

ANALYTICAL REPORT

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

Laboratory Job ID: 240-114506-1

Client Project/Site: Ford LTP Livonia MI - E203728

For:

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

Attn: Kristoffer Hinskey



Authorized for release by:
6/28/2019 11:39:01 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	6
Sample Summary	7
Detection Summary	8
Client Sample Results	9
Surrogate Summary	11
QC Sample Results	12
QC Association Summary	16
Lab Chronicle	17
Certification Summary	18
Chain of Custody	19

Definitions/Glossary

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

Job ID: 240-114506-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

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: 240-114506-1

Job ID: 240-114506-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Livonia MI - E203728

Report Number: 240-114506-1

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 6/15/2019 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples MW-21_061319 (240-114506-1) and TRIP BLANK (240-114506-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/26/2019.

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria high for MW-21_061319MSD (240-114506-1MSD). Refer to the QC report for details.

cis-1,2-Dichloroethene failed the recovery criteria high for the MS/MSD of sample MW-21_061319MS/MSD (240-114506-1) in batch 240-388337. Refer to the QC report for details.

Sample MW-21_061319 (240-114506-1)[714.28X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-21_061319 (240-114506-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846

Case Narrative

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

Job ID: 240-114506-1

Job ID: 240-114506-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

Method 8260B SIM. The samples were analyzed on 06/20/2019.

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

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

Method Summary

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

Job ID: 240-114506-1

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: 240-114506-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-114506-1	MW-21_061319	Water	06/13/19 10:02	06/15/19 09:50	
240-114506-2	TRIP BLANK	Water	06/13/19 00:00	06/15/19 09:50	

- 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 - E203728

Job ID: 240-114506-1

Client Sample ID: MW-21_061319

Lab Sample ID: 240-114506-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.3		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	13000	F1	710	110	ug/L	714.28		8260B	Total/NA
Vinyl chloride	2400		710	140	ug/L	714.28		8260B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114506-2

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: 240-114506-1

Client Sample ID: MW-21_061319

Lab Sample ID: 240-114506-1

Date Collected: 06/13/19 10:02

Matrix: Water

Date Received: 06/15/19 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	6.3		2.0	0.86	ug/L			06/20/19 17:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		63 - 125		06/20/19 17:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	710	U	710	140	ug/L			06/26/19 14:35	714.28
cis-1,2-Dichloroethene	13000	F1	710	110	ug/L			06/26/19 14:35	714.28
Tetrachloroethene	710	U	710	110	ug/L			06/26/19 14:35	714.28
trans-1,2-Dichloroethene	710	U	710	140	ug/L			06/26/19 14:35	714.28
Trichloroethene	710	U	710	71	ug/L			06/26/19 14:35	714.28
Vinyl chloride	2400		710	140	ug/L			06/26/19 14:35	714.28

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 121		06/26/19 14:35	714.28
4-Bromofluorobenzene (Surr)	96		59 - 120		06/26/19 14:35	714.28
Toluene-d8 (Surr)	91		70 - 123		06/26/19 14:35	714.28
Dibromofluoromethane (Surr)	104		75 - 128		06/26/19 14:35	714.28

Client Sample Results

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

Job ID: 240-114506-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114506-2

Date Collected: 06/13/19 00:00

Matrix: Water

Date Received: 06/15/19 09:50

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			06/26/19 00:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/26/19 00:03	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/26/19 00:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/26/19 00:03	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/26/19 00:03	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/26/19 00:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 121		06/26/19 00:03	1
4-Bromofluorobenzene (Surr)	79		59 - 120		06/26/19 00:03	1
Toluene-d8 (Surr)	82		70 - 123		06/26/19 00:03	1
Dibromofluoromethane (Surr)	113		75 - 128		06/26/19 00:03	1

