

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Laboratory Job ID: 240-130805-1
Client Project/Site: Ford LTP Off-Site

For:
ARCADIS U.S., Inc.
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Attn: Kristoffer Hinskey



Authorized for release by:
6/9/2020 3:31:28 PM

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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: 240-130805-1

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)
MQL	Method Quantitation Limit
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 Off-Site

Job ID: 240-130805-1

Job ID: 240-130805-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-130805-1

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 5/23/2020 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.2° C and 4.9° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-130805-1), MW-100S_052120 (240-130805-2), MW-99S_052120 (240-130805-3), MW-74S_052120 (240-130805-4) and MW-74_052120 (240-130805-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/01/2020 and 06/02/2020.

The continuing calibration verification (CCV) associated with batch 240-436412 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-130805-1), MW-100S_052120 (240-130805-2), MW-99S_052120 (240-130805-3), MW-74S_052120 (240-130805-4), MW-74_052120 (240-130805-5) and (CCVIS 240-436412/2).

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-100S_052120 (240-130805-2), MW-99S_052120 (240-130805-3), MW-74S_052120 (240-130805-4) and MW-74_052120 (240-130805-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/03/2020 and 06/04/2020.

Case Narrative

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

Job ID: 240-130805-1

Job ID: 240-130805-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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

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Method Summary

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

Job ID: 240-130805-1

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



Sample Summary

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

Job ID: 240-130805-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-130805-1	TRIP BLANK	Water	05/21/20 00:00	05/23/20 10:15	
240-130805-2	MW-100S_052120	Water	05/21/20 10:13	05/23/20 10:15	
240-130805-3	MW-99S_052120	Water	05/21/20 11:45	05/23/20 10:15	
240-130805-4	MW-74S_052120	Water	05/21/20 13:25	05/23/20 10:15	
240-130805-5	MW-74_052120	Water	05/21/20 15:00	05/23/20 10:15	

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- 2
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- 5
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- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

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

Job ID: 240-130805-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130805-1

No Detections.

Client Sample ID: MW-100S_052120

Lab Sample ID: 240-130805-2

No Detections.

Client Sample ID: MW-99S_052120

Lab Sample ID: 240-130805-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.45	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-74S_052120

Lab Sample ID: 240-130805-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.96	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-74_052120

Lab Sample ID: 240-130805-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.5		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.19	J	1.0	0.19	ug/L	1		8260B	Total/NA

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: 240-130805-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130805-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

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	0.19	ug/L			06/01/20 20:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 20:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 20:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 20:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 20:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 20:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/01/20 20:30	1
4-Bromofluorobenzene (Surr)	108		47 - 134		06/01/20 20:30	1
Toluene-d8 (Surr)	93		69 - 122		06/01/20 20:30	1
Dibromofluoromethane (Surr)	96		78 - 129		06/01/20 20:30	1

Client Sample Results

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

Job ID: 240-130805-1

Client Sample ID: MW-100S_052120

Lab Sample ID: 240-130805-2

Date Collected: 05/21/20 10:13

Matrix: Water

Date Received: 05/23/20 10:15

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	-		06/04/20 08:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		70 - 133		06/04/20 08:53	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	0.19	ug/L	-		06/02/20 00:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		06/02/20 00:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/02/20 00:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/02/20 00:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/02/20 00:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		06/02/20 00:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		75 - 130		06/02/20 00:16	1
4-Bromofluorobenzene (Surr)	106		47 - 134		06/02/20 00:16	1
Toluene-d8 (Surr)	93		69 - 122		06/02/20 00:16	1
Dibromofluoromethane (Surr)	97		78 - 129		06/02/20 00:16	1

Client Sample Results

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

Job ID: 240-130805-1

Client Sample ID: MW-99S_052120

Lab Sample ID: 240-130805-3

Date Collected: 05/21/20 11:45

Matrix: Water

Date Received: 05/23/20 10:15

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			06/04/20 09:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 133					06/04/20 09:18	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	0.19	ug/L			06/02/20 00:42	1
cis-1,2-Dichloroethene	0.45	J	1.0	0.16	ug/L			06/02/20 00:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/02/20 00:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/02/20 00:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/02/20 00:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/02/20 00:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 130					06/02/20 00:42	1
4-Bromofluorobenzene (Surr)	96		47 - 134					06/02/20 00:42	1
Toluene-d8 (Surr)	96		69 - 122					06/02/20 00:42	1
Dibromofluoromethane (Surr)	98		78 - 129					06/02/20 00:42	1

