



Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134910-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 240-134910-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Case Narrative

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

Job ID: 240-134910-1

Job ID: 240-134910-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-134910-1

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, Canton 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 8/13/2020 10:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.2° C, 1.6° C and 5.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134910-1), MW-82SR_081120 (240-134910-2), MW-83_081120 (240-134910-3), MW-82D_081120 (240-134910-4) and MW-83S_081120 (240-134910-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/24/2020.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-82SR_081120 (240-134910-2), MW-83_081120 (240-134910-3), MW-82D_081120 (240-134910-4) and MW-83S_081120 (240-134910-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/20/2020 and 08/21/2020.

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

Case Narrative

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

Job ID: 240-134910-1

Job ID: 240-134910-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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Method Summary

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

Job ID: 240-134910-1

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

Protocol References:

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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Sample Summary

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

Job ID: 240-134910-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134910-1	TRIP BLANK	Water	08/11/20 00:00	08/13/20 10:30	
240-134910-2	MW-82SR_081120	Water	08/11/20 10:30	08/13/20 10:30	
240-134910-3	MW-83_081120	Water	08/11/20 11:45	08/13/20 10:30	
240-134910-4	MW-82D_081120	Water	08/11/20 09:25	08/13/20 10:30	
240-134910-5	MW-83S_081120	Water	08/11/20 12:55	08/13/20 10:30	

Detection Summary

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

Job ID: 240-134910-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134910-1

No Detections.

Client Sample ID: MW-82SR_081120

Lab Sample ID: 240-134910-2

No Detections.

Client Sample ID: MW-83_081120

Lab Sample ID: 240-134910-3

No Detections.

Client Sample ID: MW-82D_081120

Lab Sample ID: 240-134910-4

No Detections.

Client Sample ID: MW-83S_081120

Lab Sample ID: 240-134910-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

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

Job ID: 240-134910-1

Client Sample ID: TRIP BLANK

Date Collected: 08/11/20 00:00

Date Received: 08/13/20 10:30

Lab Sample ID: 240-134910-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/24/20 15:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 15:40	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 15:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 15:40	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 15:40	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 15:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		08/24/20 15:40	1
4-Bromofluorobenzene (Surr)	101		47 - 134		08/24/20 15:40	1
Toluene-d8 (Surr)	93		69 - 122		08/24/20 15:40	1
Dibromofluoromethane (Surr)	81		78 - 129		08/24/20 15:40	1

Client Sample Results

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

Job ID: 240-134910-1

Client Sample ID: MW-82SR_081120

Lab Sample ID: 240-134910-2

Matrix: Water

Date Collected: 08/11/20 10:30
Date Received: 08/13/20 10:30

Method: 8260B 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	0.86	ug/L			08/20/20 09:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 133					08/20/20 09:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/24/20 21:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 21:05	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 21:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 21:05	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 21:05	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 21:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130					08/24/20 21:05	1
4-Bromofluorobenzene (Surr)	99		47 - 134					08/24/20 21:05	1
Toluene-d8 (Surr)	91		69 - 122					08/24/20 21:05	1
Dibromofluoromethane (Surr)	84		78 - 129					08/24/20 21:05	1

Client Sample Results

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

Job ID: 240-134910-1

Client Sample ID: MW-83_081120

Lab Sample ID: 240-134910-3

Matrix: Water

Date Collected: 08/11/20 11:45
Date Received: 08/13/20 10:30

Method: 8260B 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	0.86	ug/L			08/20/20 09:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 133					08/20/20 09:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/24/20 21:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 21:30	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 21:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 21:30	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 21:30	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 21:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130					08/24/20 21:30	1
4-Bromofluorobenzene (Surr)	101		47 - 134					08/24/20 21:30	1
Toluene-d8 (Surr)	93		69 - 122					08/24/20 21:30	1
Dibromofluoromethane (Surr)	84		78 - 129					08/24/20 21:30	1

