

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Laboratory Job ID: 240-114335-1
Client Project/Site: Ford LTP Livonia MI - E203728

For:
ARCADIS U.S., Inc.
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Authorized for release by:
6/27/2019 10:40:47 AM

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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
Method Summary	5
Sample Summary	6
Detection Summary	7
Client Sample Results	8
Surrogate Summary	15
QC Sample Results	16
QC Association Summary	18
Lab Chronicle	19
Certification Summary	21
Chain of Custody	22



Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Job ID: 240-114335-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-114335-1

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 6/13/2019 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 2.7° C and 4.1° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-55D_061119 (240-114335-1), MW-55_061119 (240-114335-2), MW-56_061119 (240-114335-3), MW-58_061119 (240-114335-4), MW-28_061119 (240-114335-5), DUP-04_061119 (240-114335-6) and TRIP BLANK (240-114335-7) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/23/2019.

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-55D_061119 (240-114335-1), MW-55_061119 (240-114335-2), MW-56_061119 (240-114335-3), MW-58_061119 (240-114335-4), MW-28_061119 (240-114335-5) and DUP-04_061119 (240-114335-6) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/17/2019.

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

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 Livonia MI - E203728

Job ID: 240-114335-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-114335-1	MW-55D_061119	Water	06/11/19 09:30	06/13/19 09:40	
240-114335-2	MW-55_061119	Water	06/11/19 10:35	06/13/19 09:40	
240-114335-3	MW-56_061119	Water	06/11/19 12:33	06/13/19 09:40	
240-114335-4	MW-58_061119	Water	06/11/19 15:07	06/13/19 09:40	
240-114335-5	MW-28_061119	Water	06/11/19 13:53	06/13/19 09:40	
240-114335-6	DUP-04_061119	Water	06/11/19 00:00	06/13/19 09:40	
240-114335-7	TRIP BLANK	Water	06/11/19 00:00	06/13/19 09:40	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-55D_061119

Lab Sample ID: 240-114335-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.8		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.34	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-55_061119

Lab Sample ID: 240-114335-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.48	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-56_061119

Lab Sample ID: 240-114335-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.7		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.27	J	1.0	0.16	ug/L	1		8260B	Total/NA

Client Sample ID: MW-58_061119

Lab Sample ID: 240-114335-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	11		2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-28_061119

Lab Sample ID: 240-114335-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	1.8		1.0	0.19	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.22	J	1.0	0.16	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.16	J	1.0	0.15	ug/L	1		8260B	Total/NA
Trichloroethene	0.43	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-04_061119

Lab Sample ID: 240-114335-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	1.6		1.0	0.19	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.23	J	1.0	0.16	ug/L	1		8260B	Total/NA
Trichloroethene	0.41	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114335-7

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 Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-55D_061119

Lab Sample ID: 240-114335-1

Date Collected: 06/11/19 09:30

Matrix: Water

Date Received: 06/13/19 09:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.8		2.0	0.86	ug/L			06/17/19 17:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		06/17/19 17:34	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			06/23/19 18:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/23/19 18:33	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/23/19 18:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/23/19 18:33	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/23/19 18:33	1
Vinyl chloride	0.34	J	1.0	0.20	ug/L			06/23/19 18:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 121		06/23/19 18:33	1
4-Bromofluorobenzene (Surr)	82		59 - 120		06/23/19 18:33	1
Toluene-d8 (Surr)	97		70 - 123		06/23/19 18:33	1
Dibromofluoromethane (Surr)	101		75 - 128		06/23/19 18:33	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-55_061119

Lab Sample ID: 240-114335-2

Date Collected: 06/11/19 10:35

Matrix: Water

Date Received: 06/13/19 09:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	-		06/17/19 17:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125		06/17/19 17:59	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	-		06/23/19 18:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		06/23/19 18:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/23/19 18:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/23/19 18:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		06/23/19 18:55	1
Vinyl chloride	0.48	J	1.0	0.20	ug/L	-		06/23/19 18:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 121		06/23/19 18:55	1
4-Bromofluorobenzene (Surr)	83		59 - 120		06/23/19 18:55	1
Toluene-d8 (Surr)	100		70 - 123		06/23/19 18:55	1
Dibromofluoromethane (Surr)	105		75 - 128		06/23/19 18:55	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-56_061119

