

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: 240-99859-1

Client Project/Site: Ford LTP Livonia MI - E203631

For:

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

Attn: Kristoffer Hinskey



Authorized for release by:
8/28/2018 10:09:15 AM

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

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

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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 - E203631

TestAmerica Job ID: 240-99859-1

Job ID: 240-99859-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-99859-1

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-81_080918 (240-99859-1), MW-76_080918 (240-99859-2), MW-75S_080918 (240-99859-3), MW-75D_080918 (240-99859-4), MW-74_080918 (240-99859-5), MW-73S_081018 (240-99859-6), MW-73D_081018 (240-99859-7) and MW-72_081018 (240-99859-8) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2018, 08/21/2018 and 08/22/2018.

No MS/MSD in batch 3415007 due to an instrument fault: MW-76_080918 (240-99859-2) and MW-74_080918 (240-99859-5).

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-81_080918 (240-99859-1), MW-76_080918 (240-99859-2), MW-75S_080918 (240-99859-3), MW-75D_080918 (240-99859-4), MW-74_080918 (240-99859-5), MW-73S_081018 (240-99859-6), MW-73D_081018 (240-99859-7) and MW-72_081018 (240-99859-8) 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.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Job ID: 240-99859-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

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

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-99859-1	MW-81_080918	Water	08/09/18 09:50	08/14/18 09:10
240-99859-2	MW-76_080918	Water	08/09/18 11:30	08/14/18 09:10
240-99859-3	MW-75S_080918	Water	08/09/18 13:50	08/14/18 09:10
240-99859-4	MW-75D_080918	Water	08/09/18 15:20	08/14/18 09:10
240-99859-5	MW-74_080918	Water	08/09/18 16:40	08/14/18 09:10
240-99859-6	MW-73S_081018	Water	08/10/18 09:20	08/14/18 09:10
240-99859-7	MW-73D_081018	Water	08/10/18 10:40	08/14/18 09:10
240-99859-8	MW-72_081018	Water	08/10/18 12:15	08/14/18 09:10

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-81_080918

Lab Sample ID: 240-99859-1

No Detections.

Client Sample ID: MW-76_080918

Lab Sample ID: 240-99859-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.2		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.35	J	1.0	0.19	ug/L	1		8260B	Total/NA

Client Sample ID: MW-75S_080918

Lab Sample ID: 240-99859-3

No Detections.

Client Sample ID: MW-75D_080918

Lab Sample ID: 240-99859-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.0		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	1.8		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-74_080918

Lab Sample ID: 240-99859-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.6	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.41	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	2.8		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-73S_081018

Lab Sample ID: 240-99859-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.5		1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	0.51	J	1.0	0.10	ug/L	1		8260B	Total/NA
Vinyl chloride	0.62	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-73D_081018

Lab Sample ID: 240-99859-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.9	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.56	J	1.0	0.16	ug/L	1		8260B	Total/NA
Vinyl chloride	0.75	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-72_081018

Lab Sample ID: 240-99859-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.1	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	1.2		1.0	0.20	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 - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-81_080918

Lab Sample ID: 240-99859-1

Date Collected: 08/09/18 09:50

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 14:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		63 - 125					08/21/18 14:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 17:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/21/18 17:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/21/18 17:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 17:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/21/18 17:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/21/18 17:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		61 - 138					08/21/18 17:42	1
4-Bromofluorobenzene (Surr)	91		69 - 120					08/21/18 17:42	1
Toluene-d8 (Surr)	97		73 - 120					08/21/18 17:42	1
Dibromofluoromethane (Surr)	107		69 - 124					08/21/18 17:42	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-76_080918

Lab Sample ID: 240-99859-2

Date Collected: 08/09/18 11:30

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 15:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		63 - 125					08/21/18 15:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/18 16:07	1
cis-1,2-Dichloroethene	2.2		1.0	0.16	ug/L			08/18/18 16:07	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/18/18 16:07	1
trans-1,2-Dichloroethene	0.35	J	1.0	0.19	ug/L			08/18/18 16:07	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/18/18 16:07	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/18/18 16:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		61 - 138					08/18/18 16:07	1
4-Bromofluorobenzene (Surr)	71		69 - 120					08/18/18 16:07	1
Toluene-d8 (Surr)	88		73 - 120					08/18/18 16:07	1
Dibromofluoromethane (Surr)	91		69 - 124					08/18/18 16:07	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-75S_080918

