

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-119762-1

Client Project/Site: Ford LTP Livonia MI - E203728

**For:**

ARCADIS U.S., Inc.  
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Suite 500  
Novi, Michigan 48377

Attn: Kristoffer Hinskey



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Authorized for release by:  
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*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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# Definitions/Glossary

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

Job ID: 240-119762-1

## 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 - E203728

Job ID: 240-119762-1

**Job ID: 240-119762-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

**Client: ARCADIS U.S., Inc.**

**Project: Ford LTP Livonia MI - E203728**

**Report Number: 240-119762-1**

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 10/1/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

### **VOLATILE ORGANIC COMPOUNDS (GCMS)**

Samples MW-20\_092619 (240-119762-1) and TRIP BLANK (240-119762-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 10/09/2019.

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

### **VOLATILE ORGANIC COMPOUNDS (GCMS SIM)**

Sample MW-20\_092619 (240-119762-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 10/04/2019.

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: 240-119762-1

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: 240-119762-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-119762-1	MW-20_092619	Water	09/26/19 15:25	10/01/19 09:30	
240-119762-2	TRIP BLANK	Water	09/26/19 00:00	10/01/19 09:30	

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- 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: 240-119762-1

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**Client Sample ID: MW-20\_092619**

**Lab Sample ID: 240-119762-1**

No Detections.

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**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-119762-2**

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 - E203728

Job ID: 240-119762-1

**Client Sample ID: MW-20\_092619**

**Lab Sample ID: 240-119762-1**

Date Collected: 09/26/19 15:25

Matrix: Water

Date Received: 10/01/19 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			10/04/19 15:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		63 - 125		10/04/19 15:54	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			10/09/19 20:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 20:11	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 20:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 20:11	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 20:11	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 20:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		59 - 120		10/09/19 20:11	1
Dibromofluoromethane (Surr)	92		75 - 128		10/09/19 20:11	1
1,2-Dichloroethane-d4 (Surr)	89		70 - 121		10/09/19 20:11	1
Toluene-d8 (Surr)	98		70 - 123		10/09/19 20:11	1



# Client Sample Results

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

Job ID: 240-119762-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-119762-2**

**Date Collected: 09/26/19 00:00**

**Matrix: Water**

**Date Received: 10/01/19 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			10/09/19 20:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 20:36	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 20:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 20:36	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 20:36	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 20:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		59 - 120		10/09/19 20:36	1
Dibromofluoromethane (Surr)	96		75 - 128		10/09/19 20:36	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 121		10/09/19 20:36	1
Toluene-d8 (Surr)	98		70 - 123		10/09/19 20:36	1

# Surrogate Summary

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

Job ID: 240-119762-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	DCA	TOL
		(59-120)	(75-128)	(70-121)	(70-123)
240-119639-A-9 MS	Matrix Spike	104	89	86	98
240-119639-A-9 MSD	Matrix Spike Duplicate	105	88	84	100
240-119762-1	MW-20_092619	104	92	89	98
240-119762-2	TRIP BLANK	106	96	92	98
LCS 240-404863/6	Lab Control Sample	103	88	85	99
MB 240-404863/9	Method Blank	107	92	89	98

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

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

TOL = Toluene-d8 (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)
240-119751-L-7 MS	Matrix Spike	102
240-119751-L-7 MSD	Matrix Spike Duplicate	102
240-119762-1	MW-20_092619	100
LCS 240-404131/4	Lab Control Sample	98
MB 240-404131/5	Method Blank	97

#### 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: 240-119762-1

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

**Lab Sample ID: MB 240-404863/9**  
**Matrix: Water**  
**Analysis Batch: 404863**

**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			10/09/19 13:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			10/09/19 13:38	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			10/09/19 13:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			10/09/19 13:38	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			10/09/19 13:38	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			10/09/19 13:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		59 - 120		10/09/19 13:38	1
Dibromofluoromethane (Surr)	92		75 - 128		10/09/19 13:38	1
1,2-Dichloroethane-d4 (Surr)	89		70 - 121		10/09/19 13:38	1
Toluene-d8 (Surr)	98		70 - 123		10/09/19 13:38	1

