

ANALYTICAL REPORT

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Laboratory Job ID: 460-197726-1
Client Project/Site: Ford LTP On-Site

For:
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Authorized for release by:
12/11/2019 4:39:42 PM

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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.



Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	6
Client Sample Results	7
Surrogate Summary	9
QC Sample Results	10
QC Association Summary	14
Lab Chronicle	15
Certification Summary	16
Method Summary	17
Sample Summary	18
Chain of Custody	19
Receipt Checklists	21

Definitions/Glossary

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

Job ID: 460-197726-1

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: 460-197726-1

Job ID: 460-197726-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 460-197726-1

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 11/26/2019 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.3° C, 2.3° C and 4.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples Trip Blank (460-197726-1), MW-30_112319 (460-197726-2) and MW-41_112319 (460-197726-3) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 12/05/2019.

1,1-Dichloroethene and trans-1,2-Dichloroethene failed the recovery criteria high for the MS/MSD of sample MW-30-MS/MSD_112319MS (460-197726-2) in batch 460-660158.

1,1-Dichloroethene and trans-1,2-Dichloroethene failed the recovery criteria high for the MS/MSD of sample MW-41-MS/MSD_112319MS (460-197726-3) in batch 460-660158. Refer to the QC report for details.

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-30_112319 (460-197726-2) and MW-41_112319 (460-197726-3) were analyzed for Volatile organic compounds (GC/MS) in accordance with SW-846 Method 8260C SIM. The samples were analyzed on 12/04/2019.

Case Narrative

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

Job ID: 460-197726-1

Job ID: 460-197726-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

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: 460-197726-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-197726-1

No Detections.

Client Sample ID: MW-30_112319

Lab Sample ID: 460-197726-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	9.2		2.0	0.33	ug/L	1		8260C SIM	Total/NA

Client Sample ID: MW-41_112319

Lab Sample ID: 460-197726-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.5	J	2.0	0.33	ug/L	1		8260C SIM	Total/NA
cis-1,2-Dichloroethene	2.8		1.0	0.22	ug/L	1		8260C	Total/NA
trans-1,2-Dichloroethene	0.37	J F1	1.0	0.24	ug/L	1		8260C	Total/NA
Vinyl chloride	2.7		1.0	0.17	ug/L	1		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: 460-197726-1

Client Sample ID: Trip Blank

Lab Sample ID: 460-197726-1

Date Collected: 11/23/19 12:10

Matrix: Water

Date Received: 11/26/19 09:05

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	-		12/05/19 15:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/05/19 15:18	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/05/19 15:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L	-		12/05/19 15:18	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/05/19 15:18	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/05/19 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/05/19 15:18	1
Toluene-d8 (Surr)	102		80 - 120		12/05/19 15:18	1
Dibromofluoromethane (Surr)	107		72 - 131		12/05/19 15:18	1
4-Bromofluorobenzene	114		77 - 124		12/05/19 15:18	1

Client Sample ID: MW-30_112319

Lab Sample ID: 460-197726-2

Date Collected: 11/23/19 10:35

Matrix: Water

Date Received: 11/26/19 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	9.2		2.0	0.33	ug/L	-		12/04/19 14:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	88		72 - 133		12/04/19 14:52	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 F1	1.0	0.26	ug/L	-		12/05/19 15:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L	-		12/05/19 15:44	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L	-		12/05/19 15:44	1
trans-1,2-Dichloroethene	1.0	U F1	1.0	0.24	ug/L	-		12/05/19 15:44	1
Trichloroethene	1.0	U	1.0	0.31	ug/L	-		12/05/19 15:44	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L	-		12/05/19 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/05/19 15:44	1
Toluene-d8 (Surr)	101		80 - 120		12/05/19 15:44	1
Dibromofluoromethane (Surr)	106		72 - 131		12/05/19 15:44	1
4-Bromofluorobenzene	110		77 - 124		12/05/19 15:44	1