Surrogate Summary

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

Job ID: 240-114506-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-114506-1	MW-21_061319	105	96	91	104
240-114506-1 MS	MW-21_061319	116	91	84	110
240-114506-1 MSD	MW-21_061319	123 X	106	94	111
240-114506-2	TRIP BLANK	106	79	82	113
240-114523-E-1 MS	Matrix Spike	114	94	75	114
240-114523-H-1 MSD	Matrix Spike Duplicate	109	90	82	116
LCS 240-388086/4	Lab Control Sample	102	87	79	102
LCS 240-388337/4	Lab Control Sample	110	90	90	104
MB 240-388086/7	Method Blank	121	88	80	109
MB 240-388337/7	Method Blank	118	92	92	107

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)
240-114506-1	MW-21_061319	96
240-114521-C-3 MS	Matrix Spike	113
240-114521-C-3 MSD	Matrix Spike Duplicate	109
LCS 240-387287/4	Lab Control Sample	108
MB 240-387287/5	Method Blank	106

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: 240-114506-1

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

Lab Sample ID: MB 240-388086/7
Matrix: Water
Analysis Batch: 388086

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			06/25/19 15:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/25/19 15:05	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/25/19 15:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/25/19 15:05	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/25/19 15:05	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/25/19 15:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		70 - 121		06/25/19 15:05	1
4-Bromofluorobenzene (Surr)	88		59 - 120		06/25/19 15:05	1
Toluene-d8 (Surr)	80		70 - 123		06/25/19 15:05	1
Dibromofluoromethane (Surr)	109		75 - 128		06/25/19 15:05	1

Lab Sample ID: LCS 240-388086/4
Matrix: Water
Analysis Batch: 388086

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	8.13		ug/L		81	65 - 139
cis-1,2-Dichloroethene	10.0	8.29		ug/L		83	76 - 128
Tetrachloroethene	10.0	11.8		ug/L		118	74 - 130
trans-1,2-Dichloroethene	10.0	9.04		ug/L		90	78 - 133
Trichloroethene	10.0	10.6		ug/L		106	76 - 125
Vinyl chloride	10.0	8.38		ug/L		84	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 121
4-Bromofluorobenzene (Surr)	87		59 - 120
Toluene-d8 (Surr)	79		70 - 123
Dibromofluoromethane (Surr)	102		75 - 128

Lab Sample ID: 240-114523-E-1 MS
Matrix: Water
Analysis Batch: 388086

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
1,1-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	53 - 140
cis-1,2-Dichloroethene	2.2		10.0	13.2		ug/L		110	64 - 130
Tetrachloroethene	1.0	U	10.0	10.6		ug/L		106	51 - 136
trans-1,2-Dichloroethene	0.37	J	10.0	10.2		ug/L		99	68 - 133
Trichloroethene	1.0	U	10.0	11.6		ug/L		116	55 - 131
Vinyl chloride	0.26	J	10.0	9.96		ug/L		97	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	114		70 - 121
4-Bromofluorobenzene (Surr)	94		59 - 120
Toluene-d8 (Surr)	75		70 - 123

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-114506-1

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

Lab Sample ID: 240-114523-E-1 MS
Matrix: Water
Analysis Batch: 388086

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	114		75 - 128

Lab Sample ID: 240-114523-H-1 MSD
Matrix: Water
Analysis Batch: 388086

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
1,1-Dichloroethene	1.0	U	10.0	8.01		ug/L		80	53 - 140	32	35
cis-1,2-Dichloroethene	2.2		10.0	11.2		ug/L		90	64 - 130	16	21
Tetrachloroethene	1.0	U	10.0	10.2		ug/L		102	51 - 136	4	23
trans-1,2-Dichloroethene	0.37	J	10.0	8.81		ug/L		84	68 - 133	15	24
Trichloroethene	1.0	U	10.0	10.7		ug/L		107	55 - 131	8	23
Vinyl chloride	0.26	J	10.0	8.97		ug/L		87	43 - 154	11	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 121
4-Bromofluorobenzene (Surr)	90		59 - 120
Toluene-d8 (Surr)	82		70 - 123
Dibromofluoromethane (Surr)	116		75 - 128

