

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-119125-1

Client Project/Site: Ford LTP Livonia MI - E203631
Revision: 1

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
10/22/2019 10:30:17 AM

Michael DelMonico, Project Manager I
(330)497-9396
michael.delmonico@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Method Summary	5
Sample Summary	6
Detection Summary	7
Client Sample Results	8
Surrogate Summary	12
QC Sample Results	13
QC Association Summary	17
Lab Chronicle	18
Certification Summary	19
Chain of Custody	20

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

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
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 - E203631

Job ID: 240-119125-1

Job ID: 240-119125-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203631

Report Number: 240-119125-1

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 9/19/2019 9:30 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, 3.5° C and 3.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-134S_091719 (240-119125-1), MW-133S_091719 (240-119125-2), DUP-01 (240-119125-3) and TRIP BLANK (240-119125-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/26/2019.

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-134S_091719 (240-119125-1), MW-133S_091719 (240-119125-2) and DUP-01 (240-119125-3) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 09/23/2019 and 09/24/2019.

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 - E203631

Job ID: 240-119125-1

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 - E203631

Job ID: 240-119125-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119125-1	MW-134S_091719	Water	09/17/19 13:32	09/19/19 09:30	
240-119125-2	MW-133S_091719	Water	09/17/19 10:49	09/19/19 09:30	
240-119125-3	DUP-01	Water	09/17/19 00:00	09/19/19 09:30	
240-119125-5	TRIP BLANK	Water	09/17/19 00:00	09/19/19 09:30	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

Client Sample ID: MW-134S_091719

Lab Sample ID: 240-119125-1

No Detections.

Client Sample ID: MW-133S_091719

Lab Sample ID: 240-119125-2

No Detections.

Client Sample ID: DUP-01

Lab Sample ID: 240-119125-3

No Detections.

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119125-5

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

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 - E203631

Job ID: 240-119125-1

Client Sample ID: MW-134S_091719

Lab Sample ID: 240-119125-1

Date Collected: 09/17/19 13:32

Matrix: Water

Date Received: 09/19/19 09:30

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			09/24/19 15:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		63 - 125		09/24/19 15:28	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			09/26/19 21:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 21:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 21:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 21:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 21:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 21:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		09/26/19 21:30	1
4-Bromofluorobenzene (Surr)	76		59 - 120		09/26/19 21:30	1
Toluene-d8 (Surr)	91		70 - 123		09/26/19 21:30	1
Dibromofluoromethane (Surr)	119		75 - 128		09/26/19 21:30	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

Client Sample ID: MW-133S_091719

Lab Sample ID: 240-119125-2

Date Collected: 09/17/19 10:49

Matrix: Water

Date Received: 09/19/19 09:30

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			09/24/19 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		63 - 125		09/24/19 16:42	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			09/26/19 22:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 22:41	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 22:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 22:41	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 22:41	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		70 - 121		09/26/19 22:41	1
4-Bromofluorobenzene (Surr)	79		59 - 120		09/26/19 22:41	1
Toluene-d8 (Surr)	94		70 - 123		09/26/19 22:41	1
Dibromofluoromethane (Surr)	106		75 - 128		09/26/19 22:41	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

Client Sample ID: DUP-01

Lab Sample ID: 240-119125-3

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

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			09/23/19 22:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		63 - 125		09/23/19 22:03	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			09/26/19 23:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 23:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 23:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 23:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 23:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 23:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 121		09/26/19 23:29	1
4-Bromofluorobenzene (Surr)	76		59 - 120		09/26/19 23:29	1
Toluene-d8 (Surr)	92		70 - 123		09/26/19 23:29	1
Dibromofluoromethane (Surr)	111		75 - 128		09/26/19 23:29	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119125-5

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

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			09/26/19 23:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 23:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 23:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 23:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 23:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 23:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		70 - 121		09/26/19 23:05	1
4-Bromofluorobenzene (Surr)	79		59 - 120		09/26/19 23:05	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 23:05	1
Dibromofluoromethane (Surr)	111		75 - 128		09/26/19 23:05	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-119125-1	MW-134S_091719	97	76	91	119
240-119125-1 MS	MW-134S_091719	81	94	97	98
240-119125-1 MSD	MW-134S_091719	80	94	99	102
240-119125-2	MW-133S_091719	90	79	94	106
240-119125-3	DUP-01	97	76	92	111
240-119125-5	TRIP BLANK	89	79	93	111
LCS 240-402637/4	Lab Control Sample	83	102	102	103
MB 240-402637/7	Method Blank	88	78	93	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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (63-125)
240-119025-C-3 MS	Matrix Spike	107
240-119025-C-3 MSD	Matrix Spike Duplicate	109
240-119125-1	MW-134S_091719	108
240-119125-1 MS	MW-134S_091719	109
240-119125-1 MSD	MW-134S_091719	111
240-119125-2	MW-133S_091719	106
240-119125-3	DUP-01	103
LCS 240-401987/4	Lab Control Sample	102
LCS 240-402169/4	Lab Control Sample	107
MB 240-401987/5	Method Blank	100
MB 240-402169/5	Method Blank	108