Client Sample Results

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

Job ID: 240-130805-1

Client Sample ID: MW-74S_052120

Lab Sample ID: 240-130805-4

Date Collected: 05/21/20 13:25

Matrix: Water

Date Received: 05/23/20 10:15

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			06/03/20 15:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		70 - 133		06/03/20 15:17	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	0.19	ug/L			06/02/20 01:07	1
cis-1,2-Dichloroethene	0.96	J	1.0	0.16	ug/L			06/02/20 01:07	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/02/20 01:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/02/20 01:07	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/02/20 01:07	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/02/20 01:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		06/02/20 01:07	1
4-Bromofluorobenzene (Surr)	102		47 - 134		06/02/20 01:07	1
Toluene-d8 (Surr)	93		69 - 122		06/02/20 01:07	1
Dibromofluoromethane (Surr)	98		78 - 129		06/02/20 01:07	1

Client Sample Results

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

Job ID: 240-130805-1

Client Sample ID: MW-74_052120

Lab Sample ID: 240-130805-5

Date Collected: 05/21/20 15:00

Matrix: Water

Date Received: 05/23/20 10:15

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	-		06/03/20 16:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		70 - 133		06/03/20 16:35	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	0.19	ug/L	-		06/02/20 02:22	1
cis-1,2-Dichloroethene	1.5		1.0	0.16	ug/L			06/02/20 02:22	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/02/20 02:22	1
trans-1,2-Dichloroethene	0.19	J	1.0	0.19	ug/L			06/02/20 02:22	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/02/20 02:22	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/02/20 02:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 130		06/02/20 02:22	1
4-Bromofluorobenzene (Surr)	104		47 - 134		06/02/20 02:22	1
Toluene-d8 (Surr)	94		69 - 122		06/02/20 02:22	1
Dibromofluoromethane (Surr)	97		78 - 129		06/02/20 02:22	1

Surrogate Summary

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

Job ID: 240-130805-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-130805-1	TRIP BLANK	99	108	93	96
240-130805-2	MW-100S_052120	97	106	93	97
240-130805-3	MW-99S_052120	102	96	96	98
240-130805-4	MW-74S_052120	92	102	93	98
240-130805-4 MS	MW-74S-MS_052120	100	111	96	99
240-130805-4 MSD	MW-74S-MSD_052120	95	102	91	103
240-130805-5	MW-74_052120	96	104	94	97
LCS 240-436412/4	Lab Control Sample	102	105	89	99
MB 240-436412/7	Method Blank	99	101	89	98

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)
240-130805-2	MW-100S_052120	95
240-130805-3	MW-99S_052120	91
240-130805-4	MW-74S_052120	81
240-130805-4 MS	MW-74S-MS_052120	84
240-130805-4 MSD	MW-74S-MSD_052120	81
240-130805-5	MW-74_052120	84
LCS 240-436630/4	Lab Control Sample	98
LCS 240-436818/4	Lab Control Sample	91
MB 240-436630/5	Method Blank	99
MB 240-436818/5	Method Blank	90

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-130805-1

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

Lab Sample ID: MB 240-436412/7
Matrix: Water
Analysis Batch: 436412

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	0.19	ug/L			06/01/20 18:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/01/20 18:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/01/20 18:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/01/20 18:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/01/20 18:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/01/20 18:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 130		06/01/20 18:50	1
4-Bromofluorobenzene (Surr)	101		47 - 134		06/01/20 18:50	1
Toluene-d8 (Surr)	89		69 - 122		06/01/20 18:50	1
Dibromofluoromethane (Surr)	98		78 - 129		06/01/20 18:50	1

Lab Sample ID: LCS 240-436412/4
Matrix: Water
Analysis Batch: 436412

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	10.0	11.8		ug/L		118	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	10.8		ug/L		108	70 - 125
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	74 - 130
Trichloroethene	10.0	9.67		ug/L		97	71 - 121
Vinyl chloride	10.0	11.3		ug/L		113	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		75 - 130
4-Bromofluorobenzene (Surr)	105		47 - 134
Toluene-d8 (Surr)	89		69 - 122
Dibromofluoromethane (Surr)	99		78 - 129

Lab Sample ID: 240-130805-4 MS
Matrix: Water
Analysis Batch: 436412

Client Sample ID: MW-74S-MS_052120
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	10.0	10.6		ug/L		106	64 - 132
cis-1,2-Dichloroethene	0.96	J	10.0	10.7		ug/L		97	68 - 121
Tetrachloroethene	1.0	U	10.0	10.6		ug/L		106	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.49		ug/L		95	69 - 126
Trichloroethene	1.0	U	10.0	8.47		ug/L		85	56 - 124
Vinyl chloride	1.0	U	10.0	12.2		ug/L		122	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		75 - 130
4-Bromofluorobenzene (Surr)	111		47 - 134
Toluene-d8 (Surr)	96		69 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-130805-1

