

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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TestAmerica Job ID: 240-108939-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

ARCADIS U.S., Inc.
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Attn: Kristoffer Hinskey



Authorized for release by:
3/19/2019 2:48:32 PM

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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: 240-108939-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
X	Surrogate is outside control limits
F2	MS/MSD RPD exceeds control limits

Glossary

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

Case Narrative

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

TestAmerica Job ID: 240-108939-1

Job ID: 240-108939-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-108939-1

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 3/6/2019 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-48-030419 (240-108939-1), MW-66-030419 (240-108939-2), TRIP BLANK (240-108939-3) and DUP-06 (240-108939-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 03/13/2019, 03/14/2019 and 03/15/2019.

Toluene-d8 (Surr) failed the surrogate recovery criteria high for LCS 240-371376/4.

Several analytes failed the recovery criteria high for LCS 240-371376/4. Refer to the QC report for details.

Surrogate recovery for the following LCS was outside the upper control limit: (LCS 240-371376/4). The associated samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The continuing calibration verification (CCV) associated with batch 371376 recovered above the upper control limit for Vinyl Chloride and 1,2-Dichloropropane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: TRIP BLANK (240-108939-3).

Case Narrative

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

TestAmerica Job ID: 240-108939-1

Job ID: 240-108939-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

The laboratory control sample (LCS) for 371376 recovered outside control limits for multiple analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported: TRIP BLANK (240-108939-3) and (LCS 240-371376/4).

No MS/MSD in batch 371376 due to analyte carry over: TRIP BLANK (240-108939-3).

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-48-030419 (240-108939-1), MW-66-030419 (240-108939-2) and DUP-06 (240-108939-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 03/11/2019.

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: 240-108939-1

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: 240-108939-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-108939-1	MW-48-030419	Water	03/04/19 11:10	03/06/19 08:45
240-108939-2	MW-66-030419	Water	03/04/19 13:00	03/06/19 08:45
240-108939-3	TRIP BLANK	Water	03/04/19 00:00	03/06/19 08:45
240-108939-4	DUP-06	Water	03/04/19 00:00	03/06/19 08:45

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

Detection Summary

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: MW-48-030419

Lab Sample ID: 240-108939-1

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
Acetone	8.4	J	10	5.4	ug/L	1		8260B	Total/NA
2-Butanone (MEK)	1.5	J	10	1.2	ug/L	1		8260B	Total/NA
Vinyl chloride	0.24	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-66-030419

Lab Sample ID: 240-108939-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	3.2		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-108939-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.60	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	0.76	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-06

Lab Sample ID: 240-108939-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.4	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	2.8		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 - E203728

TestAmerica Job ID: 240-108939-1

Client Sample ID: MW-48-030419

Lab Sample ID: 240-108939-1

Date Collected: 03/04/19 11:10

Matrix: Water

Date Received: 03/06/19 08:45

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			03/11/19 18:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		63 - 125					03/11/19 18:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	8.4	J	10	5.4	ug/L			03/14/19 20:08	1
Benzene	1.0	U	1.0	0.13	ug/L			03/14/19 20:08	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/14/19 20:08	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/14/19 20:08	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/14/19 20:08	1
2-Butanone (MEK)	1.5	J	10	1.2	ug/L			03/14/19 20:08	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/14/19 20:08	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/14/19 20:08	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/14/19 20:08	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/14/19 20:08	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/14/19 20:08	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/14/19 20:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/14/19 20:08	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/14/19 20:08	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/14/19 20:08	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/14/19 20:08	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/14/19 20:08	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/14/19 20:08	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/14/19 20:08	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/14/19 20:08	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/14/19 20:08	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/14/19 20:08	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/14/19 20:08	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/14/19 20:08	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/14/19 20:08	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/14/19 20:08	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/14/19 20:08	1
2-Hexanone	10	U	10	0.54	ug/L			03/14/19 20:08	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/14/19 20:08	1
Methyl acetate	10	U	10	1.7	ug/L			03/14/19 20:08	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/14/19 20:08	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/14/19 20:08	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/14/19 20:08	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/14/19 20:08	1
Styrene	1.0	U	1.0	0.10	ug/L			03/14/19 20:08	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/14/19 20:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/14/19 20:08	1
Toluene	1.0	U	1.0	0.14	ug/L			03/14/19 20:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/14/19 20:08	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/14/19 20:08	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/14/19 20:08	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/14/19 20:08	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/14/19 20:08	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: MW-48-030419

Lab Sample ID: 240-108939-1

Date Collected: 03/04/19 11:10

Matrix: Water

Date Received: 03/06/19 08:45

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			03/14/19 20:08	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/14/19 20:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/14/19 20:08	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/14/19 20:08	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/14/19 20:08	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			03/14/19 20:08	1
Vinyl chloride	0.24	J	1.0	0.20	ug/L			03/14/19 20:08	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/14/19 20:08	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/14/19 20:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		03/14/19 20:08	1
Dibromofluoromethane (Surr)	100		75 - 128		03/14/19 20:08	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 121		03/14/19 20:08	1
Toluene-d8 (Surr)	85		70 - 123		03/14/19 20:08	1

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: MW-66-030419

Lab Sample ID: 240-108939-2

Date Collected: 03/04/19 13:00

Matrix: Water

Date Received: 03/06/19 08:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.2	J	2.0	0.86	ug/L			03/11/19 19:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		63 - 125					03/11/19 19:10	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			03/15/19 11:02	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 11:02	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 11:02	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 11:02	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 11:02	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/15/19 11:02	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 11:02	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 11:02	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 11:02	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 11:02	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 11:02	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/15/19 11:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 11:02	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 11:02	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/15/19 11:02	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 11:02	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 11:02	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 11:02	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 11:02	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 11:02	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 11:02	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 11:02	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 11:02	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 11:02	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 11:02	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/15/19 11:02	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 11:02	1
2-Hexanone	10	U	10	0.54	ug/L			03/15/19 11:02	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 11:02	1
Methyl acetate	10	U	10	1.7	ug/L			03/15/19 11:02	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 11:02	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 11:02	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/15/19 11:02	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 11:02	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 11:02	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/15/19 11:02	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 11:02	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 11:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 11:02	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/15/19 11:02	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 11:02	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 11:02	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 11:02	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: MW-66-030419

