

ANALYTICAL REPORT

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Laboratory Job ID: 460-196917-1
Client Project/Site: Ford LTP On-site

For:
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Authorized for release by:
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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: 460-196917-1

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

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Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-site

Report Number: 460-196917-1

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 11/15/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.6° C and 2.0° C.

Receipt Exceptions

Per laboratory policy the trip blank sample date/time was changed to reflect the latest sample date/time of the sampling event.
TRIP BLANK (460-196917-1)

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (460-196917-1), MW-21_111319 (460-196917-2), MW-49_111319 (460-196917-3) and DUP-13 (460-196917-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 11/27/2019.

Samples MW-21_111319 (460-196917-2)[100X], MW-49_111319 (460-196917-3)[50X] and DUP-13 (460-196917-4)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Method 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-49_111319

Case Narrative

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

Job ID: 460-196917-1

Job ID: 460-196917-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

(460-196917-3). Elevated reporting limits (RLs) are provided.

Method 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-21_111319 (460-196917-2) and DUP-13 (460-196917-4). Elevated reporting limits (RLs) are provided.

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 TRIP BLANK (460-196917-1), MW-21_111319 (460-196917-2), MW-49_111319 (460-196917-3) and DUP-13 (460-196917-4) were analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The samples were analyzed on 11/23/2019 and 11/24/2019.

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: 460-196917-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196917-1

No Detections.

Client Sample ID: MW-21_111319

Lab Sample ID: 460-196917-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	45		2.0	0.33	ug/L	1		8260C SIM	Total/NA
1,1-Dichloroethene	65	J	100	26	ug/L	100		8260C	Total/NA
cis-1,2-Dichloroethene	23000		100	22	ug/L	100		8260C	Total/NA
trans-1,2-Dichloroethene	120		100	24	ug/L	100		8260C	Total/NA
Trichloroethene	62	J	100	31	ug/L	100		8260C	Total/NA
Vinyl chloride	6600		100	17	ug/L	100		8260C	Total/NA

Client Sample ID: MW-49_111319

Lab Sample ID: 460-196917-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	15		2.0	0.33	ug/L	1		8260C SIM	Total/NA
1,1-Dichloroethene	48	J	50	13	ug/L	50		8260C	Total/NA
cis-1,2-Dichloroethene	23000		50	11	ug/L	50		8260C	Total/NA
trans-1,2-Dichloroethene	150		50	12	ug/L	50		8260C	Total/NA
Vinyl chloride	7800		50	8.6	ug/L	50		8260C	Total/NA

Client Sample ID: DUP-13

Lab Sample ID: 460-196917-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	48		2.0	0.33	ug/L	1		8260C SIM	Total/NA
1,1-Dichloroethene	66	J	100	26	ug/L	100		8260C	Total/NA
cis-1,2-Dichloroethene	25000		100	22	ug/L	100		8260C	Total/NA
trans-1,2-Dichloroethene	130		100	24	ug/L	100		8260C	Total/NA
Trichloroethene	93	J	100	31	ug/L	100		8260C	Total/NA
Vinyl chloride	6600		100	17	ug/L	100		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 460-196917-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196917-1

Date Collected: 11/13/19 00:00

Matrix: Water

Date Received: 11/15/19 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	-		11/27/19 00:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		11/27/19 00:56	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		11/27/19 00:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		11/27/19 00:56	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		11/27/19 00:56	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		11/27/19 00:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		74 - 132		11/27/19 00:56	1
Toluene-d8 (Surr)	102		80 - 120		11/27/19 00:56	1
Dibromofluoromethane (Surr)	102		72 - 131		11/27/19 00:56	1
4-Bromofluorobenzene	104		77 - 124		11/27/19 00:56	1

Client Sample ID: MW-21_111319

Lab Sample ID: 460-196917-2

Date Collected: 11/13/19 10:08

Matrix: Water

Date Received: 11/15/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	45		2.0	0.33	ug/L	-		11/23/19 18:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100		72 - 133		11/23/19 18:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	65	J	100	26	ug/L	-		11/27/19 09:07	100
cis-1,2-Dichloroethene	23000		100	22	ug/L	-		11/27/19 09:07	100
Tetrachloroethene	100	U	100	25	ug/L	-		11/27/19 09:07	100
trans-1,2-Dichloroethene	120		100	24	ug/L	-		11/27/19 09:07	100
Trichloroethene	62	J	100	31	ug/L	-		11/27/19 09:07	100
Vinyl chloride	6600		100	17	ug/L	-		11/27/19 09:07	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		74 - 132		11/27/19 09:07	100
Toluene-d8 (Surr)	101		80 - 120		11/27/19 09:07	100
Dibromofluoromethane (Surr)	104		72 - 131		11/27/19 09:07	100
4-Bromofluorobenzene	102		77 - 124		11/27/19 09:07	100

