

ANALYTICAL REPORT

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Laboratory Job ID: 460-196756-1
Client Project/Site: Ford LTP On-Site

For:
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Authorized for release by:
11/27/2019 11:33:27 AM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 On-Site

Job ID: 460-196756-1

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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	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 On-Site

Job ID: 460-196756-1

Job ID: 460-196756-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 460-196756-1

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.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins 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 Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/13/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (460-196756-1), MW-45_110819 (460-196756-2), MW-39_110819 (460-196756-3), MW-33_110819 (460-196756-4) and MW-38_110819 (460-196756-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 11/21/2019 and 11/22/2019.

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

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples MW-45_110819 (460-196756-2), MW-39_110819 (460-196756-3), MW-33_110819 (460-196756-4) and MW-38_110819 (460-196756-5) were analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The samples were analyzed on 11/20/2019 and 11/21/2019.

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196756-1

No Detections.

Client Sample ID: MW-45_110819

Lab Sample ID: 460-196756-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.45	J	2.0	0.33	ug/L	1		8260C SIM	Total/NA
1,1-Dichloroethene	0.37	J	1.0	0.26	ug/L	1		8260C	Total/NA
cis-1,2-Dichloroethene	150		1.0	0.22	ug/L	1		8260C	Total/NA
trans-1,2-Dichloroethene	0.60	J	1.0	0.24	ug/L	1		8260C	Total/NA
Vinyl chloride	210		1.0	0.17	ug/L	1		8260C	Total/NA

Client Sample ID: MW-39_110819

Lab Sample ID: 460-196756-3

No Detections.

Client Sample ID: MW-33_110819

Lab Sample ID: 460-196756-4

No Detections.

Client Sample ID: MW-38_110819

Lab Sample ID: 460-196756-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.39	J	2.0	0.33	ug/L	1		8260C SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196756-1

Date Collected: 11/08/19 00:00

Matrix: Water

Date Received: 11/13/19 10:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		11/21/19 11:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/21/19 11:46	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/21/19 11:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/21/19 11:46	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/21/19 11:46	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/21/19 11:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		74 - 132		11/21/19 11:46	1
Toluene-d8 (Surr)	98		80 - 120		11/21/19 11:46	1
Dibromofluoromethane (Surr)	95		72 - 131		11/21/19 11:46	1
4-Bromofluorobenzene	93		77 - 124		11/21/19 11:46	1

Client Sample ID: MW-45_110819

Lab Sample ID: 460-196756-2

Date Collected: 11/08/19 09:34

Matrix: Water

Date Received: 11/13/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.45	J	2.0	0.33	ug/L	-		11/20/19 19:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		72 - 133		11/20/19 19:31	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	0.37	J	1.0	0.26	ug/L	-		11/21/19 15:11	1
cis-1,2-Dichloroethene	150		1.0	0.22	ug/L	-		11/21/19 15:11	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/21/19 15:11	1
trans-1,2-Dichloroethene	0.60	J	1.0	0.24	ug/L	-		11/21/19 15:11	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/21/19 15:11	1
Vinyl chloride	210		1.0	0.17	ug/L	-		11/21/19 15:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		74 - 132		11/21/19 15:11	1
Toluene-d8 (Surr)	98		80 - 120		11/21/19 15:11	1
Dibromofluoromethane (Surr)	97		72 - 131		11/21/19 15:11	1
4-Bromofluorobenzene	98		77 - 124		11/21/19 15:11	1

Client Sample ID: MW-39_110819

Lab Sample ID: 460-196756-3

Date Collected: 11/08/19 10:40

Matrix: Water

Date Received: 11/13/19 10:00

Method: 8260C 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	0.33	ug/L	-		11/20/19 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	86		72 - 133		11/20/19 19:54	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Client Sample ID: MW-39_110819

Lab Sample ID: 460-196756-3

Date Collected: 11/08/19 10:40

Matrix: Water

Date Received: 11/13/19 10:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		11/22/19 00:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/22/19 00:04	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/22/19 00:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/22/19 00:04	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/22/19 00:04	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/22/19 00:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		74 - 132		11/22/19 00:04	1
Toluene-d8 (Surr)	99		80 - 120		11/22/19 00:04	1
Dibromofluoromethane (Surr)	94		72 - 131		11/22/19 00:04	1
4-Bromofluorobenzene	93		77 - 124		11/22/19 00:04	1