Lab Sample ID: 240-108939-2

Date Collected: 03/04/19 13:00

Matrix: Water

Date Received: 03/06/19 08:45

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			03/15/19 11:02	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 11:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 11:02	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 11:02	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 11:02	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			03/15/19 11:02	1
Vinyl chloride	3.2		1.0	0.20	ug/L			03/15/19 11:02	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/15/19 11:02	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/15/19 11:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		59 - 120		03/15/19 11:02	1
Dibromofluoromethane (Surr)	99		75 - 128		03/15/19 11:02	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 121		03/15/19 11:02	1
Toluene-d8 (Surr)	84		70 - 123		03/15/19 11:02	1

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-108939-3

Date Collected: 03/04/19 00:00

Matrix: Water

Date Received: 03/06/19 08:45

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			03/13/19 19:49	1
Benzene	1.0	U	1.0	0.13	ug/L			03/13/19 19:49	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/13/19 19:49	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/13/19 19:49	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/13/19 19:49	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/13/19 19:49	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/13/19 19:49	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/13/19 19:49	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/13/19 19:49	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/13/19 19:49	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/13/19 19:49	1
Chloromethane	1.0	U *	1.0	0.20	ug/L			03/13/19 19:49	1
cis-1,2-Dichloroethene	0.60	J	1.0	0.16	ug/L			03/13/19 19:49	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/13/19 19:49	1
Cyclohexane	1.0	U *	1.0	0.24	ug/L			03/13/19 19:49	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/13/19 19:49	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/13/19 19:49	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/13/19 19:49	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/13/19 19:49	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/13/19 19:49	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/13/19 19:49	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/13/19 19:49	1
1,1-Dichloroethane	1.0	U *	1.0	0.17	ug/L			03/13/19 19:49	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/13/19 19:49	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/13/19 19:49	1
1,2-Dichloropropane	1.0	U *	1.0	0.15	ug/L			03/13/19 19:49	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/13/19 19:49	1
2-Hexanone	10	U *	10	0.54	ug/L			03/13/19 19:49	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/13/19 19:49	1
Methyl acetate	10	U *	10	1.7	ug/L			03/13/19 19:49	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/13/19 19:49	1
Methylene Chloride	5.0	U *	5.0	2.6	ug/L			03/13/19 19:49	1
4-Methyl-2-pentanone (MIBK)	10	U *	10	0.42	ug/L			03/13/19 19:49	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/13/19 19:49	1
Styrene	1.0	U	1.0	0.10	ug/L			03/13/19 19:49	1
1,1,2,2-Tetrachloroethane	1.0	U *	1.0	0.13	ug/L			03/13/19 19:49	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/13/19 19:49	1
Toluene	1.0	U	1.0	0.14	ug/L			03/13/19 19:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/13/19 19:49	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/13/19 19:49	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/13/19 19:49	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/13/19 19:49	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/13/19 19:49	1
Trichloroethene	0.76	J	1.0	0.10	ug/L			03/13/19 19:49	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/13/19 19:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/13/19 19:49	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/13/19 19:49	1
1,2,4-Trimethylbenzene	1.0	U *	1.0	0.070	ug/L			03/13/19 19:49	1
1,3,5-Trimethylbenzene	1.0	U *	1.0	0.12	ug/L			03/13/19 19:49	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-108939-3

Date Collected: 03/04/19 00:00

Matrix: Water

Date Received: 03/06/19 08:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	1.0	U *	1.0	0.20	ug/L			03/13/19 19:49	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/13/19 19:49	1
Diethyl ether	2.0	U *	2.0	0.19	ug/L			03/13/19 19:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		59 - 120					03/13/19 19:49	1
Dibromofluoromethane (Surr)	91		75 - 128					03/13/19 19:49	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 121					03/13/19 19:49	1
Toluene-d8 (Surr)	98		70 - 123					03/13/19 19:49	1

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: DUP-06

Lab Sample ID: 240-108939-4

Date Collected: 03/04/19 00:00

Matrix: Water

Date Received: 03/06/19 08:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.4	J	2.0	0.86	ug/L			03/11/19 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		63 - 125					03/11/19 19:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			03/15/19 11:24	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 11:24	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 11:24	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 11:24	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 11:24	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/15/19 11:24	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 11:24	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 11:24	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 11:24	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 11:24	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 11:24	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/15/19 11:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 11:24	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 11:24	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/15/19 11:24	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 11:24	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 11:24	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 11:24	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 11:24	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 11:24	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 11:24	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 11:24	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 11:24	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 11:24	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 11:24	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/15/19 11:24	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 11:24	1
2-Hexanone	10	U	10	0.54	ug/L			03/15/19 11:24	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 11:24	1
Methyl acetate	10	U	10	1.7	ug/L			03/15/19 11:24	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 11:24	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 11:24	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/15/19 11:24	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 11:24	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 11:24	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/15/19 11:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 11:24	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 11:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 11:24	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/15/19 11:24	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 11:24	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 11:24	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 11:24	1

TestAmerica Canton

Client Sample Results

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

TestAmerica Job ID: 240-108939-1

Client Sample ID: DUP-06

Lab Sample ID: 240-108939-4

Date Collected: 03/04/19 00:00

Matrix: Water

Date Received: 03/06/19 08:45

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			03/15/19 11:24	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 11:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 11:24	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 11:24	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 11:24	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			03/15/19 11:24	1
Vinyl chloride	2.8		1.0	0.20	ug/L			03/15/19 11:24	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/15/19 11:24	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/15/19 11:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		59 - 120					03/15/19 11:24	1
Dibromofluoromethane (Surr)	96		75 - 128					03/15/19 11:24	1
1,2-Dichloroethane-d4 (Surr)	91		70 - 121					03/15/19 11:24	1
Toluene-d8 (Surr)	81		70 - 123					03/15/19 11:24	1