Lab Sample ID: 240-114335-3

Date Collected: 06/11/19 12:33

Matrix: Water

Date Received: 06/13/19 09:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.7		2.0	0.86	ug/L			06/17/19 18:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		63 - 125					06/17/19 18:25	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			06/23/19 19:17	1
cis-1,2-Dichloroethene	0.27	J	1.0	0.16	ug/L			06/23/19 19:17	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/23/19 19:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/23/19 19:17	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/23/19 19:17	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/23/19 19:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		70 - 121					06/23/19 19:17	1
4-Bromofluorobenzene (Surr)	83		59 - 120					06/23/19 19:17	1
Toluene-d8 (Surr)	100		70 - 123					06/23/19 19:17	1
Dibromofluoromethane (Surr)	104		75 - 128					06/23/19 19:17	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-58_061119

Lab Sample ID: 240-114335-4

Date Collected: 06/11/19 15:07

Matrix: Water

Date Received: 06/13/19 09:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	11		2.0	0.86	ug/L			06/17/19 18:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		63 - 125		06/17/19 18:50	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			06/23/19 19:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/23/19 19:39	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/23/19 19:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/23/19 19:39	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/23/19 19:39	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/23/19 19:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		06/23/19 19:39	1
4-Bromofluorobenzene (Surr)	83		59 - 120		06/23/19 19:39	1
Toluene-d8 (Surr)	101		70 - 123		06/23/19 19:39	1
Dibromofluoromethane (Surr)	107		75 - 128		06/23/19 19:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-28_061119

Lab Sample ID: 240-114335-5

Date Collected: 06/11/19 13:53

Matrix: Water

Date Received: 06/13/19 09:40

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			06/17/19 19:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		63 - 125		06/17/19 19:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.8		1.0	0.19	ug/L			06/23/19 20:02	1
cis-1,2-Dichloroethene	0.22	J	1.0	0.16	ug/L			06/23/19 20:02	1
Tetrachloroethene	0.16	J	1.0	0.15	ug/L			06/23/19 20:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/23/19 20:02	1
Trichloroethene	0.43	J	1.0	0.10	ug/L			06/23/19 20:02	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/23/19 20:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		06/23/19 20:02	1
4-Bromofluorobenzene (Surr)	84		59 - 120		06/23/19 20:02	1
Toluene-d8 (Surr)	98		70 - 123		06/23/19 20:02	1
Dibromofluoromethane (Surr)	105		75 - 128		06/23/19 20:02	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: DUP-04_061119

Lab Sample ID: 240-114335-6

Date Collected: 06/11/19 00:00

Matrix: Water

Date Received: 06/13/19 09:40

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	-		06/17/19 19:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		63 - 125		06/17/19 19:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.6		1.0	0.19	ug/L	-		06/23/19 20:47	1
cis-1,2-Dichloroethene	0.23	J	1.0	0.16	ug/L	-		06/23/19 20:47	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		06/23/19 20:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		06/23/19 20:47	1
Trichloroethene	0.41	J	1.0	0.10	ug/L	-		06/23/19 20:47	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		06/23/19 20:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 121		06/23/19 20:47	1
4-Bromofluorobenzene (Surr)	84		59 - 120		06/23/19 20:47	1
Toluene-d8 (Surr)	101		70 - 123		06/23/19 20:47	1
Dibromofluoromethane (Surr)	106		75 - 128		06/23/19 20:47	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114335-7

Date Collected: 06/11/19 00:00

Matrix: Water

Date Received: 06/13/19 09:40

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			06/23/19 20:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/23/19 20:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/23/19 20:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/23/19 20:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/23/19 20:24	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/23/19 20:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 121		06/23/19 20:24	1
4-Bromofluorobenzene (Surr)	83		59 - 120		06/23/19 20:24	1
Toluene-d8 (Surr)	100		70 - 123		06/23/19 20:24	1
Dibromofluoromethane (Surr)	104		75 - 128		06/23/19 20:24	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

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 (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-114335-1	MW-55D_061119	99	82	97	101
240-114335-2	MW-55_061119	101	83	100	105
240-114335-3	MW-56_061119	101	83	100	104
240-114335-4	MW-58_061119	106	83	101	107
240-114335-5	MW-28_061119	105	84	98	105
240-114335-6	DUP-04_061119	103	84	101	106
240-114335-7	TRIP BLANK	103	83	100	104
240-114608-B-3 MS	Matrix Spike	104	89	97	106
240-114608-B-3 MSD	Matrix Spike Duplicate	100	84	94	103
LCS 240-387734/6	Lab Control Sample	105	92	101	108
MB 240-387734/9	Method Blank	105	88	103	108

