/6	Method Blank	Total/NA	Water	8260B	
LCS 240-354118/4	Lab Control Sample	Total/NA	Water	8260B	
240-103638-B-8 MS	Matrix Spike	Total/NA	Water	8260B	
240-103638-C-8 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 354323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-103550-8	MW-21_102618	Total/NA	Water	8260B	
MB 240-354323/6	Method Blank	Total/NA	Water	8260B	
LCS 240-354323/4	Lab Control Sample	Total/NA	Water	8260B	
240-103555-D-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-103555-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-48_102518

Date Collected: 10/25/18 09:35

Date Received: 10/30/18 10:50

Lab Sample ID: 240-103550-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	353882	11/06/18 18:53	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 15:19	SAM	TAL CAN

Client Sample ID: MW-67_102518

Date Collected: 10/25/18 11:09

Date Received: 10/30/18 10:50

Lab Sample ID: 240-103550-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		3.33	354118	11/07/18 15:59	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 15:45	SAM	TAL CAN

Client Sample ID: MW-57_102518

Date Collected: 10/25/18 12:52

Date Received: 10/30/18 10:50

Lab Sample ID: 240-103550-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	353882	11/06/18 19:41	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 16:11	SAM	TAL CAN

Client Sample ID: MW-47_102518

Date Collected: 10/25/18 14:33

Date Received: 10/30/18 10:50

Lab Sample ID: 240-103550-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	354118	11/07/18 16:29	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 16:37	SAM	TAL CAN

Client Sample ID: MW-68_102518

Date Collected: 10/25/18 00:00

Date Received: 10/30/18 10:50

Lab Sample ID: 240-103550-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	353882	11/06/18 20:29	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 17:02	SAM	TAL CAN

Client Sample ID: MW-29_102618

Date Collected: 10/26/18 09:48

Date Received: 10/30/18 10:50

Lab Sample ID: 240-103550-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	354118	11/07/18 16:52	LRW	TAL CAN

TestAmerica Canton

Lab Chronicle

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

TestAmerica Job ID: 240-103550-1

Client Sample ID: MW-29_102618

Lab Sample ID: 240-103550-6

Date Collected: 10/26/18 09:48

Matrix: Water

Date Received: 10/30/18 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 17:28	SAM	TAL CAN

Client Sample ID: MW-26_102618

Lab Sample ID: 240-103550-7

Date Collected: 10/26/18 11:27

Matrix: Water

Date Received: 10/30/18 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	354118	11/07/18 17:16	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 18:45	SAM	TAL CAN

Client Sample ID: MW-21_102618

Lab Sample ID: 240-103550-8

Date Collected: 10/26/18 13:53

Matrix: Water

Date Received: 10/30/18 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1666.67	354323	11/08/18 13:16	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 19:10	SAM	TAL CAN

Client Sample ID: MW-19_102618

Lab Sample ID: 240-103550-9

Date Collected: 10/26/18 15:15

Matrix: Water

Date Received: 10/30/18 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	353882	11/06/18 20:53	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	353689	11/05/18 19:36	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-103550-10

Date Collected: 10/25/18 00:00

Matrix: Water

Date Received: 10/30/18 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	353882	11/06/18 21:16	LRW	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 240-103550-1

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	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18 *
Minnesota	NELAP	5	039-999-348	12-31-18 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18 *

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

Chain of Custody Record

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: M1001454.0004.00002 PO # M1001454.0004.00002		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Site Contact: Angela DeGrandis Telephone: 734-320-0065 Analysis Turnaround Time: TAT if different from below: <input type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: For lab use only: Walk-in client Lab sampling Job/SDG No											
Method of Shipment/Carrier: Shipping/Tracking No:		Containers & Preservatives H2SO4 HNO3 HCl NaOH ZnAc Umpres Other:		Matrix Aqueous Sediment Solid Other:		Filtered Sample (Y/N) Composite C/Grab G		Analyses 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM		Sample Specific Notes / Special Instructions: 240-103550 Chain of Custody											
Sample Identification		Sample Date	Sample Time	Air Aqueous Sediment Solid Other:	H2SO4 HNO3 HCl NaOH ZnAc Umpres Other:	Filtered Sample (Y/N)	Composite C/Grab G	1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months												
MW-48 - 10-25-18		10/25/18	0735	X		X		X	X	X	X										
MW-67 - 10-25-18			1109																		
MW-57 - 10-25-18			1252																		
MW-47 - 10-25-18			1433																		
MW-68 - 10-25-18																					
MW-29 - 10-26-18			0748																		
MW-26 - 10-26-18			1127																		
MW-21 - 10-26-18			1353																		
MW-19 - 10-26-18			1515																		
TRIP BLANK																					
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.tomalia@cadena.com, Cadena #E203631 Level IV Reporting.																			
Relinquished by: RAUEL S FEAN		Company:	ARCADIS	Date/Time:	10/26/18 1715	Received by:	NOVI COLD STORAGE	Company:	ARCADIS	Date/Time:	10/26/18 1715										
Relinquished by: NOVI COLD STORAGE		Company:	ARCADIS	Date/Time:	10/29/18 1445	Received by:	ARCADIS	Company:	ARCADIS	Date/Time:	10/29/18 1445										
Relinquished by: [Signature]		Company:	ARCADIS	Date/Time:	10/24/17 15:00	Received by:	ARCADIS	Company:	ARCADIS	Date/Time:	10/24/17 15:00										

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TestAmerica Canton Sample Receipt Form/Narrative

Login # : 103550

Canton Facility

Client ARCADIS

Site Name -

Cooler unpacked by:

POP

Cooler Received on 10-30-18

Opened on 10-30-18

FedEx: 1st Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other


Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # 70A 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 +0.9 °C) Observed Cooler Temp. 3.6 °C Corrected Cooler Temp. 4.5 °C
 IR GUN #36 (CF +0.6 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
- Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
- 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 12-16 have been checked at the originating laboratory.
- Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC849161
- Were VOAs on the COC? Yes No
- Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 0 Yes No POP
- Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

JR

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____