Surrogate Summary

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

TestAmerica Job ID: 240-108939-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (59-120)	DBFM (75-128)	DCA (70-121)	TOL (70-123)
240-108933-E-2 MS	Matrix Spike	82	94	84	87
240-108933-H-2 MSD	Matrix Spike Duplicate	77	86	79	82
240-108939-1	MW-48-030419	74	100	98	85
240-108939-2	MW-66-030419	74	99	96	84
240-108939-3	TRIP BLANK	82	91	104	98
240-108939-4	DUP-06	70	96	91	81
240-108976-B-5 MS	Matrix Spike	89	98	92	95
240-108976-B-5 MSD	Matrix Spike Duplicate	69	80	69 X	69 X
LCS 240-371376/4	Lab Control Sample	111	98	109	124 X
LCS 240-371554/4	Lab Control Sample	82	91	82	84
LCS 240-371754/4	Lab Control Sample	89	95	89	93
MB 240-371376/6	Method Blank	95	108	117	113
MB 240-371554/6	Method Blank	72	91	87	80
MB 240-371754/6	Method Blank	71	96	92	82

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (63-125)
240-108939-1	MW-48-030419	105
240-108939-2	MW-66-030419	101
240-108939-4	DUP-06	103
240-108941-C-1 MS	Matrix Spike	102
240-108941-C-1 MSD	Matrix Spike Duplicate	100
LCS 240-371053/4	Lab Control Sample	98
MB 240-371053/5	Method Blank	102

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (10-150)
MRL 240-371053/6	Lab Control Sample	101

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: 240-108939-1

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

Lab Sample ID: MB 240-371376/6

Matrix: Water

Analysis Batch: 371376

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			03/13/19 11:40	1
Benzene	1.0	U	1.0	0.13	ug/L			03/13/19 11:40	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/13/19 11:40	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/13/19 11:40	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/13/19 11:40	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/13/19 11:40	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/13/19 11:40	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/13/19 11:40	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/13/19 11:40	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/13/19 11:40	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/13/19 11:40	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/13/19 11:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/13/19 11:40	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/13/19 11:40	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/13/19 11:40	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/13/19 11:40	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/13/19 11:40	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/13/19 11:40	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/13/19 11:40	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/13/19 11:40	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/13/19 11:40	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/13/19 11:40	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/13/19 11:40	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/13/19 11:40	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/13/19 11:40	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/13/19 11:40	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/13/19 11:40	1
2-Hexanone	10	U	10	0.54	ug/L			03/13/19 11:40	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/13/19 11:40	1
Methyl acetate	10	U	10	1.7	ug/L			03/13/19 11:40	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/13/19 11:40	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/13/19 11:40	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/13/19 11:40	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/13/19 11:40	1
Styrene	1.0	U	1.0	0.10	ug/L			03/13/19 11:40	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/13/19 11:40	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/13/19 11:40	1
Toluene	1.0	U	1.0	0.14	ug/L			03/13/19 11:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/13/19 11:40	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/13/19 11:40	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/13/19 11:40	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/13/19 11:40	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/13/19 11:40	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/13/19 11:40	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/13/19 11:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/13/19 11:40	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/13/19 11:40	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/13/19 11:40	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: MB 240-371376/6
Matrix: Water
Analysis Batch: 371376

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			03/13/19 11:40	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/13/19 11:40	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/13/19 11:40	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/13/19 11:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		59 - 120		03/13/19 11:40	1
Dibromofluoromethane (Surr)	108		75 - 128		03/13/19 11:40	1
1,2-Dichloroethane-d4 (Surr)	117		70 - 121		03/13/19 11:40	1
Toluene-d8 (Surr)	113		70 - 123		03/13/19 11:40	1

Lab Sample ID: LCS 240-371376/4
Matrix: Water
Analysis Batch: 371376

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	28.6		ug/L		143	21 - 162
Benzene	10.0	12.1		ug/L		121	80 - 123
Bromodichloromethane	10.0	10.9		ug/L		109	77 - 125
Bromoform	10.0	8.39		ug/L		84	49 - 141
Bromomethane	10.0	12.0		ug/L		120	41 - 175
2-Butanone (MEK)	20.0	32.4		ug/L		162	39 - 163
Carbon disulfide	10.0	12.6		ug/L		126	60 - 138
Carbon tetrachloride	10.0	9.59		ug/L		96	63 - 140
Chlorobenzene	10.0	10.5		ug/L		105	80 - 121
Chloroethane	10.0	16.1		ug/L		161	33 - 173
Chloroform	10.0	11.7		ug/L		117	79 - 127
Chloromethane	10.0	17.0	*	ug/L		170	54 - 143
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	76 - 128
cis-1,3-Dichloropropene	10.0	11.9		ug/L		119	64 - 132
Cyclohexane	10.0	15.8	*	ug/L		158	58 - 145
Dibromochloromethane	10.0	10.8		ug/L		108	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	10.4		ug/L		104	46 - 132
1,2-Dibromoethane	10.0	10.8		ug/L		108	77 - 123
1,2-Dichlorobenzene	10.0	10.4		ug/L		104	78 - 120
1,3-Dichlorobenzene	10.0	9.98		ug/L		100	78 - 120
1,4-Dichlorobenzene	10.0	10.1		ug/L		101	78 - 120
Dichlorodifluoromethane	10.0	10.3		ug/L		103	29 - 148
1,1-Dichloroethane	10.0	13.8	*	ug/L		138	75 - 133
1,2-Dichloroethane	10.0	11.5		ug/L		115	71 - 135
1,1-Dichloroethene	10.0	11.9		ug/L		119	65 - 139
1,2-Dichloropropane	10.0	15.1	*	ug/L		151	78 - 133
Ethylbenzene	10.0	10.9		ug/L		109	80 - 120
2-Hexanone	20.0	35.0	*	ug/L		175	43 - 148
Isopropylbenzene	10.0	11.3		ug/L		113	74 - 120
Methyl acetate	20.0	32.9	*	ug/L		164	52 - 145
Methylcyclohexane	10.0	11.5		ug/L		115	60 - 125
Methylene Chloride	10.0	14.2	*	ug/L		142	70 - 134