Lab Sample ID: MB 240-388337/7
Matrix: Water
Analysis Batch: 388337

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			06/26/19 14:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/26/19 14:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/26/19 14:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/26/19 14:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/26/19 14:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/26/19 14:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		70 - 121		06/26/19 14:11	1
4-Bromofluorobenzene (Surr)	92		59 - 120		06/26/19 14:11	1
Toluene-d8 (Surr)	92		70 - 123		06/26/19 14:11	1
Dibromofluoromethane (Surr)	107		75 - 128		06/26/19 14:11	1

Lab Sample ID: LCS 240-388337/4
Matrix: Water
Analysis Batch: 388337

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	8.42		ug/L		84	65 - 139
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	76 - 128
Tetrachloroethene	10.0	11.6		ug/L		116	74 - 130
trans-1,2-Dichloroethene	10.0	11.0		ug/L		110	78 - 133
Trichloroethene	10.0	12.2		ug/L		122	76 - 125

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-114506-1

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

Lab Sample ID: LCS 240-388337/4

Matrix: Water

Analysis Batch: 388337

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	8.71		ug/L		87	58 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 121
4-Bromofluorobenzene (Surr)	90		59 - 120
Toluene-d8 (Surr)	90		70 - 123
Dibromofluoromethane (Surr)	104		75 - 128

Lab Sample ID: 240-114506-1 MS

Matrix: Water

Analysis Batch: 388337

Client Sample ID: MW-21_061319

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	710	U	7140	6380		ug/L		89	53 - 140
cis-1,2-Dichloroethene	13000	F1	7140	23200	F1	ug/L		139	64 - 130
Tetrachloroethene	710	U	7140	7600		ug/L		106	51 - 136
trans-1,2-Dichloroethene	710	U	7140	6870		ug/L		96	68 - 133
Trichloroethene	710	U	7140	8260		ug/L		116	55 - 131
Vinyl chloride	2400		7140	9790		ug/L		103	43 - 154

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	116		70 - 121
4-Bromofluorobenzene (Surr)	91		59 - 120
Toluene-d8 (Surr)	84		70 - 123
Dibromofluoromethane (Surr)	110		75 - 128

Lab Sample ID: 240-114506-1 MSD

Matrix: Water

Analysis Batch: 388337

Client Sample ID: MW-21_061319

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	710	U	7140	7390		ug/L		103	53 - 140	15	35
cis-1,2-Dichloroethene	13000	F1	7140	23400	F1	ug/L		142	64 - 130	1	21
Tetrachloroethene	710	U	7140	8440		ug/L		118	51 - 136	10	23
trans-1,2-Dichloroethene	710	U	7140	7450		ug/L		104	68 - 133	8	24
Trichloroethene	710	U	7140	8680		ug/L		122	55 - 131	5	23
Vinyl chloride	2400		7140	9080		ug/L		93	43 - 154	8	29

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	123	X	70 - 121
4-Bromofluorobenzene (Surr)	106		59 - 120
Toluene-d8 (Surr)	94		70 - 123
Dibromofluoromethane (Surr)	111		75 - 128

QC Sample Results

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

Job ID: 240-114506-1

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

Lab Sample ID: MB 240-387287/5
Matrix: Water
Analysis Batch: 387287

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			06/20/19 12:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		63 - 125					06/20/19 12:10	1

Lab Sample ID: LCS 240-387287/4
Matrix: Water
Analysis Batch: 387287

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	9.56		ug/L		96	59 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	108		63 - 125				

Lab Sample ID: 240-114521-C-3 MS
Matrix: Water
Analysis Batch: 387287

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	2.5		10.0	13.9		ug/L		114	52 - 129
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	113		63 - 125						

Lab Sample ID: 240-114521-C-3 MSD
Matrix: Water
Analysis Batch: 387287

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	2.5		10.0	12.9		ug/L		104	52 - 129	8	13
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	109		63 - 125								

