

ANALYTICAL REPORT

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Laboratory Job ID: 460-196829-1
Client Project/Site: Ford LTP On-Site

For:
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Authorized for release by:
11/27/2019 12:05:26 PM

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

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



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Definitions/Glossary

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

Job ID: 460-196829-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
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: 460-196829-1

Job ID: 460-196829-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 460-196829-1

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 11/14/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

Receipt Exceptions

1 of 6 containers for the following sample was received broken: MW-44_111219 (460-196829-5).

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (460-196829-1), MW-20_111219 (460-196829-2), MW-18_111219 (460-196829-3), MW-22_111219 (460-196829-4) and MW-44_111219 (460-196829-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 11/23/2019, 11/24/2019 and 11/25/2019.

Sample MW-22_111219 (460-196829-4)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) associated with batch 460-657905 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-22_111219 (460-196829-4). Elevated reporting limits (RLs) are provided.

Case Narrative

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

Job ID: 460-196829-1

Job ID: 460-196829-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

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

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples MW-20_111219 (460-196829-2), MW-18_111219 (460-196829-3), MW-22_111219 (460-196829-4) and MW-44_111219 (460-196829-5) were analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The samples were analyzed on 11/21/2019, 11/22/2019 and 11/23/2019.

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

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Detection Summary

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

Job ID: 460-196829-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196829-1

No Detections.

Client Sample ID: MW-20_111219

Lab Sample ID: 460-196829-2

No Detections.

Client Sample ID: MW-18_111219

Lab Sample ID: 460-196829-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.45	J	1.0	0.22	ug/L	1		8260C	Total/NA

Client Sample ID: MW-22_111219

Lab Sample ID: 460-196829-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	12		2.0	0.33	ug/L	1		8260C SIM	Total/NA
1,1-Dichloroethene	1.3	J	2.0	0.53	ug/L	2		8260C	Total/NA
cis-1,2-Dichloroethene	230		2.0	0.44	ug/L	2		8260C	Total/NA
trans-1,2-Dichloroethene	1.6	J	2.0	0.47	ug/L	2		8260C	Total/NA
Vinyl chloride	860		2.0	0.34	ug/L	2		8260C	Total/NA

Client Sample ID: MW-44_111219

Lab Sample ID: 460-196829-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	12		2.0	0.33	ug/L	1		8260C SIM	Total/NA
cis-1,2-Dichloroethene	0.28	J	1.0	0.22	ug/L	1		8260C	Total/NA
Vinyl chloride	340		1.0	0.17	ug/L	1		8260C	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: 460-196829-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196829-1

Date Collected: 11/12/19 00:00

Matrix: Water

Date Received: 11/14/19 09:45

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	-		11/24/19 16:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/24/19 16:58	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/24/19 16:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/24/19 16:58	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/24/19 16:58	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/24/19 16:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		74 - 132		11/24/19 16:58	1
Toluene-d8 (Surr)	103		80 - 120		11/24/19 16:58	1
Dibromofluoromethane (Surr)	106		72 - 131		11/24/19 16:58	1
4-Bromofluorobenzene	101		77 - 124		11/24/19 16:58	1

Client Sample ID: MW-20_111219

Lab Sample ID: 460-196829-2

Date Collected: 11/12/19 11:14

Matrix: Water

Date Received: 11/14/19 09:45

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	-		11/23/19 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	89		72 - 133		11/23/19 01:04	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	-		11/23/19 21:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/23/19 21:34	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/23/19 21:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/23/19 21:34	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/23/19 21:34	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/23/19 21:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		74 - 132		11/23/19 21:34	1
Toluene-d8 (Surr)	99		80 - 120		11/23/19 21:34	1
Dibromofluoromethane (Surr)	98		72 - 131		11/23/19 21:34	1
4-Bromofluorobenzene	96		77 - 124		11/23/19 21:34	1

Client Sample ID: MW-18_111219

Lab Sample ID: 460-196829-3

Date Collected: 11/12/19 12:50

Matrix: Water

Date Received: 11/14/19 09:45

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	-		11/21/19 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		72 - 133		11/21/19 20:17	1