**Lab Sample ID: LCS 240-404863/6**  
**Matrix: Water**  
**Analysis Batch: 404863**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	16.9		ug/L		85	69 - 134
1,1,2,2-Tetrachloroethane	20.0	18.9		ug/L		95	65 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.8		ug/L		89	50 - 156
1,1,2-Trichloroethane	20.0	17.9		ug/L		89	78 - 133
1,1-Dichloroethane	20.0	18.0		ug/L		90	75 - 133
1,1-Dichloroethene	20.0	18.3		ug/L		91	65 - 139
1,2,4-Trichlorobenzene	20.0	16.2		ug/L		81	42 - 133
1,2,4-Trimethylbenzene	20.0	18.5		ug/L		93	74 - 120
1,2-Dibromo-3-Chloropropane	20.0	15.2		ug/L		76	46 - 132
1,2-Dibromoethane	20.0	17.8		ug/L		89	77 - 123
1,2-Dichlorobenzene	20.0	17.6		ug/L		88	78 - 120
1,2-Dichloroethane	20.0	16.9		ug/L		84	71 - 135
1,2-Dichloropropane	20.0	18.4		ug/L		92	78 - 133
1,3,5-Trimethylbenzene	20.0	18.9		ug/L		94	75 - 121
1,3-Dichlorobenzene	20.0	17.6		ug/L		88	78 - 120
1,4-Dichlorobenzene	20.0	17.7		ug/L		88	78 - 120
2-Butanone (MEK)	40.0	30.7		ug/L		77	39 - 163
2-Hexanone	40.0	28.3		ug/L		71	43 - 148
4-Methyl-2-pentanone (MIBK)	40.0	27.9		ug/L		70	49 - 143
Acetone	40.0	30.0		ug/L		75	21 - 162
Benzene	20.0	18.1		ug/L		90	80 - 123
Bromodichloromethane	20.0	17.7		ug/L		88	77 - 125
Bromoform	20.0	15.3		ug/L		76	49 - 141
Bromomethane	20.0	25.5		ug/L		127	41 - 175
Carbon disulfide	20.0	19.6		ug/L		98	60 - 138
Carbon tetrachloride	20.0	16.5		ug/L		83	63 - 140
Chlorobenzene	20.0	18.1		ug/L		91	80 - 121
Chloroethane	20.0	16.4		ug/L		82	33 - 173
Chloroform	20.0	17.9		ug/L		90	79 - 127

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-119762-1

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

**Lab Sample ID: LCS 240-404863/6**  
**Matrix: Water**  
**Analysis Batch: 404863**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	20.0	14.4		ug/L		72	54 - 143
cis-1,2-Dichloroethene	20.0	18.2		ug/L		91	76 - 128
cis-1,3-Dichloropropene	20.0	18.6		ug/L		93	64 - 132
Cyclohexane	20.0	18.7		ug/L		94	58 - 145
Dibromochloromethane	20.0	18.4		ug/L		92	70 - 132
Dichlorodifluoromethane	20.0	11.7		ug/L		59	29 - 148
Diethyl ether	20.0	18.1		ug/L		91	70 - 146
Ethylbenzene	20.0	18.4		ug/L		92	80 - 120
Isopropylbenzene	20.0	17.9		ug/L		90	74 - 120
Methyl acetate	40.0	29.0		ug/L		73	52 - 145
Methyl tert-butyl ether	20.0	16.3		ug/L		81	51 - 133
Methylcyclohexane	20.0	18.1		ug/L		91	60 - 125
Methylene Chloride	20.0	17.6		ug/L		88	70 - 134
Styrene	20.0	18.7		ug/L		93	79 - 120
Tetrachloroethene	20.0	18.2		ug/L		91	74 - 130
Toluene	20.0	18.7		ug/L		94	78 - 129
trans-1,2-Dichloroethene	20.0	18.8		ug/L		94	78 - 133
trans-1,3-Dichloropropene	20.0	17.8		ug/L		89	55 - 128
Trichloroethene	20.0	17.5		ug/L		88	76 - 125
Trichlorofluoromethane	20.0	15.2		ug/L		76	51 - 164
Vinyl chloride	20.0	16.2		ug/L		81	58 - 143
Xylenes, Total	40.0	36.3		ug/L		91	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		59 - 120
Dibromofluoromethane (Surr)	88		75 - 128
1,2-Dichloroethane-d4 (Surr)	85		70 - 121
Toluene-d8 (Surr)	99		70 - 123