Client Sample Results

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

Job ID: 240-134910-1

Client Sample ID: MW-82D_081120

Lab Sample ID: 240-134910-4

Matrix: Water

Date Collected: 08/11/20 09:25
Date Received: 08/13/20 10:30

Method: 8260B 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	0.86	ug/L			08/20/20 10:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 133					08/20/20 10:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/24/20 21:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 21:55	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 21:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 21:55	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 21:55	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 21:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130					08/24/20 21:55	1
4-Bromofluorobenzene (Surr)	97		47 - 134					08/24/20 21:55	1
Toluene-d8 (Surr)	92		69 - 122					08/24/20 21:55	1
Dibromofluoromethane (Surr)	82		78 - 129					08/24/20 21:55	1

Client Sample Results

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

Job ID: 240-134910-1

Client Sample ID: MW-83S_081120

Lab Sample ID: 240-134910-5

Matrix: Water

Date Collected: 08/11/20 12:55
Date Received: 08/13/20 10:30

Method: 8260B 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	0.86	ug/L			08/21/20 08:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133					08/21/20 08:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/24/20 22:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 22:19	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 22:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 22:19	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 22:19	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 22:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130					08/24/20 22:19	1
4-Bromofluorobenzene (Surr)	97		47 - 134					08/24/20 22:19	1
Toluene-d8 (Surr)	91		69 - 122					08/24/20 22:19	1
Dibromofluoromethane (Surr)	83		78 - 129					08/24/20 22:19	1

Surrogate Summary

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

Job ID: 240-134910-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)						
240-134910-1	TRIP BLANK	91	101	93	81						
240-134910-2	MW-82SR_081120	93	99	91	84						
240-134910-3	MW-83_081120	91	101	93	84						
240-134910-4	MW-82D_081120	93	97	92	82						
240-134910-5	MW-83S_081120	94	97	91	83						
240-134910-5 MS	MW-83S-MS_081120	89	102	95	82						
240-134910-5 MSD	MW-83S-MSD_081120	90	101	93	82						
LCS 240-448429/4	Lab Control Sample	87	98	90	79						
MB 240-448429/7	Method Blank	91	102	95	82						

Surrogate Legend

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

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-133)									
240-134910-2	MW-82SR_081120	86									
240-134910-3	MW-83_081120	86									
240-134910-4	MW-82D_081120	86									
240-134910-5	MW-83S_081120	87									
240-134910-5 MS	MW-83S-MS_081120	88									
240-134910-5 MSD	MW-83S-MSD_081120	86									
500-186458-A-2 MS	Matrix Spike	90									
500-186458-C-2 MSD	Matrix Spike Duplicate	88									
LCS 240-447911/4	Lab Control Sample	86									
LCS 240-448101/4	Lab Control Sample	86									
MB 240-447911/5	Method Blank	85									
MB 240-448101/5	Method Blank	84									

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-134910-1

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

Lab Sample ID: MB 240-448429/7

Matrix: Water

Analysis Batch: 448429

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	0.46	ug/L			08/24/20 14:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 14:50	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 14:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 14:50	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 14:50	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 14:50	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		08/24/20 14:50	1
4-Bromofluorobenzene (Surr)	102		47 - 134		08/24/20 14:50	1
Toluene-d8 (Surr)	95		69 - 122		08/24/20 14:50	1
Dibromofluoromethane (Surr)	82		78 - 129		08/24/20 14:50	1

Lab Sample ID: LCS 240-448429/4

Matrix: Water

Analysis Batch: 448429

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

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
1,1-Dichloroethene	10.0	9.36		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	8.94		ug/L		89	75 - 124
Tetrachloroethene	10.0	9.82		ug/L		98	70 - 125
trans-1,2-Dichloroethene	10.0	8.98		ug/L		90	74 - 130
Trichloroethene	10.0	9.40		ug/L		94	71 - 121
Vinyl chloride	10.0	10.0		ug/L		100	61 - 134

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	87		75 - 130
4-Bromofluorobenzene (Surr)	98		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	79		78 - 129