Client Sample ID: MW-41_112319

Lab Sample ID: 460-197726-3

Date Collected: 11/23/19 12:10

Matrix: Water

Date Received: 11/26/19 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.5	J	2.0	0.33	ug/L	-		12/04/19 15:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		72 - 133		12/04/19 15:17	1

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Client Sample Results

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

Job ID: 460-197726-1

Client Sample ID: MW-41_112319

Lab Sample ID: 460-197726-3

Date Collected: 11/23/19 12:10

Matrix: Water

Date Received: 11/26/19 09:05

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 F1	1.0	0.26	ug/L			12/05/19 16:11	1
cis-1,2-Dichloroethene	2.8		1.0	0.22	ug/L			12/05/19 16:11	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/05/19 16:11	1
trans-1,2-Dichloroethene	0.37	J F1	1.0	0.24	ug/L			12/05/19 16:11	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/05/19 16:11	1
Vinyl chloride	2.7		1.0	0.17	ug/L			12/05/19 16:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		74 - 132		12/05/19 16:11	1
Toluene-d8 (Surr)	102		80 - 120		12/05/19 16:11	1
Dibromofluoromethane (Surr)	106		72 - 131		12/05/19 16:11	1
4-Bromofluorobenzene	109		77 - 124		12/05/19 16:11	1

Surrogate Summary

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

Job ID: 460-197726-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (74-132)	TOL (80-120)	DBFM (72-131)	BFB (77-124)
460-197726-1	Trip Blank	97	102	107	114
460-197726-2	MW-30_112319	97	101	106	110
460-197726-2 MS	MW-30-MS_112319	97	100	107	
460-197726-2 MSD	MW-30-MSD_112319	96	102	105	
460-197726-3	MW-41_112319	97	102	106	109
460-197726-3 MS	MW-41-MS_112319	97	97	103	
460-197726-3 MSD	MW-41-MSD_112319	97	102	105	
LCS 460-660158/6	Lab Control Sample	99	103	106	112
MB 460-660158/9	Method Blank	95	102	107	110

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

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (72-133)
460-197726-2	MW-30_112319	88
460-197726-2 MS	MW-30-MS_112319	88
460-197726-2 MSD	MW-30-MSD_112319	83
460-197726-3	MW-41_112319	94
460-197726-3 MS	MW-41-MS_112319	90
460-197726-3 MSD	MW-41-MSD_112319	90
LCS 460-659865/3	Lab Control Sample	96
MB 460-659865/7	Method Blank	89

Surrogate Legend

BFB = 4-Bromofluorobenzene

QC Sample Results

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

Job ID: 460-197726-1

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

Lab Sample ID: MB 460-660158/9
Matrix: Water
Analysis Batch: 660158

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			12/05/19 14:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.22	ug/L			12/05/19 14:51	1
Tetrachloroethene	1.0	U	1.0	0.25	ug/L			12/05/19 14:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.24	ug/L			12/05/19 14:51	1
Trichloroethene	1.0	U	1.0	0.31	ug/L			12/05/19 14:51	1
Vinyl chloride	1.0	U	1.0	0.17	ug/L			12/05/19 14:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		74 - 132		12/05/19 14:51	1
Toluene-d8 (Surr)	102		80 - 120		12/05/19 14:51	1
Dibromofluoromethane (Surr)	107		72 - 131		12/05/19 14:51	1
4-Bromofluorobenzene	110		77 - 124		12/05/19 14:51	1

Lab Sample ID: LCS 460-660158/6
Matrix: Water
Analysis Batch: 660158

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	21.0		ug/L		105	74 - 123
cis-1,2-Dichloroethene	20.0	19.7		ug/L		99	80 - 120
Tetrachloroethene	20.0	18.8		ug/L		94	78 - 122
trans-1,2-Dichloroethene	20.0	22.7		ug/L		113	79 - 120
Trichloroethene	20.0	19.6		ug/L		98	77 - 120
Vinyl chloride	20.0	17.2		ug/L		86	62 - 138

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		74 - 132
Toluene-d8 (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	106		72 - 131
4-Bromofluorobenzene	112		77 - 124

