

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 240-99861-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

ARCADIS U.S., Inc.
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Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
8/28/2018 10:24:22 AM

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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: 240-99861-1

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.

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: 240-99861-1

Job ID: 240-99861-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-99861-1

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

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

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

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

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

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

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

RECEIPT

The samples were received on 8/14/2018 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.4° C, 1.8° C and 3.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-38_080918 (240-99861-1), MW-37_080918 (240-99861-2), MW-30_080918 (240-99861-3), MW-31_081018 (240-99861-4) and MW-42_081018 (240-99861-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/22/2018.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-38_080918 (240-99861-1), MW-37_080918 (240-99861-2), MW-30_080918 (240-99861-3), MW-31_081018 (240-99861-4) and MW-42_081018 (240-99861-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/21/2018.

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

Method Summary

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

TestAmerica Job ID: 240-99861-1

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: 240-99861-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-99861-1	MW-38_080918	Water	08/09/18 15:04	08/14/18 09:10
240-99861-2	MW-37_080918	Water	08/09/18 16:50	08/14/18 09:10
240-99861-3	MW-30_080918	Water	08/10/18 09:15	08/14/18 09:10
240-99861-4	MW-31_081018	Water	08/10/18 10:49	08/14/18 09:10
240-99861-5	MW-42_081018	Water	08/10/18 13:38	08/14/18 09:10

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Detection Summary

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-38_080918

Lab Sample ID: 240-99861-1

No Detections.

Client Sample ID: MW-37_080918

Lab Sample ID: 240-99861-2

No Detections.

Client Sample ID: MW-30_080918

Lab Sample ID: 240-99861-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	15		2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-31_081018

Lab Sample ID: 240-99861-4

No Detections.

Client Sample ID: MW-42_081018

Lab Sample ID: 240-99861-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.3		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.60	J	1.0	0.20	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-38_080918

Lab Sample ID: 240-99861-1

Date Collected: 08/09/18 15:04

Matrix: Water

Date Received: 08/14/18 09:10

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			08/21/18 12:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		63 - 125					08/21/18 12:45	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			08/22/18 02:35	1
Benzene	1.0	U	1.0	0.13	ug/L			08/22/18 02:35	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			08/22/18 02:35	1
Bromoform	1.0	U	1.0	0.76	ug/L			08/22/18 02:35	1
Bromomethane	1.0	U	1.0	0.42	ug/L			08/22/18 02:35	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			08/22/18 02:35	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			08/22/18 02:35	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			08/22/18 02:35	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			08/22/18 02:35	1
Chloroethane	1.0	U	1.0	0.83	ug/L			08/22/18 02:35	1
Chloroform	1.0	U	1.0	0.13	ug/L			08/22/18 02:35	1
Chloromethane	1.0	U	1.0	0.20	ug/L			08/22/18 02:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 02:35	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			08/22/18 02:35	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			08/22/18 02:35	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			08/22/18 02:35	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			08/22/18 02:35	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			08/22/18 02:35	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 02:35	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 02:35	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			08/22/18 02:35	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			08/22/18 02:35	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			08/22/18 02:35	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			08/22/18 02:35	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 02:35	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			08/22/18 02:35	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			08/22/18 02:35	1
2-Hexanone	10	U	10	0.54	ug/L			08/22/18 02:35	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			08/22/18 02:35	1
Methyl acetate	10	U	10	1.7	ug/L			08/22/18 02:35	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			08/22/18 02:35	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			08/22/18 02:35	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			08/22/18 02:35	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			08/22/18 02:35	1
Styrene	1.0	U	1.0	0.10	ug/L			08/22/18 02:35	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			08/22/18 02:35	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 02:35	1
Toluene	1.0	U	1.0	0.14	ug/L			08/22/18 02:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 02:35	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			08/22/18 02:35	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			08/22/18 02:35	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/22/18 02:35	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			08/22/18 02:35	1

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Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-38_080918

Lab Sample ID: 240-99861-1

Date Collected: 08/09/18 15:04

Matrix: Water

Date Received: 08/14/18 09:10

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			08/22/18 02:35	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			08/22/18 02:35	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			08/22/18 02:35	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			08/22/18 02:35	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			08/22/18 02:35	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			08/22/18 02:35	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/22/18 02:35	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			08/22/18 02:35	1
1,4-Dioxane	50	U	50	13	ug/L			08/22/18 02:35	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			08/22/18 02:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		69 - 120		08/22/18 02:35	1
Dibromofluoromethane (Surr)	104		69 - 124		08/22/18 02:35	1
1,2-Dichloroethane-d4 (Surr)	103		61 - 138		08/22/18 02:35	1
Toluene-d8 (Surr)	99		73 - 120		08/22/18 02:35	1