Lab Sample ID: 240-134910-5 MS

Matrix: Water

Analysis Batch: 448429

Client Sample ID: MW-83S-MS_081120
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	9.59		ug/L		96	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.64		ug/L		96	68 - 121
Tetrachloroethene	1.0	U	10.0	9.57		ug/L		96	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.23		ug/L		92	69 - 126
Trichloroethene	1.0	U	10.0	9.04		ug/L		90	56 - 124
Vinyl chloride	1.0	U	10.0	10.2		ug/L		102	49 - 136

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	89		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	95		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-134910-1

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

Lab Sample ID: 240-134910-5 MS

Matrix: Water

Analysis Batch: 448429

Client Sample ID: MW-83S-MS_081120
Prep Type: Total/NA

Surrogate	MS	MS
	%Recovery	Qualifier
Dibromofluoromethane (Surr)	82	Limits 78 - 129

Lab Sample ID: 240-134910-5 MSD

Matrix: Water

Analysis Batch: 448429

Client Sample ID: MW-83S-MSD_081120
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec.	RPD	Limit
1,1-Dichloroethene	1.0	U	10.0	9.88		ug/L	99	64 - 132	3	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.24		ug/L	92	68 - 121	4	35
Tetrachloroethene	1.0	U	10.0	9.41		ug/L	94	52 - 129	2	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.24		ug/L	92	69 - 126	0	35
Trichloroethene	1.0	U	10.0	9.31		ug/L	93	56 - 124	3	35
Vinyl chloride	1.0	U	10.0	10.4		ug/L	104	49 - 136	2	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	93		69 - 122
Dibromofluoromethane (Surr)	82		78 - 129

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

Lab Sample ID: MB 240-447911/5

Matrix: Water

Analysis Batch: 447911

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/20/20 04:19	1
Surrogate	MB %Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133					08/20/20 04:19	1

Lab Sample ID: LCS 240-447911/4

Matrix: Water

Analysis Batch: 447911

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec.
1,4-Dioxane	10.0	8.67		ug/L	87	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits			
1,2-Dichloroethane-d4 (Surr)	86		70 - 133			

Lab Sample ID: 500-186458-A-2 MS

Matrix: Water

Analysis Batch: 447911

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec.
1,4-Dioxane	2.0	U	10.0	9.82		ug/L	98	46 - 170

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QC Sample Results

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

Job ID: 240-134910-1

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

Surrogate	MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	90		70 - 133

Lab Sample ID: 500-186458-C-2 MSD

Matrix: Water

Analysis Batch: 447911

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	RPD	Limit	
	Result	Qualifier	Added	Result	Qualifier						
1,4-Dioxane	2.0	U	10.0	9.87		ug/L		99	46 - 170	1	26

Surrogate	MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		70 - 133

Lab Sample ID: MB 240-448101/5

Matrix: Water

Analysis Batch: 448101

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/21/20 06:30	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	84		70 - 133		08/21/20 06:30	1

Lab Sample ID: LCS 240-448101/4

Matrix: Water

Analysis Batch: 448101

Analyte	Spike		LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result						
1,4-Dioxane		10.0	10.0		ug/L		100	80 - 135

Surrogate	LCS		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	86		70 - 133		08/21/20 06:30	1

Lab Sample ID: 240-134910-5 MS

Matrix: Water

Analysis Batch: 448101

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
1,4-Dioxane	2.0	U	10.0	9.34		ug/L		93	46 - 170

Surrogate	MS		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	88		70 - 133			

Lab Sample ID: 240-134910-5 MSD

Matrix: Water

Analysis Batch: 448101

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
1,4-Dioxane	2.0	U	10.0	9.17		ug/L		92	46 - 170

Client Sample ID: MW-83S-MS_081120

Prep Type: Total/NA

Client Sample ID: MW-83S-MSD_081120

Prep Type: Total/NA

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QC Sample Results

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

Job ID: 240-134910-1

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

Lab Sample ID: 240-134910-5 MSD

Client Sample ID: MW-83S-MSD_081120

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 448101

Surrogate	MSD	MSD	
	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		70 - 133