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: LCS 240-371376/4

Matrix: Water

Analysis Batch: 371376

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methyl-2-pentanone (MIBK)	20.0	30.8	*	ug/L		154	49 - 143
Methyl tert-butyl ether	10.0	11.7		ug/L		117	51 - 133
Styrene	10.0	10.7		ug/L		107	79 - 120
1,1,2,2-Tetrachloroethane	10.0	15.5	*	ug/L		155	65 - 139
Tetrachloroethene	10.0	8.56		ug/L		86	74 - 130
Toluene	10.0	12.4		ug/L		124	78 - 129
trans-1,2-Dichloroethene	10.0	11.1		ug/L		111	78 - 133
trans-1,3-Dichloropropene	10.0	11.9		ug/L		119	55 - 128
1,2,4-Trichlorobenzene	10.0	7.67		ug/L		77	42 - 133
1,1,1-Trichloroethane	10.0	9.91		ug/L		99	69 - 134
1,1,2-Trichloroethane	10.0	12.1		ug/L		121	78 - 133
Trichloroethene	10.0	8.52		ug/L		85	76 - 125
Trichlorofluoromethane	10.0	11.0		ug/L		110	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	8.15		ug/L		81	50 - 156
1,2,4-Trimethylbenzene	10.0	12.9	*	ug/L		129	74 - 120
1,3,5-Trimethylbenzene	10.0	12.8	*	ug/L		128	75 - 121
Vinyl chloride	10.0	15.7	*	ug/L		157	58 - 143
Xylenes, Total	20.0	23.3		ug/L		117	80 - 120
Diethyl ether	10.0	16.6	*	ug/L		166	70 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		59 - 120
Dibromofluoromethane (Surr)	98		75 - 128
1,2-Dichloroethane-d4 (Surr)	109		70 - 121
Toluene-d8 (Surr)	124	X	70 - 123

Lab Sample ID: MB 240-371554/6

Matrix: Water

Analysis Batch: 371554

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			03/14/19 10:31	1
Benzene	1.0	U	1.0	0.13	ug/L			03/14/19 10:31	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/14/19 10:31	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/14/19 10:31	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/14/19 10:31	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/14/19 10:31	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/14/19 10:31	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/14/19 10:31	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/14/19 10:31	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/14/19 10:31	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/14/19 10:31	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/14/19 10:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/14/19 10:31	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/14/19 10:31	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/14/19 10:31	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/14/19 10:31	1

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QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: MB 240-371554/6

Matrix: Water

Analysis Batch: 371554

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/14/19 10:31	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/14/19 10:31	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/14/19 10:31	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/14/19 10:31	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/14/19 10:31	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/14/19 10:31	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/14/19 10:31	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/14/19 10:31	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/14/19 10:31	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/14/19 10:31	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/14/19 10:31	1
2-Hexanone	10	U	10	0.54	ug/L			03/14/19 10:31	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/14/19 10:31	1
Methyl acetate	10	U	10	1.7	ug/L			03/14/19 10:31	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/14/19 10:31	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/14/19 10:31	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/14/19 10:31	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/14/19 10:31	1
Styrene	1.0	U	1.0	0.10	ug/L			03/14/19 10:31	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/14/19 10:31	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/14/19 10:31	1
Toluene	1.0	U	1.0	0.14	ug/L			03/14/19 10:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/14/19 10:31	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/14/19 10:31	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/14/19 10:31	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/14/19 10:31	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/14/19 10:31	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/14/19 10:31	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/14/19 10:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/14/19 10:31	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/14/19 10:31	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/14/19 10:31	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			03/14/19 10:31	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/14/19 10:31	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/14/19 10:31	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/14/19 10:31	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	72		59 - 120		03/14/19 10:31	1
Dibromofluoromethane (Surr)	91		75 - 128		03/14/19 10:31	1
1,2-Dichloroethane-d4 (Surr)	87		70 - 121		03/14/19 10:31	1
Toluene-d8 (Surr)	80		70 - 123		03/14/19 10:31	1

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QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: LCS 240-371554/4

Matrix: Water

Analysis Batch: 371554

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	12.9		ug/L		65	21 - 162
Benzene	10.0	10.1		ug/L		101	80 - 123
Bromodichloromethane	10.0	8.56		ug/L		86	77 - 125
Bromoform	10.0	5.72		ug/L		57	49 - 141
Bromomethane	10.0	7.80		ug/L		78	41 - 175
2-Butanone (MEK)	20.0	13.1		ug/L		66	39 - 163
Carbon disulfide	10.0	7.70		ug/L		77	60 - 138
Carbon tetrachloride	10.0	9.71		ug/L		97	63 - 140
Chlorobenzene	10.0	9.95		ug/L		100	80 - 121
Chloroethane	10.0	8.41		ug/L		84	33 - 173
Chloroform	10.0	10.7		ug/L		107	79 - 127
Chloromethane	10.0	9.11		ug/L		91	54 - 143
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	76 - 128
cis-1,3-Dichloropropene	10.0	7.40		ug/L		74	64 - 132
Cyclohexane	10.0	9.07		ug/L		91	58 - 145
Dibromochloromethane	10.0	7.93		ug/L		79	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	4.68		ug/L		47	46 - 132
1,2-Dibromoethane	10.0	7.69		ug/L		77	77 - 123
1,2-Dichlorobenzene	10.0	9.84		ug/L		98	78 - 120
1,3-Dichlorobenzene	10.0	9.72		ug/L		97	78 - 120
1,4-Dichlorobenzene	10.0	9.61		ug/L		96	78 - 120
Dichlorodifluoromethane	10.0	9.71		ug/L		97	29 - 148
1,1-Dichloroethane	10.0	10.2		ug/L		102	75 - 133
1,2-Dichloroethane	10.0	9.66		ug/L		97	71 - 135
1,1-Dichloroethene	10.0	8.24		ug/L		82	65 - 139
1,2-Dichloropropane	10.0	9.55		ug/L		96	78 - 133
Ethylbenzene	10.0	9.68		ug/L		97	80 - 120
2-Hexanone	20.0	11.8		ug/L		59	43 - 148
Isopropylbenzene	10.0	9.82		ug/L		98	74 - 120
Methyl acetate	20.0	13.2		ug/L		66	52 - 145
Methylcyclohexane	10.0	8.74		ug/L		87	60 - 125
Methylene Chloride	10.0	9.55		ug/L		96	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	11.3		ug/L		57	49 - 143
Methyl tert-butyl ether	10.0	6.98		ug/L		70	51 - 133
Styrene	10.0	9.24		ug/L		92	79 - 120
1,1,2,2-Tetrachloroethane	10.0	7.27		ug/L		73	65 - 139
Tetrachloroethene	10.0	10.3		ug/L		103	74 - 130
Toluene	10.0	10.0		ug/L		100	78 - 129
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
trans-1,3-Dichloropropene	10.0	6.22		ug/L		62	55 - 128
1,2,4-Trichlorobenzene	10.0	9.02		ug/L		90	42 - 133
1,1,1-Trichloroethane	10.0	10.9		ug/L		109	69 - 134
1,1,2-Trichloroethane	10.0	8.93		ug/L		89	78 - 133
Trichloroethene	10.0	9.70		ug/L		97	76 - 125
Trichlorofluoromethane	10.0	10.2		ug/L		102	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	9.23		ug/L		92	50 - 156
1,2,4-Trimethylbenzene	10.0	9.72		ug/L		97	74 - 120