QC Association Summary

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

Job ID: 240-114506-1

GC/MS VOA

Analysis Batch: 387287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114506-1	MW-21_061319	Total/NA	Water	8260B SIM	
MB 240-387287/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-387287/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-114521-C-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-114521-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 388086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114506-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-388086/7	Method Blank	Total/NA	Water	8260B	
LCS 240-388086/4	Lab Control Sample	Total/NA	Water	8260B	
240-114523-E-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-114523-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 388337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114506-1	MW-21_061319	Total/NA	Water	8260B	
MB 240-388337/7	Method Blank	Total/NA	Water	8260B	
LCS 240-388337/4	Lab Control Sample	Total/NA	Water	8260B	
240-114506-1 MS	MW-21_061319	Total/NA	Water	8260B	
240-114506-1 MSD	MW-21_061319	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-114506-1

Client Sample ID: MW-21_061319

Lab Sample ID: 240-114506-1

Date Collected: 06/13/19 10:02

Matrix: Water

Date Received: 06/15/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		714.28	388337	06/26/19 14:35	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	387287	06/20/19 17:37	SAM	TAL CAN

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-114506-2

Date Collected: 06/13/19 00:00

Matrix: Water

Date Received: 06/15/19 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	388086	06/26/19 00:03	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 - E203728

Job ID: 240-114506-1


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	06-30-20
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.

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

Client Information		Lab PM: DelMonico, Michael		Carrier Tracking No(s):		COC No: 240-61361-26116.7			
Client Contact: Caitlin O'Neill		E-Mail: michael.delmonico@testamericainc.com		Page: 7 of 10		Job #:			
Company: ARCADIS U.S. Inc		Analysis Requested							
Address: 28550 Cabot Drive Suite 500		Due Date Requested:		Preservation Codes:					
City: Novi		TAT Requested (days): 10 day 1 standard		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA Other:					
State, Zip: MI, 48377		RO #: 0004-0001B		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)					
Phone:		WO #: Cadena #. E203624 728		Total Number of containers					
Email: Caitlin.O'Neill@arcadis.com		Project #: 24015353		6					
Project Name: Ford LTP Livonia MI - E203624 728		SSOW#: LTP		Special Instructions/Note:					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, B=bi-tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - VOCs (Short List)	8260B - VOCs SIM
MW-21-061318	6-13-12	1002		Water	Water	XX	XX	XX	XX
TIP 61002				Water	Water	XX	XX	XX	XX
				Water	Water				
				Water	Water				
				Water	Water				
				Water	Water				
				Water	Water				
				Water	Water				
				Water	Water				
				Water	Water				
 240-114506 Chain of Custody									
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, (V), Other (specify)									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/OC Requirements:									
Empty Kit Relinquished by: _____ Date: _____									
Relinquished by: _____ Date Time: 6/13/12 1145									
Relinquished by: _____ Date Time: 6-14-19 1025									
Relinquished by: _____ Date Time: 6/15/19 0850									
Custody Seal Intact: _____ Custody Seal No.: _____ <input type="checkbox"/> Yes <input type="checkbox"/> No									
Relinquished by: _____ Date Time: 6/15/12 1145 Company: ARCADIS									
Relinquished by: _____ Date Time: 6-14-19 1025 Company: ETA									
Relinquished by: _____ Date Time: 6/15/19 0850 Company: ETAC									
Cooler Temperature: _____ Method of Shipment: _____									

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility


Login # : 114504

Client Acadix Site Name _____
 Cooler Received on 6/15/19 Opened on 6/17/19
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Cooler unpacked by:
Derry Sun

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

TestAmerica Cooler # JA 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-8 (CF +0.1 °C) Observed Cooler Temp 0.6 °C Corrected Cooler Temp 0.7 °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 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?
 If yes, Questions 12-16 have been checked at the originating laboratory. Yes No
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 # B3370106 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: _____

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: _____