Lab Sample ID: 460-197726-2 MS
Matrix: Water
Analysis Batch: 660158

Client Sample ID: MW-30-MS_112319
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 F1	20.0	25.1	F1	ug/L		126	74 - 123
cis-1,2-Dichloroethene	1.0	U	20.0	20.5		ug/L		102	80 - 120
Tetrachloroethene	1.0	U	20.0	22.4		ug/L		112	78 - 122
trans-1,2-Dichloroethene	1.0	U F1	20.0	25.2	F1	ug/L		126	79 - 120
Trichloroethene	1.0	U	20.0	22.8		ug/L		114	77 - 120
Vinyl chloride	1.0	U	20.0	19.2		ug/L		96	62 - 138

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		74 - 132
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	107		72 - 131

QC Sample Results

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

Job ID: 460-197726-1

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

Lab Sample ID: 460-197726-2 MSD

Matrix: Water
Analysis Batch: 660158

Client Sample ID: MW-30-MSD_112319

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 F1	20.0	25.1	F1	ug/L		125	74 - 123	0	30
cis-1,2-Dichloroethene	1.0	U	20.0	20.4		ug/L		102	80 - 120	0	30
Tetrachloroethene	1.0	U	20.0	21.7		ug/L		109	78 - 122	3	30
trans-1,2-Dichloroethene	1.0	U F1	20.0	26.1	F1	ug/L		130	79 - 120	4	30
Trichloroethene	1.0	U	20.0	22.3		ug/L		111	77 - 120	2	30
Vinyl chloride	1.0	U	20.0	19.7		ug/L		99	62 - 138	3	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	96		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	105		72 - 131

Lab Sample ID: 460-197726-3 MS

Matrix: Water
Analysis Batch: 660158

Client Sample ID: MW-41-MS_112319

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U F1	20.0	24.9	F1	ug/L		124	74 - 123		
cis-1,2-Dichloroethene	2.8		20.0	22.5		ug/L		99	80 - 120		
Tetrachloroethene	1.0	U	20.0	20.9		ug/L		105	78 - 122		
trans-1,2-Dichloroethene	0.37	J F1	20.0	25.2	F1	ug/L		124	79 - 120		
Trichloroethene	1.0	U	20.0	21.9		ug/L		109	77 - 120		
Vinyl chloride	2.7		20.0	22.1		ug/L		97	62 - 138		

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	97		74 - 132
Toluene-d8 (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	103		72 - 131

Lab Sample ID: 460-197726-3 MSD

Matrix: Water
Analysis Batch: 660158

Client Sample ID: MW-41-MSD_112319

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 F1	20.0	25.5	F1	ug/L		128	74 - 123	3	30
cis-1,2-Dichloroethene	2.8		20.0	23.7		ug/L		105	80 - 120	5	30
Tetrachloroethene	1.0	U	20.0	21.5		ug/L		107	78 - 122	3	30
trans-1,2-Dichloroethene	0.37	J F1	20.0	25.9	F1	ug/L		127	79 - 120	3	30
Trichloroethene	1.0	U	20.0	22.3		ug/L		111	77 - 120	2	30
Vinyl chloride	2.7		20.0	23.1		ug/L		102	62 - 138	5	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	97		74 - 132
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	105		72 - 131

QC Sample Results

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

Job ID: 460-197726-1

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

Lab Sample ID: MB 460-659865/7
Matrix: Water
Analysis Batch: 659865

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			12/04/19 13:20	1
Surrogate	%Recovery	MB Qualifier	Limits			D	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	89		72 - 133					12/04/19 13:20	1

Lab Sample ID: LCS 460-659865/3
Matrix: Water
Analysis Batch: 659865

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	4.62		ug/L		92	66 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene	96		72 - 133				

Lab Sample ID: 460-197726-2 MS
Matrix: Water
Analysis Batch: 659865

Client Sample ID: MW-30-MS_112319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	9.2		5.00	14.5		ug/L		106	66 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene	88		72 - 133						