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-37_080918

Lab Sample ID: 240-99861-2

Date Collected: 08/09/18 16:50

Matrix: Water

Date Received: 08/14/18 09:10

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			08/21/18 13:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		63 - 125					08/21/18 13:10	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			08/22/18 02:57	1
Benzene	1.0	U	1.0	0.13	ug/L			08/22/18 02:57	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			08/22/18 02:57	1
Bromoform	1.0	U	1.0	0.76	ug/L			08/22/18 02:57	1
Bromomethane	1.0	U	1.0	0.42	ug/L			08/22/18 02:57	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			08/22/18 02:57	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			08/22/18 02:57	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			08/22/18 02:57	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			08/22/18 02:57	1
Chloroethane	1.0	U	1.0	0.83	ug/L			08/22/18 02:57	1
Chloroform	1.0	U	1.0	0.13	ug/L			08/22/18 02:57	1
Chloromethane	1.0	U	1.0	0.20	ug/L			08/22/18 02:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 02:57	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			08/22/18 02:57	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			08/22/18 02:57	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			08/22/18 02:57	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			08/22/18 02:57	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			08/22/18 02:57	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 02:57	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 02:57	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			08/22/18 02:57	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			08/22/18 02:57	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			08/22/18 02:57	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			08/22/18 02:57	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 02:57	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			08/22/18 02:57	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			08/22/18 02:57	1
2-Hexanone	10	U	10	0.54	ug/L			08/22/18 02:57	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			08/22/18 02:57	1
Methyl acetate	10	U	10	1.7	ug/L			08/22/18 02:57	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			08/22/18 02:57	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			08/22/18 02:57	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			08/22/18 02:57	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			08/22/18 02:57	1
Styrene	1.0	U	1.0	0.10	ug/L			08/22/18 02:57	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			08/22/18 02:57	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 02:57	1
Toluene	1.0	U	1.0	0.14	ug/L			08/22/18 02:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 02:57	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			08/22/18 02:57	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			08/22/18 02:57	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/22/18 02:57	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			08/22/18 02:57	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-37_080918

Lab Sample ID: 240-99861-2

Date Collected: 08/09/18 16:50

Matrix: Water

Date Received: 08/14/18 09:10

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			08/22/18 02:57	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			08/22/18 02:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			08/22/18 02:57	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			08/22/18 02:57	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			08/22/18 02:57	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			08/22/18 02:57	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/22/18 02:57	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			08/22/18 02:57	1
1,4-Dioxane	50	U	50	13	ug/L			08/22/18 02:57	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			08/22/18 02:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		69 - 120		08/22/18 02:57	1
Dibromofluoromethane (Surr)	111		69 - 124		08/22/18 02:57	1
1,2-Dichloroethane-d4 (Surr)	106		61 - 138		08/22/18 02:57	1
Toluene-d8 (Surr)	100		73 - 120		08/22/18 02:57	1

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-30_080918

Lab Sample ID: 240-99861-3

Date Collected: 08/10/18 09:15

Matrix: Water

Date Received: 08/14/18 09:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	15		2.0	0.86	ug/L			08/21/18 13:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		63 - 125					08/21/18 13:35	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			08/22/18 03:19	1
Benzene	1.0	U	1.0	0.13	ug/L			08/22/18 03:19	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			08/22/18 03:19	1
Bromoform	1.0	U	1.0	0.76	ug/L			08/22/18 03:19	1
Bromomethane	1.0	U	1.0	0.42	ug/L			08/22/18 03:19	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			08/22/18 03:19	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			08/22/18 03:19	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			08/22/18 03:19	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			08/22/18 03:19	1
Chloroethane	1.0	U	1.0	0.83	ug/L			08/22/18 03:19	1
Chloroform	1.0	U	1.0	0.13	ug/L			08/22/18 03:19	1
Chloromethane	1.0	U	1.0	0.20	ug/L			08/22/18 03:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 03:19	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			08/22/18 03:19	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			08/22/18 03:19	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			08/22/18 03:19	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			08/22/18 03:19	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			08/22/18 03:19	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 03:19	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 03:19	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			08/22/18 03:19	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			08/22/18 03:19	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			08/22/18 03:19	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			08/22/18 03:19	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 03:19	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			08/22/18 03:19	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			08/22/18 03:19	1
2-Hexanone	10	U	10	0.54	ug/L			08/22/18 03:19	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			08/22/18 03:19	1
Methyl acetate	10	U	10	1.7	ug/L			08/22/18 03:19	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			08/22/18 03:19	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			08/22/18 03:19	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			08/22/18 03:19	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			08/22/18 03:19	1
Styrene	1.0	U	1.0	0.10	ug/L			08/22/18 03:19	1
1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			08/22/18 03:19	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 03:19	1
Toluene	1.0	U	1.0	0.14	ug/L			08/22/18 03:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 03:19	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			08/22/18 03:19	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			08/22/18 03:19	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/22/18 03:19	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			08/22/18 03:19	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-30_080918

Lab Sample ID: 240-99861-3

Date Collected: 08/10/18 09:15

Matrix: Water

Date Received: 08/14/18 09:10

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			08/22/18 03:19	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			08/22/18 03:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			08/22/18 03:19	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			08/22/18 03:19	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			08/22/18 03:19	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			08/22/18 03:19	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/22/18 03:19	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			08/22/18 03:19	1
1,4-Dioxane	50	U	50	13	ug/L			08/22/18 03:19	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			08/22/18 03:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		69 - 120					08/22/18 03:19	1
Dibromofluoromethane (Surr)	108		69 - 124					08/22/18 03:19	1
1,2-Dichloroethane-d4 (Surr)	103		61 - 138					08/22/18 03:19	1
Toluene-d8 (Surr)	95		73 - 120					08/22/18 03:19	1