Client Sample ID: MW-33_110819

Lab Sample ID: 460-196756-4

Date Collected: 11/08/19 12:00

Matrix: Water

Date Received: 11/13/19 10:00

Method: 8260C 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	0.33	ug/L	-		11/20/19 20:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	83		72 - 133		11/20/19 20:41	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L	-		11/21/19 16:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/21/19 16:03	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/21/19 16:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/21/19 16:03	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/21/19 16:03	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/21/19 16:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		74 - 132		11/21/19 16:03	1
Toluene-d8 (Surr)	93		80 - 120		11/21/19 16:03	1
Dibromofluoromethane (Surr)	95		72 - 131		11/21/19 16:03	1
4-Bromofluorobenzene	92		77 - 124		11/21/19 16:03	1

Client Sample ID: MW-38_110819

Lab Sample ID: 460-196756-5

Date Collected: 11/08/19 13:43

Matrix: Water

Date Received: 11/13/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.39	J	2.0	0.33	ug/L	-		11/21/19 11:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		72 - 133		11/21/19 11:14	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Client Sample ID: MW-38_110819

Lab Sample ID: 460-196756-5

Date Collected: 11/08/19 13:43

Matrix: Water

Date Received: 11/13/19 10:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.26	ug/L			11/21/19 16:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/21/19 16:29	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/21/19 16:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/21/19 16:29	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/21/19 16:29	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/21/19 16:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		74 - 132		11/21/19 16:29	1
Toluene-d8 (Surr)	107		80 - 120		11/21/19 16:29	1
Dibromofluoromethane (Surr)	106		72 - 131		11/21/19 16:29	1
4-Bromofluorobenzene	106		77 - 124		11/21/19 16:29	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-196756-1	TRIP BLANK	96	98	95	93
460-196756-2	MW-45_110819	93	98	97	98
460-196756-3	MW-39_110819	92	99	94	93
460-196756-4	MW-33_110819	89	93	95	92
460-196756-5	MW-38_110819	103	107	106	106
LCS 460-657077/3	Lab Control Sample	94	100	95	100
LCS 460-657229/4	Lab Control Sample	93	98	95	102
LCSD 460-657077/4	Lab Control Sample Dup	90	94	94	95
LCSD 460-657229/5	Lab Control Sample Dup	92	96	96	100
MB 460-657077/8	Method Blank	93	100	95	94
MB 460-657229/9	Method Blank	91	99	94	98

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		BFB (72-133)
460-196756-2	MW-45_110819	92
460-196756-3	MW-39_110819	86
460-196756-4	MW-33_110819	83
460-196756-5	MW-38_110819	94
LCS 460-656856/3	Lab Control Sample	84
LCS 460-657013/6	Lab Control Sample	99
LCSD 460-656856/4	Lab Control Sample Dup	82
LCSD 460-657013/7	Lab Control Sample Dup	92
MB 460-656856/8	Method Blank	86
MB 460-657013/11	Method Blank	94

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-657077/8
Matrix: Water
Analysis Batch: 657077

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	0.26	ug/L			11/21/19 10:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/21/19 10:54	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/21/19 10:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/21/19 10:54	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/21/19 10:54	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/21/19 10:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		74 - 132		11/21/19 10:54	1
Toluene-d8 (Surr)	100		80 - 120		11/21/19 10:54	1
Dibromofluoromethane (Surr)	95		72 - 131		11/21/19 10:54	1
4-Bromofluorobenzene	94		77 - 124		11/21/19 10:54	1

Lab Sample ID: LCS 460-657077/3
Matrix: Water
Analysis Batch: 657077

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	20.0	18.8		ug/L		94	74 - 123
cis-1,2-Dichloroethene	20.0	19.5		ug/L		98	80 - 120
Tetrachloroethene	20.0	20.9		ug/L		104	78 - 122
trans-1,2-Dichloroethene	20.0	17.4		ug/L		87	79 - 120
Trichloroethene	20.0	20.3		ug/L		102	77 - 120
Vinyl chloride	20.0	17.8		ug/L		89	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		74 - 132
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	95		72 - 131
4-Bromofluorobenzene	100		77 - 124