**Lab Sample ID: 240-119639-A-9 MS**  
**Matrix: Water**  
**Analysis Batch: 404863**

**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
1,1,1-Trichloroethane	130	J	5000	4170		ug/L		81	51 - 138
1,1,1,2-Tetrachloroethane	250	U	5000	4350		ug/L		87	60 - 137
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	5000	4210		ug/L		84	31 - 156
1,1,2-Trichloroethane	250	U	5000	4310		ug/L		86	76 - 132
1,1-Dichloroethane	290		5000	4520		ug/L		85	63 - 136
1,1-Dichloroethene	3300		5000	7770		ug/L		89	53 - 140
1,2,4-Trichlorobenzene	250	U	5000	3790		ug/L		76	30 - 126
1,2-Dibromo-3-Chloropropane	250	U	5000	3460		ug/L		69	38 - 124
1,2-Dibromoethane	250	U	5000	4170		ug/L		83	71 - 123
1,2-Dichlorobenzene	250	U	5000	4150		ug/L		83	64 - 120
1,2-Dichloroethane	250	U	5000	3960		ug/L		79	65 - 135
1,2-Dichloropropane	250	U	5000	4380		ug/L		88	70 - 132
1,3-Dichlorobenzene	250	U	5000	4240		ug/L		85	62 - 120
1,4-Dichlorobenzene	250	U	5000	4210		ug/L		84	63 - 120

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-119762-1

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

**Lab Sample ID: 240-119639-A-9 MS**

**Matrix: Water**

**Analysis Batch: 404863**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
2-Butanone (MEK)	2500	U	10000	6860		ug/L		69	37 - 156	
2-Hexanone	2500	U	10000	6250		ug/L		62	42 - 150	
4-Methyl-2-pentanone (MIBK)	2500	U	10000	6100		ug/L		61	44 - 143	
Acetone	2500	U	10000	6740		ug/L		67	10 - 168	
Benzene	250	U	5000	4350		ug/L		87	71 - 122	
Bromodichloromethane	250	U	5000	4220		ug/L		84	64 - 125	
Bromoform	250	U	5000	3540		ug/L		71	44 - 129	
Bromomethane	250	U	5000	6000		ug/L		120	19 - 187	
Carbon disulfide	1300	U	5000	4730		ug/L		95	43 - 144	
Carbon tetrachloride	250	U	5000	3900		ug/L		78	41 - 143	
Chlorobenzene	250	U	5000	4390		ug/L		88	70 - 123	
Chloroethane	250	U	5000	4050		ug/L		81	11 - 189	
Chloroform	250	U	5000	4270		ug/L		85	68 - 130	
Chloromethane	250	U	5000	3500		ug/L		70	31 - 154	
cis-1,2-Dichloroethene	3000		5000	7230		ug/L		86	64 - 130	
cis-1,3-Dichloropropene	250	U	5000	4350		ug/L		87	48 - 127	
Cyclohexane	250	U	5000	4470		ug/L		89	42 - 135	
Dibromochloromethane	250	U	5000	4300		ug/L		86	60 - 129	
Dichlorodifluoromethane	250	U	5000	2870		ug/L		57	28 - 136	
Ethylbenzene	250	U	5000	4410		ug/L		88	66 - 120	
Isopropylbenzene	250	U	5000	4310		ug/L		86	59 - 120	
Methyl acetate	2500	U	10000	6570		ug/L		66	41 - 142	
Methyl tert-butyl ether	250	U	5000	3820		ug/L		76	41 - 136	
Methylcyclohexane	250	U	5000	4290		ug/L		86	37 - 123	
Methylene Chloride	1300	U	5000	4300		ug/L		86	61 - 130	
Styrene	250	U	5000	4480		ug/L		90	68 - 120	
Tetrachloroethene	7400		5000	11900		ug/L		90	51 - 136	
Toluene	250	U	5000	4570		ug/L		91	62 - 132	
trans-1,2-Dichloroethene	250	U	5000	4570		ug/L		91	68 - 133	
trans-1,3-Dichloropropene	250	U	5000	4110		ug/L		82	40 - 125	
Trichloroethene	1700		5000	6000		ug/L		85	55 - 131	
Trichlorofluoromethane	250	U	5000	3830		ug/L		77	37 - 174	
Vinyl chloride	170	J	5000	4240		ug/L		81	43 - 154	
Xylenes, Total	500	U	10000	8850		ug/L		89	67 - 120	