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-31_081018

Lab Sample ID: 240-99861-4

Date Collected: 08/10/18 10:49

Matrix: Water

Date Received: 08/14/18 09:10

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			08/21/18 13:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		63 - 125					08/21/18 13:59	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			08/22/18 03:41	1
Benzene	1.0	U	1.0	0.13	ug/L			08/22/18 03:41	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			08/22/18 03:41	1
Bromoform	1.0	U	1.0	0.76	ug/L			08/22/18 03:41	1
Bromomethane	1.0	U	1.0	0.42	ug/L			08/22/18 03:41	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			08/22/18 03:41	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			08/22/18 03:41	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			08/22/18 03:41	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			08/22/18 03:41	1
Chloroethane	1.0	U	1.0	0.83	ug/L			08/22/18 03:41	1
Chloroform	1.0	U	1.0	0.13	ug/L			08/22/18 03:41	1
Chloromethane	1.0	U	1.0	0.20	ug/L			08/22/18 03:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 03:41	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			08/22/18 03:41	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			08/22/18 03:41	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			08/22/18 03:41	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			08/22/18 03:41	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			08/22/18 03:41	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 03:41	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 03:41	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			08/22/18 03:41	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			08/22/18 03:41	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			08/22/18 03:41	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			08/22/18 03:41	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 03:41	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			08/22/18 03:41	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			08/22/18 03:41	1
2-Hexanone	10	U	10	0.54	ug/L			08/22/18 03:41	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			08/22/18 03:41	1
Methyl acetate	10	U	10	1.7	ug/L			08/22/18 03:41	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			08/22/18 03:41	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			08/22/18 03:41	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			08/22/18 03:41	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			08/22/18 03:41	1
Styrene	1.0	U	1.0	0.10	ug/L			08/22/18 03:41	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			08/22/18 03:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 03:41	1
Toluene	1.0	U	1.0	0.14	ug/L			08/22/18 03:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 03:41	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			08/22/18 03:41	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			08/22/18 03:41	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/22/18 03:41	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			08/22/18 03:41	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-31_081018

Lab Sample ID: 240-99861-4

Date Collected: 08/10/18 10:49

Matrix: Water

Date Received: 08/14/18 09:10

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			08/22/18 03:41	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			08/22/18 03:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			08/22/18 03:41	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			08/22/18 03:41	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			08/22/18 03:41	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			08/22/18 03:41	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/22/18 03:41	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			08/22/18 03:41	1
1,4-Dioxane	50	U	50	13	ug/L			08/22/18 03:41	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			08/22/18 03:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		69 - 120		08/22/18 03:41	1
Dibromofluoromethane (Surr)	109		69 - 124		08/22/18 03:41	1
1,2-Dichloroethane-d4 (Surr)	106		61 - 138		08/22/18 03:41	1
Toluene-d8 (Surr)	99		73 - 120		08/22/18 03:41	1

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-42_081018

Lab Sample ID: 240-99861-5

Date Collected: 08/10/18 13:38

Matrix: Water

Date Received: 08/14/18 09:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.3		2.0	0.86	ug/L			08/21/18 14:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		63 - 125					08/21/18 14:24	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			08/22/18 04:04	1
Benzene	1.0	U	1.0	0.13	ug/L			08/22/18 04:04	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			08/22/18 04:04	1
Bromoform	1.0	U	1.0	0.76	ug/L			08/22/18 04:04	1
Bromomethane	1.0	U	1.0	0.42	ug/L			08/22/18 04:04	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			08/22/18 04:04	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			08/22/18 04:04	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			08/22/18 04:04	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			08/22/18 04:04	1
Chloroethane	1.0	U	1.0	0.83	ug/L			08/22/18 04:04	1
Chloroform	1.0	U	1.0	0.13	ug/L			08/22/18 04:04	1
Chloromethane	1.0	U	1.0	0.20	ug/L			08/22/18 04:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 04:04	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			08/22/18 04:04	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			08/22/18 04:04	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			08/22/18 04:04	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			08/22/18 04:04	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			08/22/18 04:04	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 04:04	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/22/18 04:04	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			08/22/18 04:04	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			08/22/18 04:04	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			08/22/18 04:04	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			08/22/18 04:04	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 04:04	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			08/22/18 04:04	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			08/22/18 04:04	1
2-Hexanone	10	U	10	0.54	ug/L			08/22/18 04:04	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			08/22/18 04:04	1
Methyl acetate	10	U	10	1.7	ug/L			08/22/18 04:04	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			08/22/18 04:04	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			08/22/18 04:04	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			08/22/18 04:04	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			08/22/18 04:04	1
Styrene	1.0	U	1.0	0.10	ug/L			08/22/18 04:04	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			08/22/18 04:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 04:04	1
Toluene	1.0	U	1.0	0.14	ug/L			08/22/18 04:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 04:04	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			08/22/18 04:04	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			08/22/18 04:04	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/22/18 04:04	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			08/22/18 04:04	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-99861-1