Lab Sample ID: 460-197726-2 MSD
Matrix: Water
Analysis Batch: 659865

Client Sample ID: MW-30-MSD_112319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	9.2		5.00	15.5		ug/L		125	66 - 135	7	30
Surrogate	%Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene	83		72 - 133								

Lab Sample ID: 460-197726-3 MS
Matrix: Water
Analysis Batch: 659865

Client Sample ID: MW-41-MS_112319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.5	J	5.00	5.75		ug/L		85	66 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene	90		72 - 133						

QC Sample Results

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

Job ID: 460-197726-1

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

Lab Sample ID: 460-197726-3 MSD

Matrix: Water

Analysis Batch: 659865

Client Sample ID: MW-41-MSD_112319

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	1.5	J	5.00	5.66		ug/L		84	66 - 135	2	30
Surrogate		MSD %Recovery	MSD Qualifier	Limits							
4-Bromofluorobenzene		90		72 - 133							



QC Association Summary

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

Job ID: 460-197726-1

GC/MS VOA

Analysis Batch: 659865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197726-2	MW-30_112319	Total/NA	Water	8260C SIM	
460-197726-3	MW-41_112319	Total/NA	Water	8260C SIM	
MB 460-659865/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 460-659865/3	Lab Control Sample	Total/NA	Water	8260C SIM	
460-197726-2 MS	MW-30-MS_112319	Total/NA	Water	8260C SIM	
460-197726-2 MSD	MW-30-MSD_112319	Total/NA	Water	8260C SIM	
460-197726-3 MS	MW-41-MS_112319	Total/NA	Water	8260C SIM	
460-197726-3 MSD	MW-41-MSD_112319	Total/NA	Water	8260C SIM	

Analysis Batch: 660158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-197726-1	Trip Blank	Total/NA	Water	8260C	
460-197726-2	MW-30_112319	Total/NA	Water	8260C	
460-197726-3	MW-41_112319	Total/NA	Water	8260C	
MB 460-660158/9	Method Blank	Total/NA	Water	8260C	
LCS 460-660158/6	Lab Control Sample	Total/NA	Water	8260C	
460-197726-2 MS	MW-30-MS_112319	Total/NA	Water	8260C	
460-197726-2 MSD	MW-30-MSD_112319	Total/NA	Water	8260C	
460-197726-3 MS	MW-41-MS_112319	Total/NA	Water	8260C	
460-197726-3 MSD	MW-41-MSD_112319	Total/NA	Water	8260C	

Lab Chronicle

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

Job ID: 460-197726-1

Client Sample ID: Trip Blank

Date Collected: 11/23/19 12:10

Date Received: 11/26/19 09:05

Lab Sample ID: 460-197726-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660158	12/05/19 15:18	KLB	TAL EDI

Client Sample ID: MW-30_112319

Date Collected: 11/23/19 10:35

Date Received: 11/26/19 09:05

Lab Sample ID: 460-197726-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660158	12/05/19 15:44	KLB	TAL EDI
Total/NA	Analysis	8260C SIM		1	659865	12/04/19 14:52	SZD	TAL EDI

Client Sample ID: MW-41_112319

Date Collected: 11/23/19 12:10

Date Received: 11/26/19 09:05

Lab Sample ID: 460-197726-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	660158	12/05/19 16:11	KLB	TAL EDI
Total/NA	Analysis	8260C SIM		1	659865	12/04/19 15:17	SZD	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: 460-197726-1

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	M-NJ312	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: 460-197726-1

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: 460-197726-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-197726-1	Trip Blank	Water	11/23/19 12:10	11/26/19 09:05	
460-197726-2	MW-30_112319	Water	11/23/19 10:35	11/26/19 09:05	
460-197726-3	MW-41_112319	Water	11/23/19 12:10	11/26/19 09:05	