  

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		59 - 120
Dibromofluoromethane (Surr)	89		75 - 128
1,2-Dichloroethane-d4 (Surr)	86		70 - 121
Toluene-d8 (Surr)	98		70 - 123

**Lab Sample ID: 240-119639-A-9 MSD**

**Matrix: Water**

**Analysis Batch: 404863**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
1,1,1-Trichloroethane	130	J	5000	4460		ug/L		87	51 - 138	7	27	
1,1,2,2-Tetrachloroethane	250	U	5000	4810		ug/L		96	60 - 137	10	31	

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-119762-1

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

**Lab Sample ID: 240-119639-A-9 MSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 404863**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloro-1,2,2-trifluoroethane	250	U	5000	4710		ug/L		94	31 - 156	11	35
1,1,2-Trichloroethane	250	U	5000	4650		ug/L		93	76 - 132	8	25
1,1-Dichloroethane	290		5000	4850		ug/L		91	63 - 136	7	23
1,1-Dichloroethene	3300		5000	7950		ug/L		93	53 - 140	2	35
1,2,4-Trichlorobenzene	250	U	5000	4210		ug/L		84	30 - 126	11	35
1,2-Dibromo-3-Chloropropane	250	U	5000	4040		ug/L		81	38 - 124	15	35
1,2-Dibromoethane	250	U	5000	4570		ug/L		91	71 - 123	9	27
1,2-Dichlorobenzene	250	U	5000	4600		ug/L		92	64 - 120	10	30
1,2-Dichloroethane	250	U	5000	4170		ug/L		83	65 - 135	5	24
1,2-Dichloropropane	250	U	5000	4680		ug/L		94	70 - 132	7	26
1,3-Dichlorobenzene	250	U	5000	4530		ug/L		91	62 - 120	6	31
1,4-Dichlorobenzene	250	U	5000	4580		ug/L		92	63 - 120	8	28
2-Butanone (MEK)	2500	U	10000	7850		ug/L		79	37 - 156	13	35
2-Hexanone	2500	U	10000	7430		ug/L		74	42 - 150	17	35
4-Methyl-2-pentanone (MIBK)	2500	U	10000	7000		ug/L		70	44 - 143	14	35
Acetone	2500	U	10000	7820		ug/L		78	10 - 168	15	35
Benzene	250	U	5000	4550		ug/L		91	71 - 122	4	22
Bromodichloromethane	250	U	5000	4380		ug/L		88	64 - 125	4	27
Bromoform	250	U	5000	3940		ug/L		79	44 - 129	11	28
Bromomethane	250	U	5000	6560		ug/L		131	19 - 187	9	35
Carbon disulfide	1300	U	5000	4890		ug/L		98	43 - 144	3	33
Carbon tetrachloride	250	U	5000	4190		ug/L		84	41 - 143	7	30
Chlorobenzene	250	U	5000	4660		ug/L		93	70 - 123	6	23
Chloroethane	250	U	5000	4030		ug/L		81	11 - 189	0	35
Chloroform	250	U	5000	4430		ug/L		89	68 - 130	4	23
Chloromethane	250	U	5000	3550		ug/L		71	31 - 154	1	35
cis-1,2-Dichloroethene	3000		5000	7460		ug/L		90	64 - 130	3	21
cis-1,3-Dichloropropene	250	U	5000	4640		ug/L		93	48 - 127	6	30
Cyclohexane	250	U	5000	4790		ug/L		96	42 - 135	7	35
Dibromochloromethane	250	U	5000	4710		ug/L		94	60 - 129	9	26
Dichlorodifluoromethane	250	U	5000	2960		ug/L		59	28 - 136	3	35
Ethylbenzene	250	U	5000	4670		ug/L		93	66 - 120	6	24
Isopropylbenzene	250	U	5000	4640		ug/L		93	59 - 120	7	31
Methyl acetate	2500	U	10000	7360		ug/L		74	41 - 142	11	35
Methyl tert-butyl ether	250	U	5000	4160		ug/L		83	41 - 136	9	29
Methylcyclohexane	250	U	5000	4740		ug/L		95	37 - 123	10	35
Methylene Chloride	1300	U	5000	4430		ug/L		89	61 - 130	3	29