Client Sample ID: MW-42_081018

Lab Sample ID: 240-99861-5

Date Collected: 08/10/18 13:38

Matrix: Water

Date Received: 08/14/18 09:10

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			08/22/18 04:04	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			08/22/18 04:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			08/22/18 04:04	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			08/22/18 04:04	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			08/22/18 04:04	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			08/22/18 04:04	1
Vinyl chloride	0.60	J	1.0	0.20	ug/L			08/22/18 04:04	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			08/22/18 04:04	1
1,4-Dioxane	50	U	50	13	ug/L			08/22/18 04:04	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			08/22/18 04:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		69 - 120		08/22/18 04:04	1
Dibromofluoromethane (Surr)	112		69 - 124		08/22/18 04:04	1
1,2-Dichloroethane-d4 (Surr)	106		61 - 138		08/22/18 04:04	1
Toluene-d8 (Surr)	98		73 - 120		08/22/18 04:04	1

Surrogate Summary

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

TestAmerica Job ID: 240-99861-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	DCA	TOL
		(69-120)	(69-124)	(61-138)	(73-120)
240-99857-E-3 MS	Matrix Spike	100	105	101	104
240-99857-E-3 MSD	Matrix Spike Duplicate	103	102	100	107
240-99861-1	MW-38_080918	94	104	103	99
240-99861-2	MW-37_080918	88	111	106	100
240-99861-3	MW-30_080918	89	108	103	95
240-99861-4	MW-31_081018	89	109	106	99
240-99861-5	MW-42_081018	93	112	106	98
LCS 240-341894/4	Lab Control Sample	99	104	98	104
MB 240-341894/6	Method Blank	92	106	102	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

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

TOL = Toluene-d8 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(63-125)
240-99859-A-7 MS	Matrix Spike	105
240-99859-A-7 MSD	Matrix Spike Duplicate	102
240-99861-1	MW-38_080918	95
240-99861-2	MW-37_080918	103
240-99861-3	MW-30_080918	104
240-99861-4	MW-31_081018	97
240-99861-5	MW-42_081018	97
LCS 240-341828/4	Lab Control Sample	100
MB 240-341828/5	Method Blank	106

Surrogate Legend

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

QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: MB 240-341894/6

Matrix: Water

Analysis Batch: 341894

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			08/21/18 21:25	1
Benzene	1.0	U	1.0	0.13	ug/L			08/21/18 21:25	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			08/21/18 21:25	1
Bromoform	1.0	U	1.0	0.76	ug/L			08/21/18 21:25	1
Bromomethane	1.0	U	1.0	0.42	ug/L			08/21/18 21:25	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			08/21/18 21:25	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			08/21/18 21:25	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			08/21/18 21:25	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			08/21/18 21:25	1
Chloroethane	1.0	U	1.0	0.83	ug/L			08/21/18 21:25	1
Chloroform	1.0	U	1.0	0.13	ug/L			08/21/18 21:25	1
Chloromethane	1.0	U	1.0	0.20	ug/L			08/21/18 21:25	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/21/18 21:25	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			08/21/18 21:25	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			08/21/18 21:25	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			08/21/18 21:25	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			08/21/18 21:25	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			08/21/18 21:25	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/21/18 21:25	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			08/21/18 21:25	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			08/21/18 21:25	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			08/21/18 21:25	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			08/21/18 21:25	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			08/21/18 21:25	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 21:25	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			08/21/18 21:25	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			08/21/18 21:25	1
2-Hexanone	10	U	10	0.54	ug/L			08/21/18 21:25	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			08/21/18 21:25	1
Methyl acetate	10	U	10	1.7	ug/L			08/21/18 21:25	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			08/21/18 21:25	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			08/21/18 21:25	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			08/21/18 21:25	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			08/21/18 21:25	1
Styrene	1.0	U	1.0	0.10	ug/L			08/21/18 21:25	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			08/21/18 21:25	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/21/18 21:25	1
Toluene	1.0	U	1.0	0.14	ug/L			08/21/18 21:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 21:25	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			08/21/18 21:25	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			08/21/18 21:25	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/21/18 21:25	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			08/21/18 21:25	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/21/18 21:25	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			08/21/18 21:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			08/21/18 21:25	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			08/21/18 21:25	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			08/21/18 21:25	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: MB 240-341894/6

Matrix: Water

Analysis Batch: 341894

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			08/21/18 21:25	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/21/18 21:25	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			08/21/18 21:25	1
1,4-Dioxane	50	U	50	13	ug/L			08/21/18 21:25	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			08/21/18 21:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		69 - 120		08/21/18 21:25	1
Dibromofluoromethane (Surr)	106		69 - 124		08/21/18 21:25	1
1,2-Dichloroethane-d4 (Surr)	102		61 - 138		08/21/18 21:25	1
Toluene-d8 (Surr)	99		73 - 120		08/21/18 21:25	1