Lab Sample ID: 240-99859-3

Date Collected: 08/09/18 13:50

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 15:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125					08/21/18 15:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 18:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/21/18 18:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/21/18 18:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 18:04	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/21/18 18:04	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/21/18 18:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		61 - 138					08/21/18 18:04	1
4-Bromofluorobenzene (Surr)	91		69 - 120					08/21/18 18:04	1
Toluene-d8 (Surr)	100		73 - 120					08/21/18 18:04	1
Dibromofluoromethane (Surr)	108		69 - 124					08/21/18 18:04	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-75D_080918

Lab Sample ID: 240-99859-4

Date Collected: 08/09/18 15:20

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		2.0	0.86	ug/L			08/21/18 16:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125					08/21/18 16:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 01:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 01:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 01:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 01:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/22/18 01:06	1
Vinyl chloride	1.8		1.0	0.20	ug/L			08/22/18 01:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		61 - 138					08/22/18 01:06	1
4-Bromofluorobenzene (Surr)	94		69 - 120					08/22/18 01:06	1
Toluene-d8 (Surr)	101		73 - 120					08/22/18 01:06	1
Dibromofluoromethane (Surr)	109		69 - 124					08/22/18 01:06	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-74_080918

Lab Sample ID: 240-99859-5

Date Collected: 08/09/18 16:40

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	1.6	J	2.0	0.86	ug/L			08/21/18 16:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		63 - 125					08/21/18 16:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/18 17:12	1
cis-1,2-Dichloroethene	0.41	J	1.0	0.16	ug/L			08/18/18 17:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/18/18 17:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/18 17:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/18/18 17:12	1
Vinyl chloride	2.8		1.0	0.20	ug/L			08/18/18 17:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		61 - 138					08/18/18 17:12	1
4-Bromofluorobenzene (Surr)	69		69 - 120					08/18/18 17:12	1
Toluene-d8 (Surr)	84		73 - 120					08/18/18 17:12	1
Dibromofluoromethane (Surr)	98		69 - 124					08/18/18 17:12	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-73S_081018

Lab Sample ID: 240-99859-6

Date Collected: 08/10/18 09:20

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 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125					08/21/18 16:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 01:28	1
cis-1,2-Dichloroethene	1.5		1.0	0.16	ug/L			08/22/18 01:28	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 01:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 01:28	1
Trichloroethene	0.51	J	1.0	0.10	ug/L			08/22/18 01:28	1
Vinyl chloride	0.62	J	1.0	0.20	ug/L			08/22/18 01:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		61 - 138					08/22/18 01:28	1
4-Bromofluorobenzene (Surr)	92		69 - 120					08/22/18 01:28	1
Toluene-d8 (Surr)	98		73 - 120					08/22/18 01:28	1
Dibromofluoromethane (Surr)	105		69 - 124					08/22/18 01:28	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-73D_081018

Lab Sample ID: 240-99859-7

Date Collected: 08/10/18 10:40

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	1.9	J	2.0	0.86	ug/L			08/21/18 17:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125					08/21/18 17:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 01:50	1
cis-1,2-Dichloroethene	0.56	J	1.0	0.16	ug/L			08/22/18 01:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 01:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 01:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/22/18 01:50	1
Vinyl chloride	0.75	J	1.0	0.20	ug/L			08/22/18 01:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		61 - 138					08/22/18 01:50	1
4-Bromofluorobenzene (Surr)	92		69 - 120					08/22/18 01:50	1
Toluene-d8 (Surr)	99		73 - 120					08/22/18 01:50	1
Dibromofluoromethane (Surr)	104		69 - 124					08/22/18 01:50	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-72_081018