Styrene	250	U	5000	4810		ug/L		96	68 - 120	7	26
Tetrachloroethene	7400		5000	12500		ug/L		103	51 - 136	6	23
Toluene	250	U	5000	4860		ug/L		97	62 - 132	6	23
trans-1,2-Dichloroethene	250	U	5000	4720		ug/L		94	68 - 133	3	24
trans-1,3-Dichloropropene	250	U	5000	4490		ug/L		90	40 - 125	9	27
Trichloroethene	1700		5000	6200		ug/L		89	55 - 131	3	23
Trichlorofluoromethane	250	U	5000	3880		ug/L		78	37 - 174	1	35
Vinyl chloride	170	J	5000	4230		ug/L		81	43 - 154	0	29
Xylenes, Total	500	U	10000	9420		ug/L		94	67 - 120	6	25

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-119762-1

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

**Lab Sample ID: 240-119639-A-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 404863**

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		59 - 120
Dibromofluoromethane (Surr)	88		75 - 128
1,2-Dichloroethane-d4 (Surr)	84		70 - 121
Toluene-d8 (Surr)	100		70 - 123

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

**Lab Sample ID: MB 240-404131/5**  
**Matrix: Water**  
**Analysis Batch: 404131**

**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			10/04/19 13:00	1

  

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		63 - 125		10/04/19 13:00	1

**Lab Sample ID: LCS 240-404131/4**  
**Matrix: Water**  
**Analysis Batch: 404131**

**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	11.6		ug/L		116	59 - 131

  

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		63 - 125

**Lab Sample ID: 240-119751-L-7 MS**  
**Matrix: Water**  
**Analysis Batch: 404131**

**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	14		10.0	24.3		ug/L		106	52 - 129

  

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

**Lab Sample ID: 240-119751-L-7 MSD**  
**Matrix: Water**  
**Analysis Batch: 404131**

**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	14		10.0	26.5		ug/L		129	52 - 129	9	13

  

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

Eurofins TestAmerica, Canton

# QC Association Summary

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

Job ID: 240-119762-1

## GC/MS VOA

### Analysis Batch: 404131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119762-1	MW-20_092619	Total/NA	Water	8260B SIM	
MB 240-404131/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-404131/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-119751-L-7 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-119751-L-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 404863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-119762-1	MW-20_092619	Total/NA	Water	8260B	
240-119762-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-404863/9	Method Blank	Total/NA	Water	8260B	
LCS 240-404863/6	Lab Control Sample	Total/NA	Water	8260B	
240-119639-A-9 MS	Matrix Spike	Total/NA	Water	8260B	
240-119639-A-9 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	