Lab Sample ID: LCS 240-341894/4

Matrix: Water

Analysis Batch: 341894

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	15.7		ug/L		78	35 - 131
Benzene	10.0	9.51		ug/L		95	79 - 120
Bromodichloromethane	10.0	9.45		ug/L		94	79 - 125
Bromoform	10.0	9.47		ug/L		95	55 - 145
Bromomethane	10.0	8.17		ug/L		82	17 - 158
2-Butanone (MEK)	20.0	15.7		ug/L		79	43 - 149
Carbon disulfide	10.0	8.79		ug/L		88	49 - 141
Carbon tetrachloride	10.0	9.00		ug/L		90	55 - 171
Chlorobenzene	10.0	9.31		ug/L		93	80 - 120
Chloroethane	10.0	8.33		ug/L		83	10 - 149
Chloroform	10.0	9.44		ug/L		94	80 - 120
Chloromethane	10.0	8.12		ug/L		81	59 - 124
cis-1,2-Dichloroethene	10.0	9.19		ug/L		92	77 - 120
cis-1,3-Dichloropropene	10.0	9.01		ug/L		90	75 - 120
Cyclohexane	10.0	8.59		ug/L		86	66 - 135
Dibromochloromethane	10.0	10.1		ug/L		101	64 - 129
1,2-Dibromo-3-Chloropropane	10.0	8.82		ug/L		88	50 - 130
1,2-Dibromoethane	10.0	9.30		ug/L		93	80 - 120
1,2-Dichlorobenzene	10.0	9.16		ug/L		92	80 - 120
1,3-Dichlorobenzene	10.0	8.96		ug/L		90	80 - 120
1,4-Dichlorobenzene	10.0	9.18		ug/L		92	80 - 120
Dichlorodifluoromethane	10.0	7.99		ug/L		80	42 - 141
1,1-Dichloroethane	10.0	9.84		ug/L		98	74 - 120
1,2-Dichloroethane	10.0	9.35		ug/L		94	68 - 133
1,1-Dichloroethene	10.0	8.89		ug/L		89	65 - 127
1,2-Dichloropropane	10.0	9.69		ug/L		97	78 - 127
Ethylbenzene	10.0	8.81		ug/L		88	80 - 120
2-Hexanone	20.0	16.4		ug/L		82	28 - 169
Isopropylbenzene	10.0	8.55		ug/L		86	80 - 128
Methyl acetate	20.0	18.1		ug/L		91	63 - 137
Methylcyclohexane	10.0	8.04		ug/L		80	63 - 141

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: LCS 240-341894/4
Matrix: Water
Analysis Batch: 341894

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Chloride	10.0	9.99		ug/L		100	64 - 140
4-Methyl-2-pentanone (MIBK)	20.0	15.7		ug/L		79	53 - 144
Methyl tert-butyl ether	10.0	9.36		ug/L		94	73 - 120
Styrene	10.0	8.89		ug/L		89	80 - 121
1,1,2,2-Tetrachloroethane	10.0	10.4		ug/L		104	58 - 122
Tetrachloroethene	10.0	9.30		ug/L		93	80 - 122
Toluene	10.0	9.66		ug/L		97	78 - 120
trans-1,2-Dichloroethene	10.0	9.50		ug/L		95	74 - 124
trans-1,3-Dichloropropene	10.0	8.83		ug/L		88	67 - 120
1,2,4-Trichlorobenzene	10.0	7.41		ug/L		74	34 - 141
1,1,1-Trichloroethane	10.0	9.22		ug/L		92	64 - 147
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	76 - 121
Trichloroethene	10.0	9.11		ug/L		91	76 - 124
Trichlorofluoromethane	10.0	7.95		ug/L		80	27 - 176
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	8.42		ug/L		84	65 - 144
1,2,4-Trimethylbenzene	10.0	8.67		ug/L		87	80 - 120
1,3,5-Trimethylbenzene	10.0	8.92		ug/L		89	79 - 120
Vinyl chloride	10.0	8.70		ug/L		87	65 - 124
Xylenes, Total	20.0	17.5		ug/L		88	80 - 120
1,4-Dioxane	200	178		ug/L		89	35 - 134
Diethyl ether	10.0	9.76		ug/L		98	72 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		69 - 120
Dibromofluoromethane (Surr)	104		69 - 124
1,2-Dichloroethane-d4 (Surr)	98		61 - 138
Toluene-d8 (Surr)	104		73 - 120

Lab Sample ID: 240-99857-E-3 MS
Matrix: Water
Analysis Batch: 341894

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	1400	U	2860	2270		ug/L		79	19 - 133
Benzene	140	U	1430	1300		ug/L		91	69 - 127
Bromodichloromethane	140	U	1430	1360		ug/L		95	75 - 128
Bromoform	140	U	1430	1340		ug/L		94	61 - 135
Bromomethane	140	U	1430	1240		ug/L		87	10 - 148
2-Butanone (MEK)	1400	U	2860	2300		ug/L		81	34 - 153
Carbon disulfide	710	U	1430	1180		ug/L		82	46 - 143
Carbon tetrachloride	140	U	1430	1110		ug/L		78	53 - 175
Chlorobenzene	140	U	1430	1250		ug/L		88	76 - 120
Chloroethane	140	U	1430	1200		ug/L		84	10 - 141
Chloroform	140	U	1430	1320		ug/L		93	74 - 125
Chloromethane	140	U	1430	1230		ug/L		86	34 - 127
cis-1,2-Dichloroethene	140	U	1430	1280		ug/L		90	69 - 127
cis-1,3-Dichloropropene	140	U	1430	1310		ug/L		92	68 - 120