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

Lab Sample ID: 240-130805-4 MS
Matrix: Water
Analysis Batch: 436412

Client Sample ID: MW-74S-MS_052120
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	99		78 - 129

Lab Sample ID: 240-130805-4 MSD
Matrix: Water
Analysis Batch: 436412

Client Sample ID: MW-74S-MSD_052120
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	10.0	9.90		ug/L		99	64 - 132	7	35
cis-1,2-Dichloroethene	0.96	J	10.0	9.96		ug/L		90	68 - 121	7	35
Tetrachloroethene	1.0	U	10.0	9.82		ug/L		98	52 - 129	8	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.42		ug/L		94	69 - 126	1	35
Trichloroethene	1.0	U	10.0	8.51		ug/L		85	56 - 124	1	35
Vinyl chloride	1.0	U	10.0	12.8		ug/L		128	49 - 136	5	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		75 - 130
4-Bromofluorobenzene (Surr)	102		47 - 134
Toluene-d8 (Surr)	91		69 - 122
Dibromofluoromethane (Surr)	103		78 - 129

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

Lab Sample ID: MB 240-436630/5
Matrix: Water
Analysis Batch: 436630

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			06/03/20 06:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 133		06/03/20 06:38	1

Lab Sample ID: LCS 240-436630/4
Matrix: Water
Analysis Batch: 436630

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	10.0	10.8		ug/L		108	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		70 - 133

Lab Sample ID: 240-130805-4 MS
Matrix: Water
Analysis Batch: 436630

Client Sample ID: MW-74S-MS_052120
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	8.85		ug/L		89	46 - 170

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-130805-1

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

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	84		70 - 133

Lab Sample ID: 240-130805-4 MSD
Matrix: Water
Analysis Batch: 436630

Client Sample ID: MW-74S-MSD_052120
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
1,4-Dioxane	2.0	U	10.0	9.17		ug/L		92	46 - 170	3	26

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	81		70 - 133

Lab Sample ID: MB 240-436818/5
Matrix: Water
Analysis Batch: 436818

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

<i>Analyte</i>	<i>MB</i> <i>Result</i>	<i>MB</i> <i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			06/04/20 06:43	1

<i>Surrogate</i>	<i>MB</i> <i>%Recovery</i>	<i>MB</i> <i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	90		70 - 133		06/04/20 06:43	1

Lab Sample ID: LCS 240-436818/4
Matrix: Water
Analysis Batch: 436818

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

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCS</i> <i>Result</i>	<i>LCS</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>
1,4-Dioxane	10.0	9.26		ug/L		93	80 - 135

<i>Surrogate</i>	<i>LCS</i> <i>%Recovery</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	91		70 - 133

QC Association Summary

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

Job ID: 240-130805-1

GC/MS VOA

Analysis Batch: 436412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130805-1	TRIP BLANK	Total/NA	Water	8260B	
240-130805-2	MW-100S_052120	Total/NA	Water	8260B	
240-130805-3	MW-99S_052120	Total/NA	Water	8260B	
240-130805-4	MW-74S_052120	Total/NA	Water	8260B	
240-130805-5	MW-74_052120	Total/NA	Water	8260B	
MB 240-436412/7	Method Blank	Total/NA	Water	8260B	
LCS 240-436412/4	Lab Control Sample	Total/NA	Water	8260B	
240-130805-4 MS	MW-74S-MS_052120	Total/NA	Water	8260B	
240-130805-4 MSD	MW-74S-MSD_052120	Total/NA	Water	8260B	

Analysis Batch: 436630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130805-4	MW-74S_052120	Total/NA	Water	8260B SIM	
240-130805-5	MW-74_052120	Total/NA	Water	8260B SIM	
MB 240-436630/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436630/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-130805-4 MS	MW-74S-MS_052120	Total/NA	Water	8260B SIM	
240-130805-4 MSD	MW-74S-MSD_052120	Total/NA	Water	8260B SIM	

Analysis Batch: 436818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-130805-2	MW-100S_052120	Total/NA	Water	8260B SIM	
240-130805-3	MW-99S_052120	Total/NA	Water	8260B SIM	
MB 240-436818/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-436818/4	Lab Control Sample	Total/NA	Water	8260B SIM	

Lab Chronicle

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

Job ID: 240-130805-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-130805-1

Date Collected: 05/21/20 00:00

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/01/20 20:30	LRW	TAL CAN

Client Sample ID: MW-100S_052120

Lab Sample ID: 240-130805-2

Date Collected: 05/21/20 10:13

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/02/20 00:16	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436818	06/04/20 08:53	TJL2	TAL CAN

Client Sample ID: MW-99S_052120

Lab Sample ID: 240-130805-3

Date Collected: 05/21/20 11:45

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/02/20 00:42	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436818	06/04/20 09:18	TJL2	TAL CAN