Lab Sample ID: LCSD 460-657077/4
Matrix: Water
Analysis Batch: 657077

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	20.0	17.1		ug/L		85	74 - 123	10	30
cis-1,2-Dichloroethene	20.0	19.5		ug/L		97	80 - 120	0	30
Tetrachloroethene	20.0	19.4		ug/L		97	78 - 122	7	30
trans-1,2-Dichloroethene	20.0	16.0		ug/L		80	79 - 120	8	30
Trichloroethene	20.0	20.5		ug/L		102	77 - 120	1	30
Vinyl chloride	20.0	16.7		ug/L		84	62 - 138	6	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		74 - 132
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	94		72 - 131

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

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

Lab Sample ID: LCSD 460-657077/4
Matrix: Water
Analysis Batch: 657077

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

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	95		77 - 124

Lab Sample ID: MB 460-657229/9
Matrix: Water
Analysis Batch: 657229

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	0.26	ug/L			11/21/19 22:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/21/19 22:21	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/21/19 22:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/21/19 22:21	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/21/19 22:21	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/21/19 22:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	91		74 - 132		11/21/19 22:21	1
Toluene-d8 (Surr)	99		80 - 120		11/21/19 22:21	1
Dibromofluoromethane (Surr)	94		72 - 131		11/21/19 22:21	1
4-Bromofluorobenzene	98		77 - 124		11/21/19 22:21	1

Lab Sample ID: LCS 460-657229/4
Matrix: Water
Analysis Batch: 657229

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	20.0	15.7		ug/L		78	74 - 123
cis-1,2-Dichloroethene	20.0	19.4		ug/L		97	80 - 120
Tetrachloroethene	20.0	18.4		ug/L		92	78 - 122
trans-1,2-Dichloroethene	20.0	15.9		ug/L		79	79 - 120
Trichloroethene	20.0	19.1		ug/L		95	77 - 120
Vinyl chloride	20.0	16.2		ug/L		81	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	93		74 - 132
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	95		72 - 131
4-Bromofluorobenzene	102		77 - 124

Lab Sample ID: LCSD 460-657229/5
Matrix: Water
Analysis Batch: 657229

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

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
1,1-Dichloroethene	20.0	15.5		ug/L		77	74 - 123	1	30
cis-1,2-Dichloroethene	20.0	19.5		ug/L		98	80 - 120	1	30
Tetrachloroethene	20.0	18.5		ug/L		92	78 - 122	1	30
trans-1,2-Dichloroethene	20.0	16.5		ug/L		82	79 - 120	4	30
Trichloroethene	20.0	19.6		ug/L		98	77 - 120	3	30

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

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

Lab Sample ID: LCSD 460-657229/5
Matrix: Water
Analysis Batch: 657229

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride	20.0	16.0		ug/L		80	62 - 138	1	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	92		74 - 132						
Toluene-d8 (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	96		72 - 131						
4-Bromofluorobenzene	100		77 - 124						

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

Lab Sample ID: MB 460-656856/8
Matrix: Water
Analysis Batch: 656856

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	0.33	ug/L			11/20/19 13:41	1
Surrogate	MB %Recovery	MB Qualifier	Limits						
4-Bromofluorobenzene	86		72 - 133						
							Prepared	Analyzed	Dil Fac
								11/20/19 13:41	1

Lab Sample ID: LCS 460-656856/3
Matrix: Water
Analysis Batch: 656856

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	5.00	5.33		ug/L		107	66 - 135		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene	84		72 - 133						

Lab Sample ID: LCSD 460-656856/4
Matrix: Water
Analysis Batch: 656856

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	5.00	4.72		ug/L		94	66 - 135	12	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	82		72 - 133						

Lab Sample ID: MB 460-657013/11
Matrix: Water
Analysis Batch: 657013

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	0.33	ug/L			11/21/19 03:51	1

Eurofins TestAmerica, Edison

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

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

Lab Sample ID: MB 460-657013/11
Matrix: Water
Analysis Batch: 657013

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

<u>Surrogate</u>	<u>MB</u>	<u>MB</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
4-Bromofluorobenzene	94	MB	72 - 133		11/21/19 03:51	1