Client Sample ID: MW-49_111319

Lab Sample ID: 460-196917-3

Date Collected: 11/13/19 15:32

Matrix: Water

Date Received: 11/15/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	15		2.0	0.33	ug/L	-		11/23/19 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		72 - 133		11/23/19 18:28	1

Client Sample Results

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

Job ID: 460-196917-1

Client Sample ID: MW-49_111319

Lab Sample ID: 460-196917-3

Date Collected: 11/13/19 15:32

Matrix: Water

Date Received: 11/15/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	48	J	50	13	ug/L			11/27/19 03:04	50
cis-1,2-Dichloroethene	23000		50	11	ug/L			11/27/19 03:04	50
Tetrachloroethene	50	U	50	12	ug/L			11/27/19 03:04	50
trans-1,2-Dichloroethene	150		50	12	ug/L			11/27/19 03:04	50
Trichloroethene	50	U	50	16	ug/L			11/27/19 03:04	50
Vinyl chloride	7800		50	8.6	ug/L			11/27/19 03:04	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		74 - 132		11/27/19 03:04	50
Toluene-d8 (Surr)	100		80 - 120		11/27/19 03:04	50
Dibromofluoromethane (Surr)	103		72 - 131		11/27/19 03:04	50
4-Bromofluorobenzene	103		77 - 124		11/27/19 03:04	50

Client Sample ID: DUP-13

Lab Sample ID: 460-196917-4

Date Collected: 11/13/19 00:00

Matrix: Water

Date Received: 11/15/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	48		2.0	0.33	ug/L			11/24/19 00:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	87		72 - 133		11/24/19 00:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	66	J	100	26	ug/L			11/27/19 09:26	100
cis-1,2-Dichloroethene	25000		100	22	ug/L			11/27/19 09:26	100
Tetrachloroethene	100	U	100	25	ug/L			11/27/19 09:26	100
trans-1,2-Dichloroethene	130		100	24	ug/L			11/27/19 09:26	100
Trichloroethene	93	J	100	31	ug/L			11/27/19 09:26	100
Vinyl chloride	6600		100	17	ug/L			11/27/19 09:26	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		74 - 132		11/27/19 09:26	100
Toluene-d8 (Surr)	101		80 - 120		11/27/19 09:26	100
Dibromofluoromethane (Surr)	101		72 - 131		11/27/19 09:26	100
4-Bromofluorobenzene	104		77 - 124		11/27/19 09:26	100

Surrogate Summary

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

Job ID: 460-196917-1

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)
460-196917-1	TRIP BLANK	100	102	102	104
460-196917-2	MW-21_111319	99	101	104	102
460-196917-3	MW-49_111319	98	100	103	103
460-196917-4	DUP-13	98	101	101	104
LCS 460-658521/32	Lab Control Sample	99	102	103	104
LCS 460-658638/4	Lab Control Sample	98	101	101	104
LCSD 460-658521/33	Lab Control Sample Dup	100	100	103	104
LCSD 460-658638/5	Lab Control Sample Dup	98	101	101	103
MB 460-658521/8	Method Blank	100	102	101	102
MB 460-658638/8	Method Blank	98	101	102	104

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)
460-196917-2	MW-21_111319	100
460-196917-3	MW-49_111319	101
460-196917-4	DUP-13	87
LCS 460-657680/4	Lab Control Sample	99
LCS 460-657840/4	Lab Control Sample	90
LCSD 460-657680/5	Lab Control Sample Dup	95
LCSD 460-657840/5	Lab Control Sample Dup	100
MB 460-657680/9	Method Blank	93
MB 460-657840/8	Method Blank	105

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

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

Job ID: 460-196917-1

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

Lab Sample ID: MB 460-658521/8
Matrix: Water
Analysis Batch: 658521

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			11/26/19 20:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/26/19 20:20	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/26/19 20:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/26/19 20:20	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/26/19 20:20	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/26/19 20:20	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		74 - 132		11/26/19 20:20	1
Toluene-d8 (Surr)	102		80 - 120		11/26/19 20:20	1
Dibromofluoromethane (Surr)	101		72 - 131		11/26/19 20:20	1
4-Bromofluorobenzene	102		77 - 124		11/26/19 20:20	1

Lab Sample ID: LCS 460-658521/32
Matrix: Water
Analysis Batch: 658521

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	19.1		ug/L		95	74 - 123
cis-1,2-Dichloroethene	20.0	20.3		ug/L		102	80 - 120
Tetrachloroethene	20.0	20.5		ug/L		103	78 - 122
trans-1,2-Dichloroethene	20.0	19.6		ug/L		98	79 - 120
Trichloroethene	20.0	19.8		ug/L		99	77 - 120
Vinyl chloride	20.0	21.0		ug/L		105	62 - 138