Client Sample ID: MW-74S_052120

Lab Sample ID: 240-130805-4

Date Collected: 05/21/20 13:25

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/02/20 01:07	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436630	06/03/20 15:17	SAM	TAL CAN

Client Sample ID: MW-74_052120

Lab Sample ID: 240-130805-5

Date Collected: 05/21/20 15:00

Matrix: Water

Date Received: 05/23/20 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	436412	06/02/20 02:22	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	436630	06/03/20 16:35	SAM	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 240-130805-1

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	06-30-20
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	06-30-20
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

2/5/20

**MICHIGAN
190**

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

Client Contact		Regulatory program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Lab Contact: Mike DeMonte	TestAmerica Laboratories, Inc.
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 330-497-9396	COC No: _____ of _____ COCs
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	For lab use only
Phone: 248-994-2240	Sampler Name: RACHEL BIELAK	IAAT if different than below	Walk-in client
Project Name: Ford LTP Off-Site	Method of Shipment/Carrier:	10 day <input checked="" 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"/>	Lab sampling
Project Number: 30050315-402.04	Shipping/Tracking No:		Job/SDG No:
PO # 30050315-402.04			

Sample Identification	Sample Date	Sample Time	Matrix			Containers & Preservatives						Filtered Sample (Y/N)	Composite-C / Grab-C	Analyses						Sample Specific Notes / Special Instructions:					
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH			ZnAc	Unpres	Other:	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	
TRIP BLANK																									1 TRIP BLANK 3 Vials for B260B 3 Vials for B260B/S14
MW-1005-052120	5/21/20	1013																							
MW-095-052120	5/21/20	1145																							
MW-745-052120	5/21/20	1325																							
MW-745-MIS-052120	5/21/20	1325																							
MW-745-MIS-052120	5/21/20	1325																							
MW-74-MIS-052120	5/21/20	1500																							



assessed if samples are retained longer than 1 month
Disposal By Lab Archive For _____ Months

Possible Hazard Identification		Special Instructions/QC Requirements & Comments:	
<input checked="" type="checkbox"/> Non-Hazard	<input type="checkbox"/> Irritant	Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.	
Relinquished by: RACHEL BIELAK Paul Palal		Company: ARCADIS	
Relinquished by: [Signature]		Company: Arcadis	
Relinquished by: [Signature]		Company: ERM MI	
Received by: [Signature]	Date/Time: 5/21/20 1555	Received by: [Signature]	Date/Time: 5/22/20 0950
Received by: [Signature]	Date/Time: 5/22/20 0950	Received by: [Signature]	Date/Time: 5/22/20 0955
Received in laboratory: [Signature]	Date/Time: 5/22/20 9:55	Received in laboratory: [Signature]	Date/Time: 5-23-20 1015

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>130805</u>
Canton Facility		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: <u>[Signature]</u>
Cooler Received on <u>5-23-20</u>	Opened on <u>5-23-20</u>	
FedEx: 1 st Grd <input checked="" type="checkbox"/> Exp	UPS <input type="checkbox"/> FAS <input type="checkbox"/> Clipper <input type="checkbox"/>	Client Drop Off <input type="checkbox"/> TestAmerica Courier <input type="checkbox"/> Other <input type="checkbox"/>
Receipt After-hours: Drop-off Date/Time		Storage Location
TestAmerica Cooler # <u>JA</u>	Foam Box <input type="checkbox"/>	Client Cooler <input type="checkbox"/>
Packing material used: <u>Bubble Wrap</u>	Foam <input type="checkbox"/>	Plastic Bag <input type="checkbox"/>
COOLANT: <u>Wet Ice</u>	Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
	Water <input type="checkbox"/>	None <input type="checkbox"/>
1. Cooler temperature upon receipt		<input checked="" type="checkbox"/> See Multiple Cooler Form
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 _____		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
-Were the seals on the outside of the cooler(s) signed & dated?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
-Were tamper/custody seals intact and uncompromised?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
3. Shippers' packing slip attached to the cooler(s)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. Did custody papers accompany the sample(s)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Were the custody papers relinquished & signed in the appropriate place?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Was/were the person(s) who collected the samples clearly identified on the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7. Did all bottles arrive in good condition (Unbroken)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
8. Could all bottle labels be reconciled with the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9. Were correct bottle(s) used for the test(s) indicated?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
10. Sufficient quantity received to perform indicated analyses?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
11. Are these work share samples?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA pH Strip Lot# <u>HC902937</u>
13. Were VOAs on the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
14. Were air bubbles >6 mm in any VOA vials? ← Larger than this.		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>NA</u>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
16. Was a LL Hg or Me Hg trip blank present?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: <u>MS</u>
_____ _____ _____ _____		
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: _____		