Lab Sample ID: LCS 460-657013/6
Matrix: Water
Analysis Batch: 657013

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

<u>Analyte</u>	<u>Spike</u>	<u>LCS</u>	<u>LCS</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec.</u>
	<u>Added</u>	<u>Result</u>	<u>Qualifier</u>				<u>Limits</u>
1,4-Dioxane	5.00	5.72		ug/L		114	66 - 135

<u>Surrogate</u>	<u>LCS</u>	<u>LCS</u>	<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
4-Bromofluorobenzene	99	LCS	72 - 133

Lab Sample ID: LCSD 460-657013/7
Matrix: Water
Analysis Batch: 657013

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

<u>Analyte</u>	<u>Spike</u>	<u>LCSD</u>	<u>LCSD</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec.</u>	<u>RPD</u>	<u>Limit</u>
	<u>Added</u>	<u>Result</u>	<u>Qualifier</u>				<u>Limits</u>	<u>RPD</u>	<u>Limit</u>
1,4-Dioxane	5.00	5.86		ug/L		117	66 - 135	3	30

<u>Surrogate</u>	<u>LCSD</u>	<u>LCSD</u>	<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
4-Bromofluorobenzene	92	LCSD	72 - 133

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

GC/MS VOA

Analysis Batch: 656856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196756-2	MW-45_110819	Total/NA	Water	8260C SIM	
460-196756-3	MW-39_110819	Total/NA	Water	8260C SIM	
460-196756-4	MW-33_110819	Total/NA	Water	8260C SIM	
MB 460-656856/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-656856/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-656856/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 657013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196756-5	MW-38_110819	Total/NA	Water	8260C SIM	
MB 460-657013/11	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-657013/6	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-657013/7	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 657077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196756-1	TRIP BLANK	Total/NA	Water	8260C	
460-196756-2	MW-45_110819	Total/NA	Water	8260C	
460-196756-4	MW-33_110819	Total/NA	Water	8260C	
460-196756-5	MW-38_110819	Total/NA	Water	8260C	
MB 460-657077/8	Method Blank	Total/NA	Water	8260C	
LCS 460-657077/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-657077/4	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 657229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196756-3	MW-39_110819	Total/NA	Water	8260C	
MB 460-657229/9	Method Blank	Total/NA	Water	8260C	
LCS 460-657229/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-657229/5	Lab Control Sample Dup	Total/NA	Water	8260C	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196756-1

Date Collected: 11/08/19 00:00

Matrix: Water

Date Received: 11/13/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657077	11/21/19 11:46	EMM	TAL EDI

Client Sample ID: MW-45_110819

Lab Sample ID: 460-196756-2

Date Collected: 11/08/19 09:34

Matrix: Water

Date Received: 11/13/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657077	11/21/19 15:11	EMM	TAL EDI
Total/NA	Analysis	8260C SIM		1	656856	11/20/19 19:31	KLB	TAL EDI

Client Sample ID: MW-39_110819

Lab Sample ID: 460-196756-3

Date Collected: 11/08/19 10:40

Matrix: Water

Date Received: 11/13/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657229	11/22/19 00:04	MZS	TAL EDI
Total/NA	Analysis	8260C SIM		1	656856	11/20/19 19:54	KLB	TAL EDI

Client Sample ID: MW-33_110819

Lab Sample ID: 460-196756-4

Date Collected: 11/08/19 12:00

Matrix: Water

Date Received: 11/13/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657077	11/21/19 16:03	EMM	TAL EDI
Total/NA	Analysis	8260C SIM		1	656856	11/20/19 20:41	KLB	TAL EDI

Client Sample ID: MW-38_110819

Lab Sample ID: 460-196756-5

Date Collected: 11/08/19 13:43

Matrix: Water

Date Received: 11/13/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657077	11/21/19 16:29	EMM	TAL EDI
Total/NA	Analysis	8260C SIM		1	657013	11/21/19 11:14	KLB	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Laboratory: Eurofins TestAmerica, Edison

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

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0200	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State	<cert No.>	12-31-21
Georgia	State	12028 (NJ)	06-30-20
Massachusetts	State Program	M-NJ312	06-30-20
New Jersey	NELAP	12028	06-30-20
New York	NELAP	11452	04-01-20
Pennsylvania	NELAP	68-00522	02-28-20
Rhode Island	State	LAO00132	12-30-19
USDA	US Federal Programs	P330-18-00135	05-03-21