Client Sample Results

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

Job ID: 460-196829-1

Client Sample ID: MW-18_111219

Lab Sample ID: 460-196829-3

Date Collected: 11/12/19 12:50

Matrix: Water

Date Received: 11/14/19 09:45

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	-		11/23/19 21:56	1
cis-1,2-Dichloroethene	0.45	J	1.0	0.22	ug/L	-		11/23/19 21:56	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/23/19 21:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/23/19 21:56	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/23/19 21:56	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/23/19 21:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		74 - 132		11/23/19 21:56	1
Toluene-d8 (Surr)	101		80 - 120		11/23/19 21:56	1
Dibromofluoromethane (Surr)	105		72 - 131		11/23/19 21:56	1
4-Bromofluorobenzene	100		77 - 124		11/23/19 21:56	1

Client Sample ID: MW-22_111219

Lab Sample ID: 460-196829-4

Date Collected: 11/12/19 14:43

Matrix: Water

Date Received: 11/14/19 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	12		2.0	0.33	ug/L	-		11/21/19 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	88		72 - 133		11/21/19 20:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.3	J	2.0	0.53	ug/L	-		11/25/19 06:07	2
cis-1,2-Dichloroethene	230		2.0	0.44	ug/L	-		11/25/19 06:07	2
Tetrachloroethene	2.0	U	2.0	0.50	ug/L	-		11/25/19 06:07	2
trans-1,2-Dichloroethene	1.6	J	2.0	0.47	ug/L	-		11/25/19 06:07	2
Trichloroethene	2.0	U	2.0	0.63	ug/L	-		11/25/19 06:07	2
Vinyl chloride	860		2.0	0.34	ug/L	-		11/25/19 06:07	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		74 - 132		11/25/19 06:07	2
Toluene-d8 (Surr)	91		80 - 120		11/25/19 06:07	2
Dibromofluoromethane (Surr)	92		72 - 131		11/25/19 06:07	2
4-Bromofluorobenzene	88		77 - 124		11/25/19 06:07	2

Client Sample ID: MW-44_111219

Lab Sample ID: 460-196829-5

Date Collected: 11/12/19 15:43

Matrix: Water

Date Received: 11/14/19 09:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	12		2.0	0.33	ug/L	-		11/21/19 21:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		72 - 133		11/21/19 21:08	1

Client Sample Results

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

Job ID: 460-196829-1

Client Sample ID: MW-44_111219

Lab Sample ID: 460-196829-5

Date Collected: 11/12/19 15:43

Matrix: Water

Date Received: 11/14/19 09:45

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			11/25/19 05:45	1
cis-1,2-Dichloroethene	0.28	J	1.0	0.22	ug/L			11/25/19 05:45	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/25/19 05:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/25/19 05:45	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/25/19 05:45	1
Vinyl chloride	340		1.0	0.17	ug/L			11/25/19 05:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		74 - 132		11/25/19 05:45	1
Toluene-d8 (Surr)	102		80 - 120		11/25/19 05:45	1
Dibromofluoromethane (Surr)	104		72 - 131		11/25/19 05:45	1
4-Bromofluorobenzene	101		77 - 124		11/25/19 05:45	1

Surrogate Summary

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

Job ID: 460-196829-1

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)
460-196829-1	TRIP BLANK	99	103	106	101
460-196829-2	MW-20_111219	95	99	98	96
460-196829-3	MW-18_111219	106	101	105	100
460-196829-4	MW-22_111219	88	91	92	88
460-196829-5	MW-44_111219	99	102	104	101
460-197012-B-3 MS	Matrix Spike	98	102	104	102
460-197012-B-3 MSD	Matrix Spike Duplicate	102	108	110	105
LCS 460-657766/4	Lab Control Sample	95	101	101	101
LCS 460-657905/3	Lab Control Sample	96	102	103	99
LCS 460-657985/5	Lab Control Sample	98	104	103	103
LCSD 460-657766/5	Lab Control Sample Dup	96	102	103	100
LCSD 460-657905/4	Lab Control Sample Dup	79	86	88	85
MB 460-657766/9	Method Blank	92	99	100	98
MB 460-657905/8	Method Blank	98	105	107	99
MB 460-657985/9	Method Blank	97	98	104	99