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QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: LCS 240-371554/4
Matrix: Water
Analysis Batch: 371554

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	10.0	9.68		ug/L		97	75 - 121
Vinyl chloride	10.0	9.28		ug/L		93	58 - 143
Xylenes, Total	20.0	19.2		ug/L		96	80 - 120
Diethyl ether	10.0	8.67		ug/L		87	70 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	82		59 - 120
Dibromofluoromethane (Surr)	91		75 - 128
1,2-Dichloroethane-d4 (Surr)	82		70 - 121
Toluene-d8 (Surr)	84		70 - 123

Lab Sample ID: 240-108933-E-2 MS
Matrix: Water
Analysis Batch: 371554

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	10	U	20.0	13.6		ug/L		68	10 - 168
Benzene	1.0	U	10.0	9.58		ug/L		96	71 - 122
Bromodichloromethane	1.0	U	10.0	7.88		ug/L		79	64 - 125
Bromoform	1.0	U	10.0	4.95		ug/L		50	44 - 129
Bromomethane	1.0	U	10.0	7.62		ug/L		76	19 - 187
2-Butanone (MEK)	10	U	20.0	11.2		ug/L		56	37 - 156
Carbon disulfide	5.0	U	10.0	6.88		ug/L		69	43 - 144
Carbon tetrachloride	1.0	U	10.0	8.38		ug/L		84	41 - 143
Chlorobenzene	1.0	U	10.0	9.36		ug/L		94	70 - 123
Chloroethane	1.0	U	10.0	8.29		ug/L		83	11 - 189
Chloroform	1.0	U	10.0	10.5		ug/L		105	68 - 130
Chloromethane	1.0	U	10.0	9.39		ug/L		94	31 - 154
cis-1,2-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	64 - 130
cis-1,3-Dichloropropene	1.0	U	10.0	6.04		ug/L		60	48 - 127
Dibromochloromethane	1.0	U	10.0	7.10		ug/L		71	60 - 129
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	3.98		ug/L		40	38 - 124
1,2-Dibromoethane	1.0	U	10.0	7.35		ug/L		73	71 - 123
1,2-Dichlorobenzene	1.0	U	10.0	9.20		ug/L		92	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	8.79		ug/L		88	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	8.76		ug/L		88	63 - 120
Dichlorodifluoromethane	1.0	U	10.0	9.48		ug/L		95	28 - 136
1,1-Dichloroethane	1.0	U	10.0	10.3		ug/L		103	63 - 136
1,2-Dichloroethane	1.0	U	10.0	9.16		ug/L		92	65 - 135
1,1-Dichloroethene	1.0	U	10.0	7.97		ug/L		80	53 - 140
1,2-Dichloropropane	1.0	U	10.0	9.14		ug/L		91	70 - 132
Ethylbenzene	1.0	U	10.0	8.82		ug/L		88	66 - 120
2-Hexanone	10	U	20.0	10.8		ug/L		54	42 - 150
Isopropylbenzene	1.0	U	10.0	8.65		ug/L		86	59 - 120
Methylene Chloride	5.0	U	10.0	8.88		ug/L		89	61 - 130
4-Methyl-2-pentanone (MIBK)	10	U	20.0	9.94	J	ug/L		50	44 - 143
Methyl tert-butyl ether	1.0	U	10.0	6.18		ug/L		62	41 - 136
Styrene	1.0	U	10.0	8.63		ug/L		86	68 - 120

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: 240-108933-E-2 MS

Matrix: Water

Analysis Batch: 371554

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
1,1,2,2-Tetrachloroethane	1.0	U	10.0	6.60		ug/L		66	60 - 137
Tetrachloroethene	1.0	U	10.0	9.34		ug/L		93	51 - 136
Toluene	1.0	U	10.0	9.44		ug/L		94	62 - 132
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 133
trans-1,3-Dichloropropene	1.0	U	10.0	5.30		ug/L		53	40 - 125
1,2,4-Trichlorobenzene	1.0	U	10.0	8.00		ug/L		80	30 - 126
1,1,1-Trichloroethane	1.0	U	10.0	10.0		ug/L		100	51 - 138
1,1,2-Trichloroethane	1.0	U	10.0	8.72		ug/L		87	76 - 132
Trichloroethene	1.0	U	10.0	9.07		ug/L		91	55 - 131
Trichlorofluoromethane	1.0	U	10.0	9.74		ug/L		97	37 - 174
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	8.09		ug/L		81	31 - 156
Vinyl chloride	1.0	U	10.0	9.66		ug/L		97	43 - 154
Xylenes, Total	2.0	U	20.0	18.1		ug/L		90	67 - 120

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	82		59 - 120
Dibromofluoromethane (Surr)	94		75 - 128
1,2-Dichloroethane-d4 (Surr)	84		70 - 121
Toluene-d8 (Surr)	87		70 - 123