1

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QC Association Summary

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

Job ID: 240-134910-1

GC/MS VOA

Analysis Batch: 447911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134910-2	MW-82SR_081120	Total/NA	Water	8260B SIM	1
240-134910-3	MW-83_081120	Total/NA	Water	8260B SIM	2
240-134910-4	MW-82D_081120	Total/NA	Water	8260B SIM	3
MB 240-447911/5	Method Blank	Total/NA	Water	8260B SIM	4
LCS 240-447911/4	Lab Control Sample	Total/NA	Water	8260B SIM	5
500-186458-A-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	6
500-186458-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	7

Analysis Batch: 448101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134910-5	MW-83S_081120	Total/NA	Water	8260B SIM	9
MB 240-448101/5	Method Blank	Total/NA	Water	8260B SIM	10
LCS 240-448101/4	Lab Control Sample	Total/NA	Water	8260B SIM	11
240-134910-5 MS	MW-83S-MS_081120	Total/NA	Water	8260B SIM	
240-134910-5 MSD	MW-83S-MSD_081120	Total/NA	Water	8260B SIM	

Analysis Batch: 448429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134910-1	TRIP BLANK	Total/NA	Water	8260B	13
240-134910-2	MW-82SR_081120	Total/NA	Water	8260B	
240-134910-3	MW-83_081120	Total/NA	Water	8260B	14
240-134910-4	MW-82D_081120	Total/NA	Water	8260B	
240-134910-5	MW-83S_081120	Total/NA	Water	8260B	
MB 240-448429/7	Method Blank	Total/NA	Water	8260B	
LCS 240-448429/4	Lab Control Sample	Total/NA	Water	8260B	
240-134910-5 MS	MW-83S-MS_081120	Total/NA	Water	8260B	
240-134910-5 MSD	MW-83S-MSD_081120	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-134910-1

Client Sample ID: TRIP BLANK
Date Collected: 08/11/20 00:00
Date Received: 08/13/20 10:30

Lab Sample ID: 240-134910-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448429	08/24/20 15:40	LRW	TAL CAN

Client Sample ID: MW-82SR_081120
Date Collected: 08/11/20 10:30
Date Received: 08/13/20 10:30

Lab Sample ID: 240-134910-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448429	08/24/20 21:05	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	447911	08/20/20 09:19	SAM	TAL CAN

Client Sample ID: MW-83_081120
Date Collected: 08/11/20 11:45
Date Received: 08/13/20 10:30

Lab Sample ID: 240-134910-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448429	08/24/20 21:30	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	447911	08/20/20 09:43	SAM	TAL CAN

Client Sample ID: MW-82D_081120
Date Collected: 08/11/20 09:25
Date Received: 08/13/20 10:30

Lab Sample ID: 240-134910-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448429	08/24/20 21:55	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	447911	08/20/20 10:08	SAM	TAL CAN

Client Sample ID: MW-83S_081120
Date Collected: 08/11/20 12:55
Date Received: 08/13/20 10:30

Lab Sample ID: 240-134910-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448429	08/24/20 22:19	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448101	08/21/20 08:33	SAM	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Eurofins TestAmerica, Canton

Accreditation/Certification Summary

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

Job ID: 240-134910-1

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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