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: 240-99857-E-3 MS

Matrix: Water

Analysis Batch: 341894

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				
Cyclohexane	140	U	1430	906		ug/L		63	56 - 135
Dibromochloromethane	140	U	1430	1420		ug/L		99	62 - 131
1,2-Dibromo-3-Chloropropane	140	U	1430	1050		ug/L		74	48 - 130
1,2-Dibromoethane	140	U	1430	1360		ug/L		95	73 - 121
1,2-Dichlorobenzene	140	U	1430	1210		ug/L		85	70 - 120
1,3-Dichlorobenzene	140	U	1430	1210		ug/L		84	71 - 120
1,4-Dichlorobenzene	140	U	1430	1250		ug/L		87	72 - 120
Dichlorodifluoromethane	140	U	1430	1140		ug/L		80	45 - 130
1,1-Dichloroethane	140	U	1430	1370		ug/L		96	69 - 122
1,2-Dichloroethane	140	U	1430	1330		ug/L		93	64 - 138
1,1-Dichloroethene	140	U	1430	1160		ug/L		81	62 - 127
1,2-Dichloropropane	140	U	1430	1370		ug/L		96	72 - 131
Ethylbenzene	140	U	1430	1100		ug/L		77	72 - 121
2-Hexanone	1400	U	2860	2300		ug/L		81	21 - 184
Isopropylbenzene	140	U	1430	1020		ug/L		72	70 - 132
Methyl acetate	1400	U	2860	2600		ug/L		91	52 - 139
Methylcyclohexane	140	U	1430	788		ug/L		55	46 - 139
Methylene Chloride	710	U	1430	1380		ug/L		96	52 - 137
4-Methyl-2-pentanone (MIBK)	1400	U	2860	2320		ug/L		81	53 - 147
Methyl tert-butyl ether	140	U	1430	1310		ug/L		91	67 - 125
Styrene	140	U	1430	1190		ug/L		83	74 - 125
1,1,2,2-Tetrachloroethane	140	U	1430	1400		ug/L		98	51 - 123
Tetrachloroethene	140	U	1430	1150		ug/L		81	69 - 126
Toluene	140	U	1430	1280		ug/L		89	69 - 125
trans-1,2-Dichloroethene	140	U	1430	1280		ug/L		90	66 - 131
trans-1,3-Dichloropropene	140	U	1430	1210		ug/L		85	59 - 120
1,2,4-Trichlorobenzene	140	U	1430	1030		ug/L		72	26 - 138
1,1,1-Trichloroethane	140	U	1430	1190		ug/L		83	57 - 156
1,1,2-Trichloroethane	140	U	1430	1400		ug/L		98	68 - 127
Trichloroethene	140	U	1430	1210		ug/L		85	68 - 129
Trichlorofluoromethane	140	U	1430	1050		ug/L		73	28 - 172
1,1,2-Trichloro-1,2,2-trifluoroethane	140	U	1430	986		ug/L		69	58 - 137
1,2,4-Trimethylbenzene	140	U	1430	1100		ug/L		77	64 - 120
1,3,5-Trimethylbenzene	140	U	1430	1100		ug/L		77	67 - 120
Vinyl chloride	2300		1430	3340		ug/L		76	55 - 123
Xylenes, Total	290	U	2860	2270		ug/L		79	71 - 122
1,4-Dioxane	7100	U	28600	20000		ug/L		70	13 - 155
Diethyl ether	290	U	1430	1320		ug/L		92	65 - 124

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		69 - 120
Dibromofluoromethane (Surr)	105		69 - 124
1,2-Dichloroethane-d4 (Surr)	101		61 - 138
Toluene-d8 (Surr)	104		73 - 120

QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: 240-99857-E-3 MSD

Matrix: Water

Analysis Batch: 341894

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	1400	U	2860	2150		ug/L		75	19 - 133	5	35
Benzene	140	U	1430	1370		ug/L		96	69 - 127	5	10
Bromodichloromethane	140	U	1430	1380		ug/L		97	75 - 128	1	13
Bromoform	140	U	1430	1380		ug/L		97	61 - 135	3	13
Bromomethane	140	U	1430	1120		ug/L		78	10 - 148	10	35
2-Butanone (MEK)	1400	U	2860	2340		ug/L		82	34 - 153	2	23
Carbon disulfide	710	U	1430	1310		ug/L		91	46 - 143	10	18
Carbon tetrachloride	140	U	1430	1250		ug/L		87	53 - 175	11	17
Chlorobenzene	140	U	1430	1360		ug/L		95	76 - 120	8	12
Chloroethane	140	U	1430	1200		ug/L		84	10 - 141	0	35
Chloroform	140	U	1430	1380		ug/L		97	74 - 125	4	11
Chloromethane	140	U	1430	1300		ug/L		91	34 - 127	6	25
cis-1,2-Dichloroethene	140	U	1430	1300		ug/L		91	69 - 127	2	11
cis-1,3-Dichloropropene	140	U	1430	1230		ug/L		86	68 - 120	7	13
Cyclohexane	140	U	1430	1200		ug/L		84	56 - 135	28	35
Dibromochloromethane	140	U	1430	1460		ug/L		102	62 - 131	3	15
1,2-Dibromo-3-Chloropropane	140	U	1430	1190		ug/L		84	48 - 130	12	31
1,2-Dibromoethane	140	U	1430	1300		ug/L		91	73 - 121	5	12
1,2-Dichlorobenzene	140	U	1430	1270		ug/L		89	70 - 120	4	19
1,3-Dichlorobenzene	140	U	1430	1260		ug/L		88	71 - 120	5	18
1,4-Dichlorobenzene	140	U	1430	1250		ug/L		87	72 - 120	0	17
Dichlorodifluoromethane	140	U	1430	1170		ug/L		82	45 - 130	3	34
1,1-Dichloroethane	140	U	1430	1400		ug/L		98	69 - 122	2	11
1,2-Dichloroethane	140	U	1430	1300		ug/L		91	64 - 138	2	11
1,1-Dichloroethene	140	U	1430	1310		ug/L		92	62 - 127	12	14
1,2-Dichloropropane	140	U	1430	1420		ug/L		99	72 - 131	3	12
Ethylbenzene	140	U	1430	1240		ug/L		87	72 - 121	12	15
2-Hexanone	1400	U	2860	2390		ug/L		84	21 - 184	4	12
Isopropylbenzene	140	U	1430	1130		ug/L		79	70 - 132	10	16
Methyl acetate	1400	U	2860	2640		ug/L		92	52 - 139	1	14
Methylcyclohexane	140	U	1430	1090		ug/L		76	46 - 139	32	35
Methylene Chloride	710	U	1430	1460		ug/L		102	52 - 137	6	12
4-Methyl-2-pentanone (MIBK)	1400	U	2860	2360		ug/L		82	53 - 147	1	16
Methyl tert-butyl ether	140	U	1430	1290		ug/L		90	67 - 125	2	12
Styrene	140	U	1430	1260		ug/L		88	74 - 125	5	14
1,1,2,2-Tetrachloroethane	140	U	1430	1390		ug/L		97	51 - 123	1	17
Tetrachloroethene	140	U	1430	1260		ug/L		88	69 - 126	8	18
Toluene	140	U	1430	1320		ug/L		92	69 - 125	3	14
trans-1,2-Dichloroethene	140	U	1430	1340		ug/L		94	66 - 131	5	11
trans-1,3-Dichloropropene	140	U	1430	1210		ug/L		85	59 - 120	0	14
1,2,4-Trichlorobenzene	140	U	1430	1030		ug/L		72	26 - 138	0	35
1,1,1-Trichloroethane	140	U	1430	1340		ug/L		94	57 - 156	12	13
1,1,2-Trichloroethane	140	U	1430	1430		ug/L		100	68 - 127	2	11
Trichloroethene	140	U	1430	1280		ug/L		90	68 - 129	6	12
Trichlorofluoromethane	140	U	1430	1090		ug/L		77	28 - 172	4	26
1,1,2-Trichloro-1,2,2-trifluoroethane	140	U	1430	1160		ug/L		81	58 - 137	16	35
1,2,4-Trimethylbenzene	140	U	1430	1150		ug/L		81	64 - 120	5	22

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: 240-99857-E-3 MSD
Matrix: Water
Analysis Batch: 341894

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3,5-Trimethylbenzene	140	U	1430	1200		ug/L		84	67 - 120	9	25
Vinyl chloride	2300		1430	3260		ug/L		70	55 - 123	2	12
Xylenes, Total	290	U	2860	2480		ug/L		87	71 - 122	9	14
1,4-Dioxane	7100	U	28600	25800		ug/L		90	13 - 155	25	35
Diethyl ether	290	U	1430	1370		ug/L		96	65 - 124	4	11
MSD MSD											
Surrogate	%Recovery		Qualifier	Limits							
4-Bromofluorobenzene (Surr)	103			69 - 120							
Dibromofluoromethane (Surr)	102			69 - 124							
1,2-Dichloroethane-d4 (Surr)	100			61 - 138							
Toluene-d8 (Surr)	107			73 - 120							

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

Lab Sample ID: MB 240-341828/5
Matrix: Water
Analysis Batch: 341828

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/21/18 11:56	1
MB MB									
Surrogate	%Recovery		Qualifier	Limits		Prepared		Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106			63 - 125				08/21/18 11:56	1