Surrogate Legend

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

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

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

Lab Sample ID: MB 240-402637/7
Matrix: Water
Analysis Batch: 402637

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			09/26/19 15:08	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			09/26/19 15:08	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			09/26/19 15:08	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			09/26/19 15:08	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			09/26/19 15:08	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			09/26/19 15:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 121		09/26/19 15:08	1
4-Bromofluorobenzene (Surr)	78		59 - 120		09/26/19 15:08	1
Toluene-d8 (Surr)	93		70 - 123		09/26/19 15:08	1
Dibromofluoromethane (Surr)	108		75 - 128		09/26/19 15:08	1

Lab Sample ID: LCS 240-402637/4
Matrix: Water
Analysis Batch: 402637

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	10.3		ug/L		103	65 - 139
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 128
Tetrachloroethene	10.0	10.7		ug/L		107	74 - 130
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	78 - 133
Trichloroethene	10.0	11.0		ug/L		110	76 - 125
Vinyl chloride	10.0	5.91		ug/L		59	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 121
4-Bromofluorobenzene (Surr)	102		59 - 120
Toluene-d8 (Surr)	102		70 - 123
Dibromofluoromethane (Surr)	103		75 - 128

Lab Sample ID: 240-119125-1 MS
Matrix: Water
Analysis Batch: 402637

Client Sample ID: MW-134S_091719
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	9.52		ug/L		95	53 - 140
cis-1,2-Dichloroethene	1.0	U	10.0	9.75		ug/L		98	64 - 130
Tetrachloroethene	1.0	U	10.0	9.24		ug/L		92	51 - 136
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	68 - 133
Trichloroethene	1.0	U	10.0	10.2		ug/L		102	55 - 131
Vinyl chloride	1.0	U	10.0	5.54		ug/L		55	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	97		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

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

Lab Sample ID: 240-119125-1 MS
Matrix: Water
Analysis Batch: 402637

Client Sample ID: MW-134S_091719
Prep Type: Total/NA

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	98		75 - 128

Lab Sample ID: 240-119125-1 MSD
Matrix: Water
Analysis Batch: 402637

Client Sample ID: MW-134S_091719
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
1,1-Dichloroethene	1.0	U	10.0	10.0		ug/L		100	53 - 140	5	35	
cis-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	64 - 130	5	21	
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	51 - 136	10	23	
trans-1,2-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	68 - 133	5	24	
Trichloroethene	1.0	U	10.0	10.3		ug/L		103	55 - 131	1	23	
Vinyl chloride	1.0	U	10.0	5.50		ug/L		55	43 - 154	1	29	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	80		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	99		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

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

Lab Sample ID: MB 240-401987/5
Matrix: Water
Analysis Batch: 401987

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			09/23/19 12:57	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		09/23/19 12:57	1

Lab Sample ID: LCS 240-401987/4
Matrix: Water
Analysis Batch: 401987

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

Analyte	Spike	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
1,4-Dioxane	10.0	10.8		ug/L		108	59 - 131	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	102		63 - 125

Lab Sample ID: 240-119025-C-3 MS
Matrix: Water
Analysis Batch: 401987

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

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	RPD
1,4-Dioxane	2.0	U	10.0	10.6		ug/L		106	52 - 129	

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		63 - 125

Lab Sample ID: 240-119025-C-3 MSD
Matrix: Water
Analysis Batch: 401987

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	2.0	U	10.0	10.7		ug/L		107	52 - 129	2	13

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		63 - 125

Lab Sample ID: MB 240-402169/5
Matrix: Water
Analysis Batch: 402169

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			09/24/19 12:10	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	108		63 - 125		09/24/19 12:10	1

Lab Sample ID: LCS 240-402169/4
Matrix: Water
Analysis Batch: 402169

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	10.0		ug/L		100	59 - 131

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		63 - 125

Lab Sample ID: 240-119125-1 MS
Matrix: Water
Analysis Batch: 402169

Client Sample ID: MW-134S_091719
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	11.5		ug/L		115	52 - 129

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		63 - 125

Lab Sample ID: 240-119125-1 MSD
Matrix: Water
Analysis Batch: 402169

Client Sample ID: MW-134S_091719
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	2.0	U	10.0	11.1		ug/L		111	52 - 129	3	13

Eurofins TestAmerica, Canton

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

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

Lab Sample ID: 240-119125-1 MSD
Matrix: Water
Analysis Batch: 402169

Client Sample ID: MW-134S_091719
Prep Type: Total/NA

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	111		63 - 125

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

GC/MS VOA

Analysis Batch: 401987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119125-3	DUP-01	Total/NA	Water	8260B SIM	
MB 240-401987/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-401987/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119025-C-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119025-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 402169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119125-1	MW-134S_091719	Total/NA	Water	8260B SIM	
240-119125-2	MW-133S_091719	Total/NA	Water	8260B SIM	
MB 240-402169/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-402169/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119125-1 MS	MW-134S_091719	Total/NA	Water	8260B SIM	
240-119125-1 MSD	MW-134S_091719	Total/NA	Water	8260B SIM	