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
		(63-125)
240-114331-F-4 MS	Matrix Spike	90
240-114331-F-4 MSD	Matrix Spike Duplicate	88
240-114335-1	MW-55D_061119	86
240-114335-2	MW-55_061119	87
240-114335-3	MW-56_061119	87
240-114335-4	MW-58_061119	85
240-114335-5	MW-28_061119	89
240-114335-6	DUP-04_061119	85
LCS 240-386516/4	Lab Control Sample	86
MB 240-386516/5	Method Blank	86

Surrogate Legend

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

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

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

Lab Sample ID: MB 240-387734/9
Matrix: Water
Analysis Batch: 387734

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			06/23/19 13:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/23/19 13:15	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/23/19 13:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/23/19 13:15	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/23/19 13:15	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/23/19 13:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		06/23/19 13:15	1
4-Bromofluorobenzene (Surr)	88		59 - 120		06/23/19 13:15	1
Toluene-d8 (Surr)	103		70 - 123		06/23/19 13:15	1
Dibromofluoromethane (Surr)	108		75 - 128		06/23/19 13:15	1

Lab Sample ID: LCS 240-387734/6
Matrix: Water
Analysis Batch: 387734

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	22.3		ug/L		111	65 - 139
cis-1,2-Dichloroethene	20.0	19.8		ug/L		99	76 - 128
Tetrachloroethene	20.0	17.7		ug/L		88	74 - 130
trans-1,2-Dichloroethene	20.0	21.5		ug/L		108	78 - 133
Trichloroethene	20.0	18.9		ug/L		95	76 - 125
Vinyl chloride	20.0	23.0		ug/L		115	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		70 - 121
4-Bromofluorobenzene (Surr)	92		59 - 120
Toluene-d8 (Surr)	101		70 - 123
Dibromofluoromethane (Surr)	108		75 - 128

Lab Sample ID: 240-114608-B-3 MS
Matrix: Water
Analysis Batch: 387734

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

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		70 - 121
4-Bromofluorobenzene (Surr)	89		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	106		75 - 128

Lab Sample ID: 240-114608-B-3 MSD
Matrix: Water
Analysis Batch: 387734

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 121

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

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

Lab Sample ID: 240-114608-B-3 MSD
Matrix: Water
Analysis Batch: 387734

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	84		59 - 120
Toluene-d8 (Surr)	94		70 - 123
Dibromofluoromethane (Surr)	103		75 - 128

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

Lab Sample ID: MB 240-386516/5
Matrix: Water
Analysis Batch: 386516

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			06/17/19 11:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		63 - 125		06/17/19 11:17	1

Lab Sample ID: LCS 240-386516/4
Matrix: Water
Analysis Batch: 386516

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	12.3		ug/L		123	59 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		63 - 125

Lab Sample ID: 240-114331-F-4 MS
Matrix: Water
Analysis Batch: 386516

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	0.94	J	10.0	12.2		ug/L		113	52 - 129

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		63 - 125

Lab Sample ID: 240-114331-F-4 MSD
Matrix: Water
Analysis Batch: 386516

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	0.94	J	10.0	12.3		ug/L		113	52 - 129	1	13

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		63 - 125

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

GC/MS VOA

Analysis Batch: 386516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114335-1	MW-55D_061119	Total/NA	Water	8260B SIM	
240-114335-2	MW-55_061119	Total/NA	Water	8260B SIM	
240-114335-3	MW-56_061119	Total/NA	Water	8260B SIM	
240-114335-4	MW-58_061119	Total/NA	Water	8260B SIM	
240-114335-5	MW-28_061119	Total/NA	Water	8260B SIM	
240-114335-6	DUP-04_061119	Total/NA	Water	8260B SIM	
MB 240-386516/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-386516/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-114331-F-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-114331-F-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 387734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114335-1	MW-55D_061119	Total/NA	Water	8260B	
240-114335-2	MW-55_061119	Total/NA	Water	8260B	
240-114335-3	MW-56_061119	Total/NA	Water	8260B	
240-114335-4	MW-58_061119	Total/NA	Water	8260B	
240-114335-5	MW-28_061119	Total/NA	Water	8260B	
240-114335-6	DUP-04_061119	Total/NA	Water	8260B	
240-114335-7	TRIP BLANK	Total/NA	Water	8260B	
MB 240-387734/9	Method Blank	Total/NA	Water	8260B	
LCS 240-387734/6	Lab Control Sample	Total/NA	Water	8260B	
240-114608-B-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-114608-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: MW-55D_061119