Lab Sample ID: 240-108933-H-2 MSD

Matrix: Water

Analysis Batch: 371554

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	10	U	20.0	11.8		ug/L		59	10 - 168	14	35
Benzene	1.0	U	10.0	9.47		ug/L		95	71 - 122	1	22
Bromodichloromethane	1.0	U	10.0	7.72		ug/L		77	64 - 125	2	27
Bromoform	1.0	U	10.0	4.94		ug/L		49	44 - 129	0	28
Bromomethane	1.0	U	10.0	7.92		ug/L		79	19 - 187	4	35
2-Butanone (MEK)	10	U	20.0	11.2		ug/L		56	37 - 156	1	35
Carbon disulfide	5.0	U	10.0	7.26		ug/L		73	43 - 144	5	33
Carbon tetrachloride	1.0	U	10.0	8.96		ug/L		90	41 - 143	7	30
Chlorobenzene	1.0	U	10.0	9.39		ug/L		94	70 - 123	0	23
Chloroethane	1.0	U	10.0	8.28		ug/L		83	11 - 189	0	35
Chloroform	1.0	U	10.0	10.1		ug/L		101	68 - 130	4	23
Chloromethane	1.0	U	10.0	8.42		ug/L		84	31 - 154	11	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.81		ug/L		98	64 - 130	2	21
cis-1,3-Dichloropropene	1.0	U	10.0	6.16		ug/L		62	48 - 127	2	30
Dibromochloromethane	1.0	U	10.0	6.88		ug/L		69	60 - 129	3	26
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	3.85		ug/L		39	38 - 124	3	35
1,2-Dibromoethane	1.0	U	10.0	7.08		ug/L		71	71 - 123	4	27
1,2-Dichlorobenzene	1.0	U	10.0	8.98		ug/L		90	64 - 120	2	30
1,3-Dichlorobenzene	1.0	U	10.0	8.86		ug/L		89	62 - 120	1	31
1,4-Dichlorobenzene	1.0	U	10.0	8.78		ug/L		88	63 - 120	0	28
Dichlorodifluoromethane	1.0	U	10.0	8.45		ug/L		85	28 - 136	11	35
1,1-Dichloroethane	1.0	U	10.0	9.86		ug/L		99	63 - 136	4	23

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: 240-108933-H-2 MSD
Matrix: Water
Analysis Batch: 371554

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

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,2-Dichloroethane	1.0	U	10.0	9.01		ug/L		90	65 - 135	2	24
1,1-Dichloroethene	1.0	U	10.0	8.13		ug/L		81	53 - 140	2	35
1,2-Dichloropropane	1.0	U	10.0	8.94		ug/L		89	70 - 132	2	26
Ethylbenzene	1.0	U	10.0	9.04		ug/L		90	66 - 120	3	24
2-Hexanone	10	U	20.0	10.3		ug/L		52	42 - 150	5	35
Isopropylbenzene	1.0	U	10.0	9.18		ug/L		92	59 - 120	6	31
Methylene Chloride	5.0	U	10.0	8.43		ug/L		84	61 - 130	5	29
4-Methyl-2-pentanone (MIBK)	10	U	20.0	9.50	J	ug/L		48	44 - 143	4	35
Methyl tert-butyl ether	1.0	U	10.0	5.98		ug/L		60	41 - 136	3	29
Styrene	1.0	U	10.0	8.70		ug/L		87	68 - 120	1	26
1,1,2,2-Tetrachloroethane	1.0	U	10.0	6.40		ug/L		64	60 - 137	3	31
Tetrachloroethene	1.0	U	10.0	9.60		ug/L		96	51 - 136	3	23
Toluene	1.0	U	10.0	9.41		ug/L		94	62 - 132	0	23
trans-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	68 - 133	1	24
trans-1,3-Dichloropropene	1.0	U	10.0	5.37		ug/L		54	40 - 125	1	27
1,2,4-Trichlorobenzene	1.0	U	10.0	7.47		ug/L		75	30 - 126	7	35
1,1,1-Trichloroethane	1.0	U	10.0	10.2		ug/L		102	51 - 138	2	27
1,1,2-Trichloroethane	1.0	U	10.0	8.26		ug/L		83	76 - 132	5	25
Trichloroethene	1.0	U	10.0	9.14		ug/L		91	55 - 131	1	23
Trichlorofluoromethane	1.0	U	10.0	9.30		ug/L		93	37 - 174	5	35
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	8.78		ug/L		88	31 - 156	8	35
Vinyl chloride	1.0	U	10.0	9.29		ug/L		93	43 - 154	4	29
Xylenes, Total	2.0	U	20.0	18.2		ug/L		91	67 - 120	1	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	77		59 - 120
Dibromofluoromethane (Surr)	86		75 - 128
1,2-Dichloroethane-d4 (Surr)	79		70 - 121
Toluene-d8 (Surr)	82		70 - 123

Lab Sample ID: MB 240-371754/6
Matrix: Water
Analysis Batch: 371754

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	10	U	10	5.4	ug/L			03/15/19 10:18	1
Benzene	1.0	U	1.0	0.13	ug/L			03/15/19 10:18	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			03/15/19 10:18	1
Bromoform	1.0	U	1.0	0.76	ug/L			03/15/19 10:18	1
Bromomethane	1.0	U	1.0	0.42	ug/L			03/15/19 10:18	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			03/15/19 10:18	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			03/15/19 10:18	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			03/15/19 10:18	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			03/15/19 10:18	1
Chloroethane	1.0	U	1.0	0.83	ug/L			03/15/19 10:18	1
Chloroform	1.0	U	1.0	0.13	ug/L			03/15/19 10:18	1
Chloromethane	1.0	U	1.0	0.20	ug/L			03/15/19 10:18	1

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QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: MB 240-371754/6

Matrix: Water

Analysis Batch: 371754

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/19 10:18	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			03/15/19 10:18	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			03/15/19 10:18	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			03/15/19 10:18	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			03/15/19 10:18	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			03/15/19 10:18	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 10:18	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			03/15/19 10:18	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			03/15/19 10:18	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			03/15/19 10:18	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			03/15/19 10:18	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			03/15/19 10:18	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 10:18	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			03/15/19 10:18	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			03/15/19 10:18	1
2-Hexanone	10	U	10	0.54	ug/L			03/15/19 10:18	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			03/15/19 10:18	1
Methyl acetate	10	U	10	1.7	ug/L			03/15/19 10:18	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			03/15/19 10:18	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			03/15/19 10:18	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			03/15/19 10:18	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			03/15/19 10:18	1
Styrene	1.0	U	1.0	0.10	ug/L			03/15/19 10:18	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			03/15/19 10:18	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/19 10:18	1
Toluene	1.0	U	1.0	0.14	ug/L			03/15/19 10:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/19 10:18	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			03/15/19 10:18	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			03/15/19 10:18	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			03/15/19 10:18	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			03/15/19 10:18	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/15/19 10:18	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			03/15/19 10:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			03/15/19 10:18	1
1,2,3-Trimethylbenzene	5.0	U	5.0	0.14	ug/L			03/15/19 10:18	1
1,2,4-Trimethylbenzene	1.0	U	1.0	0.070	ug/L			03/15/19 10:18	1
1,3,5-Trimethylbenzene	1.0	U	1.0	0.12	ug/L			03/15/19 10:18	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/15/19 10:18	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			03/15/19 10:18	1
Diethyl ether	2.0	U	2.0	0.19	ug/L			03/15/19 10:18	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	71		59 - 120		03/15/19 10:18	1
Dibromofluoromethane (Surr)	96		75 - 128		03/15/19 10:18	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 121		03/15/19 10:18	1
Toluene-d8 (Surr)	82		70 - 123		03/15/19 10:18	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: LCS 240-371754/4