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

MICHIGAN

190

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact		Sample Identification										Containers & Preservatives										Sample Specific Notes / Special Instructions:									
Company Name:	Arcadis <th>Sample Date</th> <th>Sample Time</th> <th>Matrix</th> <th>Filtred Sample (Y/N)</th> <th>Composite-C/Grab-G</th> <th>1,1-DCE 8260B</th> <th>Clis-1,2-DCE 8260B</th> <th>Trans-1,2-DCE 8260B</th> <th>POE 8260B</th> <th>TCE 8260B</th> <th>Vinyl Chloride 8260B</th> <th>1,4-Dioxane 8260B SIM</th> <th>Analyses</th> <th>Walk-in client Lab sampling JobSDG No.</th> <th>COC No:</th>	Sample Date	Sample Time	Matrix	Filtred Sample (Y/N)	Composite-C/Grab-G	1,1-DCE 8260B	Clis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	POE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Analyses	Walk-in client Lab sampling JobSDG No.	COC No:															
Address:	28550 Cabot Drive, Suite 500	Site Contact:	Julia McCafferty	Lab Contact:	Mike DeMonico																										
City/State/Zip:	Novi, MI, 48377	Telephone:	734-644-5131	Telephone:	330-497-9396																										
Phone:	248-994-2240																														
Project Name:	Ford LTP Off-Site																														
Project Number:	30050315402.04																														
PO #	30050315402.04																														
Shipping/Tracking No.:																															
Sample Identification	8/11/20	—	Air	Sediment	Solid	Other	NH3	H2SO4	HNO3	NaOH	LiOH	NaCl	Other	Upticks	Leads	NH4+	1 TRIP BLANK														
TRIP BLANK																															
MW-825R-081120	8/11/20	1030	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1 TRIP BLANK														
MW-83-081120	8/11/20	1145	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3 UOAS for 8260B SIM ¹														
MW-82D-081120	8/11/20	925	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3 UOAS for 8260B SIM ¹														
MW-83S-081120	8/11/20	1255	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3 UOAS for 8260B SIM ¹														
MW-83S-MS-081120	8/11/20	1300	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3 UOAS for 8260B SIM ¹														
MW-83S-MSD=081120	8/11/20	1305	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3 UOAS for 8260B SIM ¹														
Possible Hazard Identification	<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Tin Irritant	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Return to Client	<input type="checkbox"/> Disposal By Lab	<input type="checkbox"/> Archive For	<input type="checkbox"/> Received by	<input type="checkbox"/> Received by	<input type="checkbox"/> Received in Laboratory box	<input type="checkbox"/> Received by	<input type="checkbox"/> Received by	240-134910 Chain of Custody														
Special Instructions/QC Requirements & Comments: Submit all results through Cadena at jcadena@cadenaaco.com. Cadena #E203631 Level IV Reporting requested.																															
Relinquished by:	<i>Stutterhoover</i>					<i>Aracaris</i>					<i>Cold Storage</i>					<i>Aracaris</i>															
Relinquished by:	<i>Aracaris</i>					<i>Aracaris</i>					<i>Cold Storage</i>					<i>Eurofins</i>															
Relinquished by:																<i>Aracaris</i>															

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 134910

Client <i>Arcadis</i>	Site Name	Cooler unpacked by:
Cooler Received on <i>8-13-20</i>	Opened on <i>8-13-20</i>	
FedEx: 1 st Grd Exp	UPS FAS Clipper	Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # <i>111</i>	Foam Box	Client Cooler	Box	Other
Packing material used: <i>Bubble Wrap</i>	Foam	<i>Plastic Bag</i>	None	Other
COOLANT: <i>Wet Ice</i>	Blue Ice	Dry Ice	Water	None

1. Cooler temperature upon receipt
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity *3* See Multiple Cooler Form
-Were the seals on the outside of the cooler(s) signed & dated? *Yes* No *No* NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? *Yes* *No*
-Were tamper/custody seals intact and uncompromised? *Yes* No *No* NA
3. Shippers' packing slip attached to the cooler(s)? *Yes* No
4. Did custody papers accompany the sample(s)? *Yes* No
5. Were the custody papers relinquished & signed in the appropriate place? *Yes* No
6. Was/were the person(s) who collected the samples clearly identified on the COC? *Yes* No
7. Did all bottles arrive in good condition (Unbroken)? *Yes* No
8. Could all bottle labels be reconciled with the COC? *Yes* No
9. Were correct bottle(s) used for the test(s) indicated? *Yes* No
10. Sufficient quantity received to perform indicated analyses? *Yes* No
11. Are these work share samples? *Yes* No
If yes, Questions 12-16 have been checked at the originating laboratory.

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

12. Were all preserved sample(s) at the correct pH upon receipt? *Yes* No *NA* pH Strip Lot# HC911298
13. Were VOAs on the COC? *Yes* No
14. Were air bubbles >6 mm in any VOA vials? *Larger than this.*
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # *NA*
16. Was a LL Hg or Me Hg trip blank present? *Yes* No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 134 910

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-10 IR-11	0.3	1.2	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11	4.9	5.3	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11	0.7	1.6	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None

 See Temperature Excursion Form