Laboratory: Eurofins TestAmerica, Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

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

Protocol References:

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

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP On-Site

Job ID: 460-196756-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-196756-1	TRIP BLANK	Water	11/08/19 00:00	11/13/19 10:00	
460-196756-2	MW-45_110819	Water	11/08/19 09:34	11/13/19 10:00	
460-196756-3	MW-39_110819	Water	11/08/19 10:40	11/13/19 10:00	
460-196756-4	MW-33_110819	Water	11/08/19 12:00	11/13/19 10:00	
460-196756-5	MW-38_110819	Water	11/08/19 13:43	11/13/19 10:00	

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Chain of Custody Record

MICHIGAN 190

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact: Arcadis
 Regulatory program: DW NPDES RCRA Other

Company Name: Arcadis
 Client Project Manager: Kris Hinsky
 Site Contact: Rachel Bielak
 Lab Contact: Mike DeMunico
 COC No: 196756
 of COCs

Address: 28550 Cabot Drive, Suite 500
 Telephone: 248-994-2240
 Telephone: 248-946-6331
 Telephone: 330-497-9396

City/State/Zip: Novi, MI, 48377
 Email: kristoffer.hinsky@arcadis.com
 Analysis Turnaround Time

Phone: 248-994-2240
 Sample Name: Xenia Chan
 TAT if different from below
 10 day 3 weeks 2 weeks 1 week 2 days 1 day

Project Name: Ford LTP On-Site
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Project Number: 30016346.0001B
 Job/SDG No: 2405353

PO # 30016346.0001B
 Walk-in client
 Lab sampling

Sample Identification	Sample Date	Sample Time	Matrix					Containers & Preservatives					Analyses						Sample Specific Notes / Special Instructions:	
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite - C / Grab - G	1,1-DCE 8260B	cis-1,2-DCE 8260B		Trans-1,2-DCE 8260B

TRIP BLANK
 MM-45-110819
 MM-39-110819
 MM-33-110819
 MM-38-110819

11/8/19 934
 11/8/19 1040
 11/8/19 1200
 11/8/19 1343

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Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown
 Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jim.tomalija@cadena.com, Cadena #EZ03728
 Level IV Reporting requested.

Reinquished by: Xenia Chan
 Company: Arcadis
 Date/Time: 11/8/19 1445
 Received by: Non Cold Storage
 Company: Arcadis
 Date/Time: 11/8/19 1445

Reinquished by: RACHEL BIELAK
 Company: Arcadis
 Date/Time: 11/19/19 1244
 Received by: RACHEL BIELAK
 Company: ESTX-M1
 Date/Time: 11/19/19 1245

Reinquished by: To cold storage
 Company: ESTX-M1
 Date/Time: 11/19/19 1505
 Received in Laboratory by: [Signature]
 Company: ESTX
 Date/Time: 11/21/19 1245

Reinquished by: [Signature]
 Company: ESTX
 Date/Time: 11/21/19 1245

Reinquished by: [Signature]
 Company: ESTX
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 Company: ESTX
 Date/Time: 11/21/19 1245

Reinquished by: [Signature]
 Company: ESTX
 Date/Time: 11/21/19 1245

**Eurofins TestAmerica Edison
Receipt Temperature and pH Log**

Job Number: _____

Page ____ of ____

Number of Coolers: _____

IR Gun # _____

Cooler #	RAW	CORRECTED	Cooler #	RAW	CORRECTED	Cooler #	RAW	CORRECTED
	°C	°C		°C	°C		°C	°C
Cooler #1:	_____	_____	Cooler #4:	_____	_____	Cooler #7:	_____	_____
Cooler #2:	_____	_____	Cooler #5:	_____	_____	Cooler #8:	_____	_____
Cooler #3:	_____	_____	Cooler #6:	_____	_____	Cooler #9:	_____	_____

TALS Sample Number	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH<2)	(pH 5-9)	(pH<2)	(pH<2)	(pH<2)	(pH>9)	(pH<2)	(pH<2)	Total Cyanide	Total Phos	Other	Other

If pH adjustments are required record the information below:

Sample No(s), adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

*The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.
* Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

EDS-WI-038, Rev 4.1
10/22/2019

Initials: _____ Date: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-196756-1

Login Number: 196756

List Number: 1

Creator: Jara, Kelly D

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