Lab Sample ID: LCS 240-341828/4
Matrix: Water
Analysis Batch: 341828

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	9.24		ug/L		92	59 - 131
LCS LCS							
Surrogate	%Recovery		Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	100			63 - 125			

Lab Sample ID: 240-99859-A-7 MS
Matrix: Water
Analysis Batch: 341828

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.9	J	10.0	11.8		ug/L		99	52 - 129
MS MS									
Surrogate	%Recovery		Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	105			63 - 125					

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QC Sample Results

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

TestAmerica Job ID: 240-99861-1

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

Lab Sample ID: 240-99859-A-7 MSD

Matrix: Water

Analysis Batch: 341828

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	1.9	J	10.0	12.9		ug/L		110	52 - 129	9	13
Surrogate	%Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		63 - 125								

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QC Association Summary

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

TestAmerica Job ID: 240-99861-1

GC/MS VOA

Analysis Batch: 341828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-99861-1	MW-38_080918	Total/NA	Water	8260B SIM	
240-99861-2	MW-37_080918	Total/NA	Water	8260B SIM	
240-99861-3	MW-30_080918	Total/NA	Water	8260B SIM	
240-99861-4	MW-31_081018	Total/NA	Water	8260B SIM	
240-99861-5	MW-42_081018	Total/NA	Water	8260B SIM	
MB 240-341828/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-341828/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-99859-A-7 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-99859-A-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 341894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-99861-1	MW-38_080918	Total/NA	Water	8260B	
240-99861-2	MW-37_080918	Total/NA	Water	8260B	
240-99861-3	MW-30_080918	Total/NA	Water	8260B	
240-99861-4	MW-31_081018	Total/NA	Water	8260B	
240-99861-5	MW-42_081018	Total/NA	Water	8260B	
MB 240-341894/6	Method Blank	Total/NA	Water	8260B	
LCS 240-341894/4	Lab Control Sample	Total/NA	Water	8260B	
240-99857-E-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-99857-E-3 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: 240-99861-1

Client Sample ID: MW-38_080918

Date Collected: 08/09/18 15:04

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99861-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341894	08/22/18 02:35	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 12:45	SAM	TAL CAN

Client Sample ID: MW-37_080918

Date Collected: 08/09/18 16:50

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99861-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341894	08/22/18 02:57	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 13:10	SAM	TAL CAN

Client Sample ID: MW-30_080918

Date Collected: 08/10/18 09:15

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99861-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341894	08/22/18 03:19	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 13:35	SAM	TAL CAN

Client Sample ID: MW-31_081018

Date Collected: 08/10/18 10:49

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99861-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341894	08/22/18 03:41	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 13:59	SAM	TAL CAN

Client Sample ID: MW-42_081018

Date Collected: 08/10/18 13:38

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99861-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341894	08/22/18 04:04	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 14:24	SAM	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.

TestAmerica Job ID: 240-99861-1

Project/Site: Ford LTP Livonia MI - E203728

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-19
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	08-31-18 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

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

TestAmerica Canton

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3-6/3-6

Chain of Custody Record

MICHIGAN TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

190

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

Regulatory program: DW NPDES RCRA Other

TestAmerica Laboratories, Inc.
COC No:

Lab Contact: Mike DeMonico
Telephone: 330-497-9396

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

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

Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Project Name: Ford LTP
Project Number: MI001454.0004.00001
PO # MI001454.0004.00001

Method of Shipment/Carrier:
Shipping/Tracking No:

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

Sample Identification	Sample Date	Sample Time	Matrix			Containers & Preservatives							Filtered Sample (Y/N)	Composite C/Grab	VOCs 8260B	1,4-Dioxane 8260B SIM	Analyses	Sample Specific Notes / Special Instructions:	
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH							Unpres
MW-15-59D-080918	8/9/18	1010	X																
MW-38-080918	8/9/18	1504	X																
MW-37-080918	8/9/18	1650	X																
MW-30-081018	8/10/18	0915	X																
MW-31-081018	8/10/18	1049	X																
MW-42-081018	8/10/18	1338	X																



240-99861 Chain of Custody

Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown
 Lammable Corrosive

Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalia@cadena.com. Cadena #E203728
 Level IV Reporting.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
AACHEL STERN	ALCADIS	8/10/18 1615	NOVI COLD STORAGE	ARCADIS	8/10/18 1615
Harry Watson	Arcadis	8-13-18 1057	Received by: <i>[Signature]</i>	Company: <i>TAL</i>	8/13/18 / 1057
<i>[Signature]</i>	TAL	8/13/18 1235	Received in Laboratory by: <i>[Signature]</i>	Company: <i>TAC</i>	8/13/18 9:10

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TestAmerica Canton Sample Receipt Form/Narrative

Login #: 99961

Canton Facility

Client Arcadis Site Name stutis Cooler unpacked by: Gil Brown
 Cooler Received on 8/14/18 Opened on 8/14/18
 FedEx: 1st Gro Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

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

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 -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 NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC849161
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM MD Date 8-14-18 by NS via Verbal Voice Mail Other

Concerning #17

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: GB

we did not receive sample ID #
MW-15-590-080918 it was on chain but was not
shipped.

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): _____