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact Company Name: Arcadis Address: 1850 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240		Client Project Manager: Kris Hineley Telephone: 248-994-2240 Email: kris@ter-hineley@arcadis.com		Site Contact: Rachel Biatak Telephone: 248-946-6331		Lab Contact: Mike DelMonico Telephone: 330-977-9396	
Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		Sample Name: Mungy-Catherine Galloway Method of Shipment/Carrier: Shipping/Tracking No:		Analysis turnaround times: TAT if different from below: 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>		ANALYSES For lab use only: _____ of _____ COCs Walk-in client: _____ Lab sampling: 199222C Job/SDG No:	
Sample Identification Sample Date Sample Time Air Aqueous Sediment Solid Other:		Matrix: H2SO4 HNO3 HCl NaOH ZnAc NaOH Unpres Other:		Container & Preservation: Filtered Sample (Y/N) Composite-C/Grab-C		Sample Specific Notes / Special Instructions: Trip Blank 3 Vials for 8260 B 3 Vials for 8260 B5 3 Vials for 8260 B5 3 Vials for 8260 B5	
TRIP BLANK							
MW-30-112319	11/23/19 10:35	X				X	
MW-41-112319	11/23/19 12:10	X				X	
MW-30-MS-112319	11/23/19 10:35	X				X	
MW-30-MSA-112319	11/23/19 10:35	X				X	
MW-41-112319 MCAF							
MW-41-MS-112319	11/23/19 12:10	X				X	
MW-41-MS-112319 MCAF							
MW-41-MSD-112319	11/23/19 12:10	X				X	



460-197726 Chain of Custody

Submit all results through Cadena at jim.tomalita@cadena.com, Cadena #E203728
 Level IV Reporting requested.
 Requisitioned by: Mungy-Catherine Galloway
 Date Time: 11/23/19 12:10
 Company: Arcadis
 Received by: Rachel Biatak
 Date Time: 11/23/19 15:45
 Company: Arcadis
 Requisitioned by: Rachel Biatak
 Date Time: 11/25/19 10:18
 Company: Arcadis
 Received in Laboratory by: Mungy-Catherine Galloway
 Date Time: 11/25/19 10:50
 Company: Arcadis

Possible Hazard Identification
 Non-Hazard Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
 1.0/1.3 2.0/2.3 4.3/4.6
 CSB 1093638 / 1093637
 1093641

Requisitioned by: Mungy-Catherine Galloway
 Date Time: 11/23/19 12:10
 Company: Arcadis
 Received by: Rachel Biatak
 Date Time: 11/23/19 15:45
 Company: Arcadis
 Requisitioned by: Rachel Biatak
 Date Time: 11/25/19 10:18
 Company: Arcadis
 Received in Laboratory by: Mungy-Catherine Galloway
 Date Time: 11/25/19 10:50
 Company: Arcadis

Mungy-Catherine Galloway
 Rachel Biatak
 Mungy-Catherine Galloway
 Rachel Biatak

Eurofins TestAmerica Edison
Receipt Temperature and pH Log

Job Number:

199226

Number of Coolers: 3

IR Gun # 11

Cooler Temperatures

	RAW		CORRECTED		RAW		CORRECTED		RAW		CORRECTED	
	Temp	(pH)	Temp	(pH)	Temp	(pH)	Temp	(pH)	Temp	(pH)	Temp	(pH)
Cooler #1:	10.0	<2	1.3	<2								
Cooler #2:	20.0	<2	2.3	<2								
Cooler #3:	4.3	<2	4.6	<2								
Cooler #4:		<2		<2								
Cooler #5:		<2		<2								
Cooler #6:		<2		<2								
Cooler #7:		<2		<2								
Cooler #8:		<2		<2								
Cooler #9:		<2		<2								

TALS Sample Number	pH<2	pH<2	pH<2	pH<2	pH<2	pH 5-9	pH<2	pH<2	pH>9	TKN	TOC	Total		Other	Other
												Cyanide	Phos		

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.

Initials: SD

Date: 11/26/19

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 460-197726-1

Login Number: 197726

List Source: Eurofins TestAmerica, Edison

List Number: 1

Creator: DiGuardia, Joseph L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	CS# 1093638
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	