Analysis Batch: 402637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119125-1	MW-134S_091719	Total/NA	Water	8260B	
240-119125-2	MW-133S_091719	Total/NA	Water	8260B	
240-119125-3	DUP-01	Total/NA	Water	8260B	
240-119125-5	TRIP BLANK	Total/NA	Water	8260B	
MB 240-402637/7	Method Blank	Total/NA	Water	8260B	
LCS 240-402637/4	Lab Control Sample	Total/NA	Water	8260B	
240-119125-1 MS	MW-134S_091719	Total/NA	Water	8260B	
240-119125-1 MSD	MW-134S_091719	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Ford LTP Livonia MI - E203631

Job ID: 240-119125-1

Client Sample ID: MW-134S_091719

Lab Sample ID: 240-119125-1

Date Collected: 09/17/19 13:32

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 21:30	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	402169	09/24/19 15:28	SAM	TAL CAN

Client Sample ID: MW-133S_091719

Lab Sample ID: 240-119125-2

Date Collected: 09/17/19 10:49

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 22:41	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	402169	09/24/19 16:42	SAM	TAL CAN

Client Sample ID: DUP-01

Lab Sample ID: 240-119125-3

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 23:29	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	401987	09/23/19 22:03	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-119125-5

Date Collected: 09/17/19 00:00

Matrix: Water

Date Received: 09/19/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	402637	09/26/19 23:05	LRW	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 Livonia MI - E203631

Job ID: 240-119125-1

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	02-23-20
Connecticut	State	PH-0590	12-31-19
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-20
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-20
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20
Kentucky (WW)	State	KY98016	12-31-19
Minnesota	NELAP	OH00048	12-31-19
Minnesota (Petrofund)	State Program	3506	07-31-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-23-20
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-16-00404	12-28-19
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-20
West Virginia DEP	State	210	12-31-19

Chain of Custody Record

TestAmerica Laboratory location: Brighton --- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-228-2763

Regulatory program: DW NPDES RCRA Other

Client Contact
Company Name: Arcadis
Address: 28550 Cabot Drive, Suite 500
City/State/Zip: Novi, MI, 48377
Phone: 248-994-2240

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kris@hinskey.com

Site Contact: Rachel Bielak
Telephone: 248-946-6331

Project Name: Ford LTP
Project Number: M1001454.0004.0002B
PO # M1001454.0004.0002B

Method of Shipment/Carrier:
Shipping/Tracking No:

Analysis Turnaround Time
TAT, if different from below:
 3 weeks
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Composite C / Grab C	Analytes						Sample Specific Notes / Special Instructions:							
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl			NaOH	ZnAc	NaOH	Others:	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		
MW-1345-091719	9/17/19	1332	X					X																	6 bottles	
MW-1345-MS-091719	↓	↓	X					X																		6 bottles
MW-1345-MSD-091719	9/17/19	1049	X					X																		6 bottles
DUP-01	9/17/19	-	X					X																		6 bottles
MW-1915-091719	↓	1617	X					X																		6 bottles
Tap Blank (1)																										6 bottles

Possible Hazard Identification
 Non-Hazard Irritable Irritant Poison B Unknown Injurious

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

Submit all results through Cadena at jim.tomalia@cadenalabs.com. Cadena #E203631
Level IV Reporting requested.

Relinquished by: *John* Company: Arcadis Date/Time: 9/17/19 1645
Relinquished by: *Julia McElroy* Company: Arcadis Date/Time: 9/17/19 1920
Relinquished by: *Rachel Bielak* Company: ARCADIS Date/Time: 9/18/19 1030

Received by: *Julia McElroy* Company: Arcadis Date/Time: 9/17/19 1645
Received by: *Novi Cold Storage* Company: Arcadis Date/Time: 9/17/19 1920
Received in Laboratory by: *Moody Maxson* Company: Arcadis Date/Time: 9/18/19 1035

©2008 TestAmerica Laboratories, Inc. All rights reserved.
TestAmerica's Chain of Custody is a trademark of TestAmerica Laboratories, Inc.

RCB
100719



Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 119125

Client Acadix Site Name _____

Cooler unpacked by:

Cooler Received on 9/19/19 Opened on 9/19/19

DSO

FedEx: 1st Grd UPS FAS Clipper Client Drop Off TestAmerica Courier Other

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

TestAmerica Cooler # TAC 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 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 Leak 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
-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# HC991818

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials?  Larger than this? Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # N/A 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:

Martin

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: _____

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	1.8	2.5	Wet Ice	Blue Ice	Dry Ice	Water	None
TA	Client	Box	Other	IR-10	IR-11	2.9	3.6	Wet Ice	Blue Ice	Dry Ice	Water	None
TA	Client	Box	Other	IR-10	IR-11	2.8	3.5	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

WI-NC-699 Cooler Receipt Form Page 2 - Multiple Coolers