Lab Sample ID: 240-99859-8

Date Collected: 08/10/18 12:15

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	1.1	J	2.0	0.86	ug/L			08/21/18 18:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125					08/21/18 18:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 02:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/22/18 02:12	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/22/18 02:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/22/18 02:12	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/22/18 02:12	1
Vinyl chloride	1.2		1.0	0.20	ug/L			08/22/18 02:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		61 - 138					08/22/18 02:12	1
4-Bromofluorobenzene (Surr)	95		69 - 120					08/22/18 02:12	1
Toluene-d8 (Surr)	103		73 - 120					08/22/18 02:12	1
Dibromofluoromethane (Surr)	112		69 - 124					08/22/18 02:12	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (61-138)	BFB (69-120)	TOL (73-120)	DBFM (69-124)
240-99857-E-3 MS	Matrix Spike	101	100	104	105
240-99857-E-3 MSD	Matrix Spike Duplicate	100	103	107	102
240-99859-1	MW-81_080918	105	91	97	107
240-99859-2	MW-76_080918	97	71	88	91
240-99859-3	MW-75S_080918	105	91	100	108
240-99859-4	MW-75D_080918	106	94	101	109
240-99859-5	MW-74_080918	100	69	84	98
240-99859-6	MW-73S_081018	106	92	98	105
240-99859-7	MW-73D_081018	105	92	99	104
240-99859-8	MW-72_081018	106	95	103	112
LCS 240-341507/4	Lab Control Sample	82	89	95	86
LCS 240-341810/4	Lab Control Sample	100	97	102	107
LCS 240-341894/4	Lab Control Sample	98	99	104	104
MB 240-341507/6	Method Blank	92	70	86	80
MB 240-341810/6	Method Blank	105	91	101	112
MB 240-341894/6	Method Blank	102	92	99	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 TOL = Toluene-d8 (Surr)
 DBFM = Dibromofluoromethane (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)
240-99859-1	MW-81_080918	104
240-99859-2	MW-76_080918	96
240-99859-3	MW-75S_080918	100
240-99859-4	MW-75D_080918	101
240-99859-5	MW-74_080918	98
240-99859-6	MW-73S_081018	100
240-99859-7	MW-73D_081018	100
240-99859-7 MS	MW-73D_081018	105
240-99859-7 MSD	MW-73D_081018	102
240-99859-8	MW-72_081018	101
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 - E203631

TestAmerica Job ID: 240-99859-1

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

Lab Sample ID: MB 240-341507/6

Matrix: Water

Analysis Batch: 341507

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/18 13:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/18/18 13:56	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/18/18 13:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/18/18 13:56	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/18/18 13:56	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/18/18 13:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		61 - 138		08/18/18 13:56	1
4-Bromofluorobenzene (Surr)	70		69 - 120		08/18/18 13:56	1
Toluene-d8 (Surr)	86		73 - 120		08/18/18 13:56	1
Dibromofluoromethane (Surr)	80		69 - 124		08/18/18 13:56	1

Lab Sample ID: LCS 240-341507/4

Matrix: Water

Analysis Batch: 341507

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	12.5		ug/L		125	65 - 127
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	77 - 120
Tetrachloroethene	10.0	10.1		ug/L		101	80 - 122
trans-1,2-Dichloroethene	10.0	10.7		ug/L		107	74 - 124
Trichloroethene	10.0	9.53		ug/L		95	76 - 124
Vinyl chloride	10.0	10.3		ug/L		103	65 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		61 - 138
4-Bromofluorobenzene (Surr)	89		69 - 120
Toluene-d8 (Surr)	95		73 - 120
Dibromofluoromethane (Surr)	86		69 - 124

Lab Sample ID: MB 240-341810/6

Matrix: Water

Analysis Batch: 341810

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 10:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			08/21/18 10:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			08/21/18 10:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			08/21/18 10:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			08/21/18 10:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			08/21/18 10:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		61 - 138		08/21/18 10:16	1
4-Bromofluorobenzene (Surr)	91		69 - 120		08/21/18 10:16	1
Toluene-d8 (Surr)	101		73 - 120		08/21/18 10:16	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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

Lab Sample ID: MB 240-341810/6
Matrix: Water
Analysis Batch: 341810

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	112		69 - 124		08/21/18 10:16	1

Lab Sample ID: LCS 240-341810/4
Matrix: Water
Analysis Batch: 341810

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	10.0	9.54		ug/L		95	77 - 120
Tetrachloroethene	10.0	10.2		ug/L		102	80 - 122
trans-1,2-Dichloroethene	10.0	9.99		ug/L		100	74 - 124
Trichloroethene	10.0	9.80		ug/L		98	76 - 124
Vinyl chloride	10.0	9.72		ug/L		97	65 - 124

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		61 - 138
4-Bromofluorobenzene (Surr)	97		69 - 120
Toluene-d8 (Surr)	102		73 - 120
Dibromofluoromethane (Surr)	107		69 - 124