Lab Sample ID: 240-114335-1

Date Collected: 06/11/19 09:30

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 18:33	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 17:34	SAM	TAL CAN

Client Sample ID: MW-55_061119

Lab Sample ID: 240-114335-2

Date Collected: 06/11/19 10:35

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 18:55	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 17:59	SAM	TAL CAN

Client Sample ID: MW-56_061119

Lab Sample ID: 240-114335-3

Date Collected: 06/11/19 12:33

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 19:17	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 18:25	SAM	TAL CAN

Client Sample ID: MW-58_061119

Lab Sample ID: 240-114335-4

Date Collected: 06/11/19 15:07

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 19:39	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 18:50	SAM	TAL CAN

Client Sample ID: MW-28_061119

Lab Sample ID: 240-114335-5

Date Collected: 06/11/19 13:53

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 20:02	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 19:15	SAM	TAL CAN

Client Sample ID: DUP-04_061119

Lab Sample ID: 240-114335-6

Date Collected: 06/11/19 00:00

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 20:47	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	386516	06/17/19 19:40	SAM	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114335-7

Date Collected: 06/11/19 00:00

Matrix: Water

Date Received: 06/13/19 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	387734	06/23/19 20:24	HMB	TAL CAN

Laboratory References:

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

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- 2
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Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203728

Job ID: 240-114335-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Florida	NELAP		E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New Jersey	NELAP		OH001	06-30-19
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

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

Eurolins TestAmerica, Canton MICHIGAN Chain of Custody Record 190

4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Client Information
 Client Contact: Caitlin O'Neill
 Company: ARCADIS U.S. Inc
 Address: 28550 Cabot Drive Suite 500
 City: Novi
 State, Zip: MI, 48377
 Phone:
 Email: Caitlin.O'Neill@arcadis.com
 Project Name: Ford LTP Livonia MI - E203634 728
 Site: LTP

Sampler: J. Lust
 Lab PM: DelMonico, Michael
 E-Mail: michael.delmonico@testamericainc.com
 Phone: 248-804-8795
 COC No: 240-61361-26116.9
 Page: Page 9 of 10
 Job #:

Analysis Requested

Carrier Tracking No(s):
 Perform MS/MSD (Yes or No) A
 Field Filtered Sample (Yes or No) A
 8260B, 8260B_SIM A
 8260B - VOCs (Short List) A

Due Date Requested:
 TAT Requested (days): 10 day / standard
 PO #: 0004-0001B
 MI001454.9996-00004
 WO #: Cadena #: E203634-728
 Project #: 24015353
 SSOW#:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, On-water, etc)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)	Total Number of Containers	Special Instructions/Note:
MW-SSD-061119	6-11-19	0930	G	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	6	
MW-55-061119	6-11-19	1035	G	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	6	
MW-56-061119	6-11-19	1233	G	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	6	
MW-58-061119	6-11-19	1507	G	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	6	
MW-28-061119	6-11-19	1353	G	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	6	
DUP-04-061119	6-11-19		G	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	6	
TRIP 6606				Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	1	



Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, (V) Other (specify)

Empty Kit Relinquished by: [Signature]
 Date: 6/11/19 / 1600

Relinquished by: RACHEL BIELAK Paul Furlak
 Date/Time: 6/12/19 1020
 Date/Time: 6-12-19 1340

Relinquished by: [Signature]
 Date/Time: 6/13/19 0940

Company: ARCADIS
 Company: ARCADIS
 Company: EIA
 Company: EIA

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/OC Requirements:

Method of Shipment:
 Date/Time: 6/11/19 / 1600
 Date/Time: 6-12-19 1020
 Date/Time: 6/13/19 0940


Custody Seal No.: Yes No
 Cooler Temperature(s) °C and Other Remarks:

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 114335
Canton Facility

Client ARCADIS Site Name _____ Cooler unpacked by: Asant
 Cooler Received on 6/13/19 Opened on 6/14/19
 FedEx: 1st Gro Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # CANTON Foam Box _____ Client Cooler _____ Box _____ Other _____
 Packing material used: Bubble Wrap _____ Foam _____ Plastic Bag _____ None _____ Other _____
 COOLANT: Wet Ice Blue Ice _____ Dry Ice _____ Water _____ None _____

1. Cooler temperature upon receipt
 IR GUN# IR-8 (CF +0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0.6 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes 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.
 12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC984738
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # B904401NB Yes No
 16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

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

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: AMM

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: _____