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)
460-196829-2	MW-20_111219	89
460-196829-3	MW-18_111219	92
460-196829-4	MW-22_111219	88
460-196829-5	MW-44_111219	94
LCS 460-657139/3	Lab Control Sample	93
LCS 460-657616/3	Lab Control Sample	94
LCSD 460-657139/4	Lab Control Sample Dup	103
LCSD 460-657616/4	Lab Control Sample Dup	95
MB 460-657139/8	Method Blank	97
MB 460-657616/8	Method Blank	96

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

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

Job ID: 460-196829-1

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

Lab Sample ID: MB 460-657766/9
Matrix: Water
Analysis Batch: 657766

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			11/23/19 18:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/23/19 18:29	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/23/19 18:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/23/19 18:29	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/23/19 18:29	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/23/19 18:29	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	92		74 - 132		11/23/19 18:29	1
Toluene-d8 (Surr)	99		80 - 120		11/23/19 18:29	1
Dibromofluoromethane (Surr)	100		72 - 131		11/23/19 18:29	1
4-Bromofluorobenzene	98		77 - 124		11/23/19 18:29	1

Lab Sample ID: LCS 460-657766/4
Matrix: Water
Analysis Batch: 657766

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	18.5		ug/L		93	74 - 123
cis-1,2-Dichloroethene	20.0	19.0		ug/L		95	80 - 120
Tetrachloroethene	20.0	18.5		ug/L		92	78 - 122
trans-1,2-Dichloroethene	20.0	18.9		ug/L		94	79 - 120
Trichloroethene	20.0	19.0		ug/L		95	77 - 120
Vinyl chloride	20.0	23.1		ug/L		116	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		74 - 132
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	101		72 - 131
4-Bromofluorobenzene	101		77 - 124

Lab Sample ID: LCSD 460-657766/5
Matrix: Water
Analysis Batch: 657766

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	18.5		ug/L		92	74 - 123	0	30
cis-1,2-Dichloroethene	20.0	18.5		ug/L		93	80 - 120	2	30
Tetrachloroethene	20.0	18.0		ug/L		90	78 - 122	2	30
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	79 - 120	1	30
Trichloroethene	20.0	18.9		ug/L		95	77 - 120	1	30
Vinyl chloride	20.0	24.1		ug/L		121	62 - 138	4	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	103		72 - 131

QC Sample Results

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

Job ID: 460-196829-1

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

Lab Sample ID: LCSD 460-657766/5
Matrix: Water
Analysis Batch: 657766

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

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	100		77 - 124

Lab Sample ID: MB 460-657905/8
Matrix: Water
Analysis Batch: 657905

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			11/24/19 12:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/24/19 12:31	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/24/19 12:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/24/19 12:31	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/24/19 12:31	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/24/19 12:31	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	98		74 - 132		11/24/19 12:31	1
Toluene-d8 (Surr)	105		80 - 120		11/24/19 12:31	1
Dibromofluoromethane (Surr)	107		72 - 131		11/24/19 12:31	1
4-Bromofluorobenzene	99		77 - 124		11/24/19 12:31	1

Lab Sample ID: LCS 460-657905/3
Matrix: Water
Analysis Batch: 657905

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	21.2		ug/L		106	74 - 123
cis-1,2-Dichloroethene	20.0	18.9		ug/L		94	80 - 120
Tetrachloroethene	20.0	21.0		ug/L		105	78 - 122
trans-1,2-Dichloroethene	20.0	20.5		ug/L		102	79 - 120
Trichloroethene	20.0	20.1		ug/L		100	77 - 120
Vinyl chloride	20.0	26.4		ug/L		132	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	103		72 - 131
4-Bromofluorobenzene	99		77 - 124

Lab Sample ID: LCSD 460-657905/4
Matrix: Water
Analysis Batch: 657905

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	20.4		ug/L		102	74 - 123	4	30
cis-1,2-Dichloroethene	20.0	19.8		ug/L		99	80 - 120	5	30
Tetrachloroethene	20.0	19.9		ug/L		99	78 - 122	5	30
trans-1,2-Dichloroethene	20.0	20.7		ug/L		103	79 - 120	1	30
Trichloroethene	20.0	20.1		ug/L		101	77 - 120	0	30

Eurofins TestAmerica, Edison

QC Sample Results

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

Job ID: 460-196829-1

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

Lab Sample ID: LCSD 460-657905/4
Matrix: Water
Analysis Batch: 657905

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	27.3		ug/L		137	62 - 138	3	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	79		74 - 132						
Toluene-d8 (Surr)	86		80 - 120						
Dibromofluoromethane (Surr)	88		72 - 131						
4-Bromofluorobenzene	85		77 - 124						

Lab Sample ID: MB 460-657985/9
Matrix: Water
Analysis Batch: 657985

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			11/24/19 23:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/24/19 23:53	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/24/19 23:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/24/19 23:53	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/24/19 23:53	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/24/19 23:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	97		74 - 132				11/24/19 23:53	1	
Toluene-d8 (Surr)	98		80 - 120				11/24/19 23:53	1	
Dibromofluoromethane (Surr)	104		72 - 131				11/24/19 23:53	1	
4-Bromofluorobenzene	99		77 - 124				11/24/19 23:53	1	

Lab Sample ID: LCS 460-657985/5
Matrix: Water
Analysis Batch: 657985

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	18.6		ug/L		93	74 - 123
cis-1,2-Dichloroethene	20.0	18.9		ug/L		94	80 - 120
Tetrachloroethene	20.0	18.9		ug/L		95	78 - 122
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	79 - 120
Trichloroethene	20.0	19.5		ug/L		98	77 - 120
Vinyl chloride	20.0	23.6		ug/L		118	62 - 138
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	98		74 - 132				
Toluene-d8 (Surr)	104		80 - 120				
Dibromofluoromethane (Surr)	103		72 - 131				
4-Bromofluorobenzene	103		77 - 124				

QC Sample Results

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

Job ID: 460-196829-1

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

Lab Sample ID: 460-197012-B-3 MS

Matrix: Water

Analysis Batch: 657985

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	200	205		ug/L		103	74 - 123
cis-1,2-Dichloroethene	1.0	U	200	192		ug/L		96	80 - 120
Tetrachloroethene	1.0	U	200	206		ug/L		103	78 - 122
trans-1,2-Dichloroethene	1.0	U	200	212		ug/L		106	79 - 120
Trichloroethene	1.0	U	200	203		ug/L		101	77 - 120
Vinyl chloride	1.0	U F1	200	228		ug/L		114	62 - 138

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	98		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	104		72 - 131
4-Bromofluorobenzene	102		77 - 124

Lab Sample ID: 460-197012-B-3 MSD

Matrix: Water

Analysis Batch: 657985

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	200	231		ug/L		115	74 - 123	12	30
cis-1,2-Dichloroethene	1.0	U	200	223		ug/L		112	80 - 120	15	30
Tetrachloroethene	1.0	U	200	233		ug/L		117	78 - 122	13	30
trans-1,2-Dichloroethene	1.0	U	200	229		ug/L		114	79 - 120	7	30
Trichloroethene	1.0	U	200	226		ug/L		113	77 - 120	11	30
Vinyl chloride	1.0	U F1	200	299	F1	ug/L		150	62 - 138	27	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	102		74 - 132
Toluene-d8 (Surr)	108		80 - 120
Dibromofluoromethane (Surr)	110		72 - 131
4-Bromofluorobenzene	105		77 - 124

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

Lab Sample ID: MB 460-657139/8

Matrix: Water

Analysis Batch: 657139

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 13:34	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		72 - 133		11/21/19 13:34	1

QC Sample Results

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

Job ID: 460-196829-1

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

Lab Sample ID: LCS 460-657139/3
Matrix: Water
Analysis Batch: 657139

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	4.19		ug/L		84	66 - 135
Surrogate	%Recovery	LCS Qualifier	LCS Limits				
4-Bromofluorobenzene	93		72 - 133				

Lab Sample ID: LCSD 460-657139/4
Matrix: Water
Analysis Batch: 657139

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	4.85		ug/L		97	66 - 135	15	30
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
4-Bromofluorobenzene	103		72 - 133						

Lab Sample ID: MB 460-657616/8
Matrix: Water
Analysis Batch: 657616

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			11/22/19 23:03	1
Surrogate	%Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene	96		72 - 133				11/22/19 23:03	1	

Lab Sample ID: LCS 460-657616/3
Matrix: Water
Analysis Batch: 657616

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	5.55		ug/L		111	66 - 135
Surrogate	%Recovery	LCS Qualifier	LCS Limits				
4-Bromofluorobenzene	94		72 - 133				

Lab Sample ID: LCSD 460-657616/4
Matrix: Water
Analysis Batch: 657616

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	5.10		ug/L		102	66 - 135	8	30
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
4-Bromofluorobenzene	95		72 - 133						

QC Association Summary

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

Job ID: 460-196829-1

GC/MS VOA

Analysis Batch: 657139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196829-3	MW-18_111219	Total/NA	Water	8260C SIM	
460-196829-4	MW-22_111219	Total/NA	Water	8260C SIM	
460-196829-5	MW-44_111219	Total/NA	Water	8260C SIM	
MB 460-657139/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-657139/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-657139/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 657616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196829-2	MW-20_111219	Total/NA	Water	8260C SIM	
MB 460-657616/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-657616/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-657616/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 657766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196829-2	MW-20_111219	Total/NA	Water	8260C	
460-196829-3	MW-18_111219	Total/NA	Water	8260C	
MB 460-657766/9	Method Blank	Total/NA	Water	8260C	
LCS 460-657766/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-657766/5	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 657905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196829-1	TRIP BLANK	Total/NA	Water	8260C	
MB 460-657905/8	Method Blank	Total/NA	Water	8260C	
LCS 460-657905/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-657905/4	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 657985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196829-4	MW-22_111219	Total/NA	Water	8260C	
460-196829-5	MW-44_111219	Total/NA	Water	8260C	
MB 460-657985/9	Method Blank	Total/NA	Water	8260C	
LCS 460-657985/5	Lab Control Sample	Total/NA	Water	8260C	
460-197012-B-3 MS	Matrix Spike	Total/NA	Water	8260C	
460-197012-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Lab Chronicle

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

Job ID: 460-196829-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196829-1

Date Collected: 11/12/19 00:00

Matrix: Water

Date Received: 11/14/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657905	11/24/19 16:58	VZD	TAL EDI

Client Sample ID: MW-20_111219

Lab Sample ID: 460-196829-2

Date Collected: 11/12/19 11:14

Matrix: Water

Date Received: 11/14/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657766	11/23/19 21:34	VBP	TAL EDI
Total/NA	Analysis	8260C SIM		1	657616	11/23/19 01:04	DAS	TAL EDI

Client Sample ID: MW-18_111219

Lab Sample ID: 460-196829-3

Date Collected: 11/12/19 12:50

Matrix: Water

Date Received: 11/14/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657766	11/23/19 21:56	VBP	TAL EDI
Total/NA	Analysis	8260C SIM		1	657139	11/21/19 20:17	MZS	TAL EDI

Client Sample ID: MW-22_111219

Lab Sample ID: 460-196829-4

Date Collected: 11/12/19 14:43

Matrix: Water

Date Received: 11/14/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	657985	11/25/19 06:07	GXY	TAL EDI
Total/NA	Analysis	8260C SIM		1	657139	11/21/19 20:42	MZS	TAL EDI

Client Sample ID: MW-44_111219

Lab Sample ID: 460-196829-5

Date Collected: 11/12/19 15:43

Matrix: Water

Date Received: 11/14/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	657985	11/25/19 05:45	GXY	TAL EDI
Total/NA	Analysis	8260C SIM		1	657139	11/21/19 21:08	MZS	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: 460-196829-1

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: 460-196829-1

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: 460-196829-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-196829-1	TRIP BLANK	Water	11/12/19 00:00	11/14/19 09:45	
460-196829-2	MW-20_111219	Water	11/12/19 11:14	11/14/19 09:45	
460-196829-3	MW-18_111219	Water	11/12/19 12:50	11/14/19 09:45	
460-196829-4	MW-22_111219	Water	11/12/19 14:43	11/14/19 09:45	
460-196829-5	MW-44_111219	Water	11/12/19 15:43	11/14/19 09:45	

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Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-196829-1

Login Number: 196829

List Number: 1

Creator: Rivera, Kenneth

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	1055285
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.	False	Containers recd broken. Sufficient sample in remaining containers for analysis.
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	