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	99		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	103		72 - 131
4-Bromofluorobenzene	104		77 - 124

Lab Sample ID: LCSD 460-658521/33
Matrix: Water
Analysis Batch: 658521

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	17.9		ug/L		89	74 - 123	6	30
cis-1,2-Dichloroethene	20.0	19.7		ug/L		99	80 - 120	3	30
Tetrachloroethene	20.0	20.2		ug/L		101	78 - 122	2	30
trans-1,2-Dichloroethene	20.0	19.4		ug/L		97	79 - 120	1	30
Trichloroethene	20.0	19.7		ug/L		99	77 - 120	0	30
Vinyl chloride	20.0	20.7		ug/L		103	62 - 138	2	30

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		74 - 132
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	103		72 - 131

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QC Sample Results

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

Job ID: 460-196917-1

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

Lab Sample ID: LCSD 460-658521/33
Matrix: Water
Analysis Batch: 658521

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

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	104		77 - 124

Lab Sample ID: MB 460-658638/8
Matrix: Water
Analysis Batch: 658638

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			11/27/19 08:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			11/27/19 08:12	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			11/27/19 08:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			11/27/19 08:12	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			11/27/19 08:12	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			11/27/19 08:12	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	98		74 - 132		11/27/19 08:12	1
Toluene-d8 (Surr)	101		80 - 120		11/27/19 08:12	1
Dibromofluoromethane (Surr)	102		72 - 131		11/27/19 08:12	1
4-Bromofluorobenzene	104		77 - 124		11/27/19 08:12	1

Lab Sample ID: LCS 460-658638/4
Matrix: Water
Analysis Batch: 658638

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	21.6		ug/L		108	74 - 123
cis-1,2-Dichloroethene	20.0	21.6		ug/L		108	80 - 120
Tetrachloroethene	20.0	22.3		ug/L		111	78 - 122
trans-1,2-Dichloroethene	20.0	21.6		ug/L		108	79 - 120
Trichloroethene	20.0	21.2		ug/L		106	77 - 120
Vinyl chloride	20.0	22.1		ug/L		110	62 - 138

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	98		74 - 132
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	101		72 - 131
4-Bromofluorobenzene	104		77 - 124

Lab Sample ID: LCSD 460-658638/5
Matrix: Water
Analysis Batch: 658638

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	21.1		ug/L		105	74 - 123	2	30
cis-1,2-Dichloroethene	20.0	21.6		ug/L		108	80 - 120	0	30
Tetrachloroethene	20.0	21.9		ug/L		110	78 - 122	2	30
trans-1,2-Dichloroethene	20.0	21.5		ug/L		107	79 - 120	0	30
Trichloroethene	20.0	21.0		ug/L		105	77 - 120	1	30

Eurofins TestAmerica, Edison

QC Sample Results

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

Job ID: 460-196917-1

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

Lab Sample ID: LCSD 460-658638/5
Matrix: Water
Analysis Batch: 658638

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	22.1		ug/L		111	62 - 138	0	30
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		74 - 132						
Toluene-d8 (Surr)	101		80 - 120						
Dibromofluoromethane (Surr)	101		72 - 131						
4-Bromofluorobenzene	103		77 - 124						

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

Lab Sample ID: MB 460-657680/9
Matrix: Water
Analysis Batch: 657680

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			11/23/19 11:05	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		72 - 133					11/23/19 11:05	1

Lab Sample ID: LCS 460-657680/4
Matrix: Water
Analysis Batch: 657680

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	5.69		ug/L		114	66 - 135		
Surrogate									
	%Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene	99		72 - 133						

Lab Sample ID: LCSD 460-657680/5
Matrix: Water
Analysis Batch: 657680

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	11	30
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	95		72 - 133						

Lab Sample ID: MB 460-657840/8
Matrix: Water
Analysis Batch: 657840

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			11/23/19 23:19	1

QC Sample Results

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

Job ID: 460-196917-1

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

Lab Sample ID: MB 460-657840/8
Matrix: Water
Analysis Batch: 657840

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
4-Bromofluorobenzene	105		72 - 133		11/23/19 23:19	1

Lab Sample ID: LCS 460-657840/4
Matrix: Water
Analysis Batch: 657840

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
1,4-Dioxane	5.00	4.85		ug/L		97	66 - 135

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCS LCS Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	90		72 - 133

Lab Sample ID: LCSD 460-657840/5
Matrix: Water
Analysis Batch: 657840

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	5.00	5.70		ug/L		114	66 - 135	16	30

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCSD LCSD Qualifier</i>	<i>Limits</i>
4-Bromofluorobenzene	100		72 - 133

QC Association Summary

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

Job ID: 460-196917-1

GC/MS VOA

Analysis Batch: 657680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196917-2	MW-21_111319	Total/NA	Water	8260C SIM	
460-196917-3	MW-49_111319	Total/NA	Water	8260C SIM	
MB 460-657680/9	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-657680/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-657680/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 657840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196917-4	DUP-13	Total/NA	Water	8260C SIM	
MB 460-657840/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-657840/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-657840/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 658521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196917-1	TRIP BLANK	Total/NA	Water	8260C	
460-196917-3	MW-49_111319	Total/NA	Water	8260C	
MB 460-658521/8	Method Blank	Total/NA	Water	8260C	
LCS 460-658521/32	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-658521/33	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 658638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-196917-2	MW-21_111319	Total/NA	Water	8260C	
460-196917-4	DUP-13	Total/NA	Water	8260C	
MB 460-658638/8	Method Blank	Total/NA	Water	8260C	
LCS 460-658638/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-658638/5	Lab Control Sample Dup	Total/NA	Water	8260C	

Lab Chronicle

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

Job ID: 460-196917-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 460-196917-1

Date Collected: 11/13/19 00:00

Matrix: Water

Date Received: 11/15/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	658521	11/27/19 00:56	VBP	TAL EDI

Client Sample ID: MW-21_111319

Lab Sample ID: 460-196917-2

Date Collected: 11/13/19 10:08

Matrix: Water

Date Received: 11/15/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	658638	11/27/19 09:07	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	657680	11/23/19 18:04	DAS	TAL EDI

Client Sample ID: MW-49_111319

Lab Sample ID: 460-196917-3

Date Collected: 11/13/19 15:32

Matrix: Water

Date Received: 11/15/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		50	658521	11/27/19 03:04	VBP	TAL EDI
Total/NA	Analysis	8260C SIM		1	657680	11/23/19 18:28	DAS	TAL EDI

Client Sample ID: DUP-13

Lab Sample ID: 460-196917-4

Date Collected: 11/13/19 00:00

Matrix: Water

Date Received: 11/15/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	658638	11/27/19 09:26	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	657840	11/24/19 00:06	DAS	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: 460-196917-1

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: 460-196917-1

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: 460-196917-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-196917-1	TRIP BLANK	Water	11/13/19 00:00	11/15/19 10:00	
460-196917-2	MW-21_111319	Water	11/13/19 10:08	11/15/19 10:00	
460-196917-3	MW-49_111319	Water	11/13/19 15:32	11/15/19 10:00	
460-196917-4	DUP-13	Water	11/13/19 00:00	11/15/19 10:00	

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Chain of Custody Record

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

Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP On-Site Project Number: 30016346-0001B PO # 30016346-0001B		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Client Project Manager: Kris Hinskey Telephone: 248-994-2240 Email: kristoffer.hinskey@arcadis.com		Lab Contact: Mike DelMonico Telephone: 330-497-9396	
Sampler Name: Xenia Chan Method of Shipment/Carrier: Shipping/Tracking No:		Analyses 1,1-DCE 8260B cis-1,2-DCE 8260B Trans-1,2-DCE 8260B PCE 8260B TCE 8260B Vinyl Chloride 8260B 1,4-Dioxane 8260B SIM	
Sample Identification TRIP BLANK MW-21-111319 MW-49-111319 DUP-13		Sample Specific Notes / Special Instructions: 1 Trip Blank 3 Vials for 8260B 3 Vials for 8260B SIM ↓	

Sample ID	Sample Date	Sample Time	Matrix	Analysis	Retention	Disposition	Company	Date/Time
TRIP BLANK								
MW-21-111319	11/13/19	1008	Aqueous	1,1-DCE 8260B	Y	Return to Client	Arcadis	11/13/19 1625
MW-49-111319	11/13/19	1532	Aqueous	1,1-DCE 8260B	Y	Return to Client	Arcadis	11/13/19 1800
DUP-13	11/13/19	-	Aqueous	1,1-DCE 8260B	Y	Return to Client	Arcadis	11/14/19 1335

Relinquished by: *Xenia Chan*
 Relinquished by: *Julia McLaugherty*
 Relinquished by: *RACHEL BIELEK*
 Received by: *Julia McLaugherty*
 Received by: *Debi Cabalstogay*
 Received in Laboratory by: *[Signature]*
 Company: Arcadis
 Company: Arcadis
 Company: Arcadis
 Date/Time: 11/13/19 1625
 Date/Time: 11/13/19 1800
 Date/Time: 11/14/19 1335
 Company: Arcadis
 Company: Arcadis
 Company: ETA
 Date/Time: 11/13/19 1625
 Date/Time: 11/13/19 1800
 Date/Time: 11/14/19 1340
 Kyara Knordle ETA 11/18/19 1000
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Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-196917-1

Login Number: 196917

List Number: 1

Creator: Infante, Warleny M

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	CS#1055303
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	