Matrix: Water

Analysis Batch: 371754

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	15.4		ug/L		77	21 - 162
Benzene	10.0	11.0		ug/L		110	80 - 123
Bromodichloromethane	10.0	9.14		ug/L		91	77 - 125
Bromoform	10.0	6.45		ug/L		65	49 - 141
Bromomethane	10.0	8.24		ug/L		82	41 - 175
2-Butanone (MEK)	20.0	13.4		ug/L		67	39 - 163
Carbon disulfide	10.0	8.07		ug/L		81	60 - 138
Carbon tetrachloride	10.0	10.4		ug/L		104	63 - 140
Chlorobenzene	10.0	11.0		ug/L		110	80 - 121
Chloroethane	10.0	8.67		ug/L		87	33 - 173
Chloroform	10.0	11.6		ug/L		116	79 - 127
Chloromethane	10.0	8.91		ug/L		89	54 - 143
cis-1,2-Dichloroethene	10.0	11.1		ug/L		111	76 - 128
cis-1,3-Dichloropropene	10.0	7.90		ug/L		79	64 - 132
Cyclohexane	10.0	10.1		ug/L		101	58 - 145
Dibromochloromethane	10.0	8.95		ug/L		90	70 - 132
1,2-Dibromo-3-Chloropropane	10.0	4.99		ug/L		50	46 - 132
1,2-Dibromoethane	10.0	8.62		ug/L		86	77 - 123
1,2-Dichlorobenzene	10.0	10.8		ug/L		108	78 - 120
1,3-Dichlorobenzene	10.0	10.6		ug/L		106	78 - 120
1,4-Dichlorobenzene	10.0	10.6		ug/L		106	78 - 120
Dichlorodifluoromethane	10.0	9.67		ug/L		97	29 - 148
1,1-Dichloroethane	10.0	11.1		ug/L		111	75 - 133
1,2-Dichloroethane	10.0	10.5		ug/L		105	71 - 135
1,1-Dichloroethene	10.0	9.06		ug/L		91	65 - 139
1,2-Dichloropropane	10.0	10.3		ug/L		103	78 - 133
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
2-Hexanone	20.0	13.0		ug/L		65	43 - 148
Isopropylbenzene	10.0	11.0		ug/L		110	74 - 120
Methyl acetate	20.0	14.5		ug/L		73	52 - 145
Methylcyclohexane	10.0	9.68		ug/L		97	60 - 125
Methylene Chloride	10.0	9.87		ug/L		99	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	11.7		ug/L		58	49 - 143
Methyl tert-butyl ether	10.0	7.38		ug/L		74	51 - 133
Styrene	10.0	10.4		ug/L		104	79 - 120
1,1,2,2-Tetrachloroethane	10.0	7.83		ug/L		78	65 - 139
Tetrachloroethene	10.0	11.4		ug/L		114	74 - 130
Toluene	10.0	11.1		ug/L		111	78 - 129
trans-1,2-Dichloroethene	10.0	11.5		ug/L		115	78 - 133
trans-1,3-Dichloropropene	10.0	7.01		ug/L		70	55 - 128
1,2,4-Trichlorobenzene	10.0	9.41		ug/L		94	42 - 133
1,1,1-Trichloroethane	10.0	11.7		ug/L		117	69 - 134
1,1,2-Trichloroethane	10.0	9.93		ug/L		99	78 - 133
Trichloroethene	10.0	10.6		ug/L		106	76 - 125
Trichlorofluoromethane	10.0	9.81		ug/L		98	51 - 164
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.3		ug/L		103	50 - 156
1,2,4-Trimethylbenzene	10.0	10.4		ug/L		104	74 - 120

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: LCS 240-371754/4
Matrix: Water
Analysis Batch: 371754

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	10.0	10.3		ug/L		103	75 - 121
Vinyl chloride	10.0	9.18		ug/L		92	58 - 143
Xylenes, Total	20.0	21.7		ug/L		109	80 - 120
Diethyl ether	10.0	9.17		ug/L		92	70 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		59 - 120
Dibromofluoromethane (Surr)	95		75 - 128
1,2-Dichloroethane-d4 (Surr)	89		70 - 121
Toluene-d8 (Surr)	93		70 - 123

Lab Sample ID: 240-108976-B-5 MS
Matrix: Water
Analysis Batch: 371754

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
Benzene	17	U	167	148		ug/L		89	71 - 122
cis-1,2-Dichloroethene	440		167	583		ug/L		88	64 - 130
1,2-Dichloroethane	17	U	167	141		ug/L		85	65 - 135
1,1-Dichloroethene	17	U	167	123		ug/L		74	53 - 140
Tetrachloroethene	17	U	167	149		ug/L		90	51 - 136
Toluene	17	U	167	146		ug/L		87	62 - 132
1,1,2-Trichloroethane	17	U	167	128		ug/L		77	76 - 132
Trichloroethene	17	U F1	167	256	F1	ug/L		153	55 - 131
Vinyl chloride	93	F2	167	226		ug/L		80	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		59 - 120
Dibromofluoromethane (Surr)	98		75 - 128
1,2-Dichloroethane-d4 (Surr)	92		70 - 121
Toluene-d8 (Surr)	95		70 - 123