Lab Sample ID: MB 240-341894/6
Matrix: Water
Analysis Batch: 341894

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.19	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
Tetrachloroethene	1.0	U	1.0	0.15	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
Trichloroethene	1.0	U	1.0	0.10	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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	102		61 - 138		08/21/18 21:25	1
4-Bromofluorobenzene (Surr)	92		69 - 120		08/21/18 21:25	1
Toluene-d8 (Surr)	99		73 - 120		08/21/18 21:25	1
Dibromofluoromethane (Surr)	106		69 - 124		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
cis-1,2-Dichloroethene	10.0	9.19		ug/L		92	77 - 120
Tetrachloroethene	10.0	9.30		ug/L		93	80 - 122
trans-1,2-Dichloroethene	10.0	9.50		ug/L		95	74 - 124

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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
Trichloroethene	10.0	9.11		ug/L		91	76 - 124
Vinyl chloride	10.0	8.70		ug/L		87	65 - 124
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	98		61 - 138				
4-Bromofluorobenzene (Surr)	99		69 - 120				
Toluene-d8 (Surr)	104		73 - 120				
Dibromofluoromethane (Surr)	104		69 - 124				

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
1,1-Dichloroethene	140	U	1430	1160		ug/L		81	62 - 127
cis-1,2-Dichloroethene	140	U	1430	1280		ug/L		90	69 - 127
Tetrachloroethene	140	U	1430	1150		ug/L		81	69 - 126
trans-1,2-Dichloroethene	140	U	1430	1280		ug/L		90	66 - 131
Trichloroethene	140	U	1430	1210		ug/L		85	68 - 129
Vinyl chloride	2300		1430	3340		ug/L		76	55 - 123
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	101		61 - 138						
4-Bromofluorobenzene (Surr)	100		69 - 120						
Toluene-d8 (Surr)	104		73 - 120						
Dibromofluoromethane (Surr)	105		69 - 124						

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
1,1-Dichloroethene	140	U	1430	1310		ug/L		92	62 - 127	12	14
cis-1,2-Dichloroethene	140	U	1430	1300		ug/L		91	69 - 127	2	11
Tetrachloroethene	140	U	1430	1260		ug/L		88	69 - 126	8	18
trans-1,2-Dichloroethene	140	U	1430	1340		ug/L		94	66 - 131	5	11
Trichloroethene	140	U	1430	1280		ug/L		90	68 - 129	6	12
Vinyl chloride	2300		1430	3260		ug/L		70	55 - 123	2	12
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	100		61 - 138								
4-Bromofluorobenzene (Surr)	103		69 - 120								
Toluene-d8 (Surr)	107		73 - 120								
Dibromofluoromethane (Surr)	102		69 - 124								

TestAmerica Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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
Surrogate	%Recovery	MB Qualifier	Limits			D	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
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	100		63 - 125				

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

Client Sample ID: MW-73D_081018
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
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	105		63 - 125						

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

Client Sample ID: MW-73D_081018
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	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		63 - 125								

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

GC/MS VOA

Analysis Batch: 341507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-99859-2	MW-76_080918	Total/NA	Water	8260B	
240-99859-5	MW-74_080918	Total/NA	Water	8260B	
MB 240-341507/6	Method Blank	Total/NA	Water	8260B	
LCS 240-341507/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 341810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-99859-1	MW-81_080918	Total/NA	Water	8260B	
240-99859-3	MW-75S_080918	Total/NA	Water	8260B	
MB 240-341810/6	Method Blank	Total/NA	Water	8260B	
LCS 240-341810/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 341828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-99859-1	MW-81_080918	Total/NA	Water	8260B SIM	
240-99859-2	MW-76_080918	Total/NA	Water	8260B SIM	
240-99859-3	MW-75S_080918	Total/NA	Water	8260B SIM	
240-99859-4	MW-75D_080918	Total/NA	Water	8260B SIM	
240-99859-5	MW-74_080918	Total/NA	Water	8260B SIM	
240-99859-6	MW-73S_081018	Total/NA	Water	8260B SIM	
240-99859-7	MW-73D_081018	Total/NA	Water	8260B SIM	
240-99859-8	MW-72_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	
240-99859-7 MS	MW-73D_081018	Total/NA	Water	8260B SIM	
240-99859-7 MSD	MW-73D_081018	Total/NA	Water	8260B SIM	

Analysis Batch: 341894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-99859-4	MW-75D_080918	Total/NA	Water	8260B	
240-99859-6	MW-73S_081018	Total/NA	Water	8260B	
240-99859-7	MW-73D_081018	Total/NA	Water	8260B	
240-99859-8	MW-72_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 - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-81_080918

Date Collected: 08/09/18 09:50

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341810	08/21/18 17:42	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 14:49	SAM	TAL CAN

Client Sample ID: MW-76_080918

Date Collected: 08/09/18 11:30

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341507	08/18/18 16:07	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 15:13	SAM	TAL CAN

Client Sample ID: MW-75S_080918

Date Collected: 08/09/18 13:50

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341810	08/21/18 18:04	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 15:38	SAM	TAL CAN

Client Sample ID: MW-75D_080918

Date Collected: 08/09/18 15:20

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-4

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 01:06	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 16:03	SAM	TAL CAN

Client Sample ID: MW-74_080918

Date Collected: 08/09/18 16:40

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	341507	08/18/18 17:12	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 16:28	SAM	TAL CAN

Client Sample ID: MW-73S_081018

Date Collected: 08/10/18 09:20

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-6

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 01:28	LEE	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

Client Sample ID: MW-73S_081018

Date Collected: 08/10/18 09:20

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 16:52	SAM	TAL CAN

Client Sample ID: MW-73D_081018

Date Collected: 08/10/18 10:40

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-7

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 01:50	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 17:17	SAM	TAL CAN

Client Sample ID: MW-72_081018

Date Collected: 08/10/18 12:15

Date Received: 08/14/18 09:10

Lab Sample ID: 240-99859-8

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 02:12	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	341828	08/21/18 18:32	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.
Project/Site: Ford LTP Livonia MI - E203631

TestAmerica Job ID: 240-99859-1

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	07-31-18 *
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


MICHIGAN 190

Chain of Custody Record



OFF-SITE

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

Client Contact Company Name: Arcadis Address: 28550 Cahot 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		Site Contact: Angela DeGrandis Telephone: 734-320-0065 Email: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DeMonico Telephone: 330-497-9396		TestAmerica Laboratories, Inc. COC No: _____ For lab use only Walk-in client	
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		Containers & Preservatives H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> Umpres <input type="checkbox"/> Other: _____		Filtered Sample (Y/N) Composite=C/Grab=G 1-DCE 8260B <input checked="" type="checkbox"/> 1-DCE 8260B <input checked="" type="checkbox"/> Trans-1,2-DCE 8260B <input checked="" type="checkbox"/> PCE 8260B <input checked="" type="checkbox"/> TCE 8260B <input checked="" type="checkbox"/> Vinyl Chloride 8260B <input checked="" type="checkbox"/> 1,4-Dioxane 8260B SIM <input checked="" type="checkbox"/>		 24D-99859 Chain of Custody			
Sample Identification	Sample Date	Sample Time	Matrix	Aqueous	Sediment	Solid	Other:	Filtered Sample (Y/N)	Analyses
MW-81-080918	8/9/18	0950		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-76-080918	8/9/18	1130		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-75S-080918	8/9/18	1350		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-75D-080918	8/9/18	1520		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-74-080918	8/9/18	1640		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-73S-081018	8/10/18	0920		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-73D-081018	8/10/18	1040		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
MW-72-081018	8/10/18	1215		<input checked="" type="checkbox"/>				N	<input checked="" type="checkbox"/>
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 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.tomalis@cadena.com, Cadena #E203631 Level IV Reporting.									
Relinquished by: <u>CAITLIN O'NEIL</u> Relinquished by: <u>Karen Matteson</u> Relinquished by: <u>Jill Pad</u>		Company: <u>ARCADIS</u> Company: <u>Arcadis</u> Company: <u>TAL</u>		Date/Time: <u>8/10/2018 / 1610</u> Date/Time: <u>8-13-18 1057</u> Date/Time: <u>8/10/18 / 1236</u>		Company: <u>ARCADIS</u> Company: <u>TAL</u> Company: <u>TAL</u>		Date/Time: <u>08/02/2018 / 1610</u> Date/Time: <u>8/13/18 / 1057</u> Date/Time: <u>8/13/18 9:10</u>	

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TestAmerica Canton Sample Receipt Form/Narrative


Login # : 99859

Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Gil Brogan
 Cooler Received on 8/14/18 Opened on 8/14/18
 FedEx: 1st Grp 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
 If yes, Questions 12-16 have been checked at the originating laboratory.
 12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC849161
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 16. Was a LL Hg or Me Hg trip blank present? Yes No

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

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

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

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): _____