# Lab Chronicle

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

Job ID: 240-119762-1

**Client Sample ID: MW-20\_092619**

**Lab Sample ID: 240-119762-1**

**Date Collected: 09/26/19 15:25**

**Matrix: Water**

**Date Received: 10/01/19 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404863	10/09/19 20:11	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	404131	10/04/19 15:54	SAM	TAL CAN

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-119762-2**

**Date Collected: 09/26/19 00:00**

**Matrix: Water**

**Date Received: 10/01/19 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	404863	10/09/19 20:36	HMB	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: 240-119762-1

## 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



2.7/3.4 17.2/4.46 2.4/3.1

**Chain of Custody Record**

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

<b>Client Contact</b> Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP Project Number: MI001454.0004.0001B PO # MI001454.0004.0001B		<b>Regulatory program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other	
<b>Client Project Manager: Kris Hinskey</b> Telephone: 248-994-2240 Email: kris@hinskey.com		<b>Lab Contact: Mike DelMonico</b> Telephone: 330-497-9396	
<b>Method of Shipment/Carrier:</b> Shipping/Tracking No:		<b>Analysis Turnaround Time</b> TAT if different from below 10 day <input type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <input type="checkbox"/>	
<b>Sample Identification</b> MW-20-092619 Top Blank		<b>Containers &amp; Preservatives</b> Matrix: Air <input type="checkbox"/> Sediment <input type="checkbox"/> Solid <input type="checkbox"/> Other: <input type="checkbox"/> H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> ZnAc <input type="checkbox"/> Upret <input type="checkbox"/> Other: <input type="checkbox"/>	
Sample Date: 9/28/19 1525 Sample Time:		<b>Filtered Sample (Y/N)</b> Composite / Grab-C: NGXX VOCs 8260B: <input type="checkbox"/> 1,4-Dioxane 82608 SIM: <input type="checkbox"/>	
Barcode: 240-119762 Chain of Custody		<b>Analyses</b> COCs: <input type="checkbox"/> For lab use only: <input type="checkbox"/> Walk-in client: <input type="checkbox"/> Lab sampling: <input type="checkbox"/> Job/SDG No: <input type="checkbox"/> Sample Specific Notes / Special Instructions: 6 bottles	
<b>Possible Hazard Identification</b> <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown			
<b>Special Instructions/OC Requirements &amp; Comments:</b> Submit all results through Cadena at jim.tomalia@cadenana.com. Cadena #E203728 Level IV Reporting.			
Relinquished by: <i>Senia Chan</i> Relinquished by: <i>Julia McCall</i> Relinquished by: <i>John Dawson</i> Relinquished by: <i>John Dawson</i>		Received by: <i>Julia McCall</i> Received by: <i>Novi Coldstange</i> Received in Laboratory by: <i>John Dawson</i> Company: Arcadis Company: Arcadis Company: ETAL-MI Company: ETAC	
Date/Time: 9/28/19 1500 Date/Time: 9/28/19 1630 Date/Time: 09/29/19 1050		Date/Time: 9/28/19 1500 Date/Time: 9/28/19 1630 Date/Time: 9/30/19 1420	

**Eurofins TestAmerica Canton Sample Receipt Form/Narrative** Login # : 119762

**Canton Facility**

Client Arcadis Site Name \_\_\_\_\_ Cooler unpacked by: MJA

Cooler Received on 10-01-19 Opened on 10-01-19

FedEx: 1<sup>st</sup>  Grd  Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other \_\_\_\_\_

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

TestAmerica Cooler # TA 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. 1.7 °C Corrected Cooler Temp. 2.4 °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 4 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 # NA Yes  No   
 16. Was a LL Hg or Me Hg trip blank present? Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

**Tests that are not checked for pH by Receiving:**

VOAs  
Oil and Grease  
TOC

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**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: \_\_\_\_\_