Lab Sample ID: 240-108976-B-5 MSD
Matrix: Water
Analysis Batch: 371754

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
Benzene	17	U	167	165		ug/L		99	71 - 122	11	22
cis-1,2-Dichloroethene	440		167	626		ug/L		114	64 - 130	7	21
1,2-Dichloroethane	17	U	167	155		ug/L		93	65 - 135	9	24
1,1-Dichloroethene	17	U	167	166		ug/L		100	53 - 140	30	35
Tetrachloroethene	17	U	167	168		ug/L		101	51 - 136	12	23
Toluene	17	U	167	155		ug/L		93	62 - 132	6	23
1,1,2-Trichloroethane	17	U	167	135		ug/L		81	76 - 132	5	25
Trichloroethene	17	U F1	167	279	F1	ug/L		167	55 - 131	9	23
Vinyl chloride	93	F2	167	315	F2	ug/L		133	43 - 154	33	29

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: 240-108976-B-5 MSD
Matrix: Water
Analysis Batch: 371754

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	69		59 - 120
Dibromofluoromethane (Surr)	80		75 - 128
1,2-Dichloroethane-d4 (Surr)	69	X	70 - 121
Toluene-d8 (Surr)	69	X	70 - 123

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

Lab Sample ID: MB 240-371053/5
Matrix: Water
Analysis Batch: 371053

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			03/11/19 13:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		63 - 125		03/11/19 13:11	1

Lab Sample ID: LCS 240-371053/4
Matrix: Water
Analysis Batch: 371053

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	11.1		ug/L		111	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		63 - 125

Lab Sample ID: MRL 240-371053/6
Matrix: Water
Analysis Batch: 371053

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	0.00100	0.00129	J	ng/uL		129	10 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		10 - 150

Lab Sample ID: 240-108941-C-1 MS
Matrix: Water
Analysis Batch: 371053

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	1.6	J	10.0	13.1		ug/L		115	52 - 129

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		63 - 125

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-108939-1

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

Lab Sample ID: 240-108941-C-1 MSD
Matrix: Water
Analysis Batch: 371053

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	1.6	J	10.0	11.7		ug/L		102	52 - 129	11	13
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	100		63 - 125								

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

QC Association Summary

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

TestAmerica Job ID: 240-108939-1

GC/MS VOA

Analysis Batch: 371053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108939-1	MW-48-030419	Total/NA	Water	8260B SIM	
240-108939-2	MW-66-030419	Total/NA	Water	8260B SIM	
240-108939-4	DUP-06	Total/NA	Water	8260B SIM	
MB 240-371053/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-371053/4	Lab Control Sample	Total/NA	Water	8260B SIM	
MRL 240-371053/6	Lab Control Sample	Total/NA	Water	8260B SIM	
240-108941-C-1 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-108941-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 371376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108939-3	TRIP BLANK	Total/NA	Water	8260B	
MB 240-371376/6	Method Blank	Total/NA	Water	8260B	
LCS 240-371376/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 371554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108939-1	MW-48-030419	Total/NA	Water	8260B	
MB 240-371554/6	Method Blank	Total/NA	Water	8260B	
LCS 240-371554/4	Lab Control Sample	Total/NA	Water	8260B	
240-108933-E-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-108933-H-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 371754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-108939-2	MW-66-030419	Total/NA	Water	8260B	
240-108939-4	DUP-06	Total/NA	Water	8260B	
MB 240-371754/6	Method Blank	Total/NA	Water	8260B	
LCS 240-371754/4	Lab Control Sample	Total/NA	Water	8260B	
240-108976-B-5 MS	Matrix Spike	Total/NA	Water	8260B	
240-108976-B-5 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: 240-108939-1

Client Sample ID: MW-48-030419

Date Collected: 03/04/19 11:10

Date Received: 03/06/19 08:45

Lab Sample ID: 240-108939-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371554	03/14/19 20:08	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	371053	03/11/19 18:44	SAM	TAL CAN

Client Sample ID: MW-66-030419

Date Collected: 03/04/19 13:00

Date Received: 03/06/19 08:45

Lab Sample ID: 240-108939-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371754	03/15/19 11:02	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	371053	03/11/19 19:10	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Date Collected: 03/04/19 00:00

Date Received: 03/06/19 08:45

Lab Sample ID: 240-108939-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371376	03/13/19 19:49	LEE	TAL CAN

Client Sample ID: DUP-06

Date Collected: 03/04/19 00:00

Date Received: 03/06/19 08:45

Lab Sample ID: 240-108939-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371754	03/15/19 11:24	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	371053	03/11/19 19:36	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 - E203728

TestAmerica Job ID: 240-108939-1

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	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
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	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

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

Chain of Custody Record

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

Client Contact Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		TestAmerica Laboratories, Inc. COC No: _____ Lab Contact: Mike DeMonico Telephone: 330-497-9396	
Client Project Manager: Kris Hinsky Telephone: 248-994-2240 Email: kristoffer.hinsky@arcadis.com		Site Contact: Angela DeGrandis Telephone: 734-320-0065		Analyses For lab use only Walk-in client Lab sampling Job/SDG No: _____ Sample Specific Notes / Special Instructions:	
Project Name: Ford LTP Project Number: M100154-0001 M100154-0006-0003 PO # M100154-0006-0004 M100154-0006-0003		Analysis Turnaround Time TAT if different from below: 10 day <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 Other: Unpres ZnAc NaOH HCl HNO3 H2SO4	
Method of Shipment/Carrier: Shipping/Tracking No:		Matrix Other: Solid Sediment Aqueous Air		Filtered Sample (Y / N) Composite = C / Grab = G	
Sample Identification MN-4P-030419 MW-66-030419 TRIP BLANK DUP-06		Sample Date 3/4/19 3/4/19 3/4/19		Sample Time 1110 1300 —	
		X X X X		VOCs 8260B 1,4-Dioxane 8260B SIM N 0 3 3 N 0 3 3 N G 5 3	
		240-108939 Chain of Custody		Barcode	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Irritant <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 checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jim.tomalia@cadena.com, Cadena #E203728 Level IV Reporting.					
Relinquished by: RACHEL BIELAK Relinquished on: 3/5/19		Relinquished by: ARCADIS Date/Time: 3/5/19 1130 140		Relinquished by: TML Date/Time: 3/5/19 1130 845	



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 108434

Canton Facility

Client Arcadis Site Name Cooler unpacked by:
Cooler Received on 3/6/14 Opened on 3/6/14
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

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

- 1. Cooler temperature upon receipt
IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.0 °C
IR GUN #36 (CF +0.7°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC861525
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 # 831707 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):

VOA Sample Preservation - Date/Time VOAs Frozen: