

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-125921-1  
Client Project/Site: Ford LTP Off Site

For:  
ARCADIS U.S., Inc.  
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Novi, Michigan 48377

Attn: Kristoffer Hinskey



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Authorized for release by:  
2/12/2020 3:10:16 PM

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



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# Definitions/Glossary

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

Job ID: 240-125921-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
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 Off Site

Job ID: 240-125921-1

**Job ID: 240-125921-1**

**Laboratory: Eurofins TestAmerica, Canton**

**Narrative**

## CASE NARRATIVE

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

**Project: Ford LTP Off Site**

**Report Number: 240-125921-1**

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 2/7/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

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

Samples MW-207S\_020520 (240-125921-1) and TRIP BLANK (240-125921-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/11/2020.

No MS/MSD in batch 422314 due to an incorrect dilution: TRIP BLANK (240-125921-2).

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

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

Sample MW-207S\_020520 (240-125921-1) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 02/10/2020.

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 Off Site

Job ID: 240-125921-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

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



# Sample Summary

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

Job ID: 240-125921-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-125921-1	MW-207S_020520	Water	02/05/20 12:20	02/07/20 09:00	
240-125921-2	TRIP BLANK	Water	02/05/20 00:00	02/07/20 09:00	

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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 Off Site

Job ID: 240-125921-1

**Client Sample ID: MW-207S\_020520**

**Lab Sample ID: 240-125921-1**

No Detections.

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-125921-2**

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 Off Site

Job ID: 240-125921-1

**Client Sample ID: MW-207S\_020520**

**Lab Sample ID: 240-125921-1**

Date Collected: 02/05/20 12:20

Matrix: Water

Date Received: 02/07/20 09:00

**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			02/10/20 21:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/10/20 21:55	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			02/11/20 12:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/11/20 12:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/11/20 12:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/11/20 12:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/11/20 12:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/11/20 12:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		02/11/20 12:53	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/11/20 12:53	1
Toluene-d8 (Surr)	78		69 - 122		02/11/20 12:53	1
Dibromofluoromethane (Surr)	82		78 - 129		02/11/20 12:53	1



# Client Sample Results

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

Job ID: 240-125921-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-125921-2**

**Date Collected: 02/05/20 00:00**

**Matrix: Water**

**Date Received: 02/07/20 09:00**

**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			02/11/20 20:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/11/20 20:20	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/11/20 20:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/11/20 20:20	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/11/20 20:20	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/11/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 130		02/11/20 20:20	1
4-Bromofluorobenzene (Surr)	103		47 - 134		02/11/20 20:20	1
Toluene-d8 (Surr)	94		69 - 122		02/11/20 20:20	1
Dibromofluoromethane (Surr)	96		78 - 129		02/11/20 20:20	1

# Surrogate Summary

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

Job ID: 240-125921-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-125887-A-1 MS	Matrix Spike	90	82	86	93
240-125887-A-1 MSD	Matrix Spike Duplicate	73 X	66	72	76 X
240-125921-1	MW-207S_020520	88	68	78	82
240-125921-2	TRIP BLANK	106	103	94	96
LCS 240-422314/4	Lab Control Sample	105	99	91	99
LCS 240-422316/4	Lab Control Sample	86	75	83	90
MB 240-422314/6	Method Blank	106	97	91	102
MB 240-422316/7	Method Blank	94	71	85	90

### Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-125897-G-3 MS	Matrix Spike	99
240-125897-G-3 MSD	Matrix Spike Duplicate	101
240-125921-1	MW-207S_020520	102
LCS 240-422139/4	Lab Control Sample	96
MB 240-422139/5	Method Blank	98

### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-125921-1

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

**Lab Sample ID: MB 240-422314/6**  
**Matrix: Water**  
**Analysis Batch: 422314**

**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			02/11/20 12:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/11/20 12:32	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/11/20 12:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/11/20 12:32	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/11/20 12:32	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/11/20 12:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 130		02/11/20 12:32	1
4-Bromofluorobenzene (Surr)	97		47 - 134		02/11/20 12:32	1
Toluene-d8 (Surr)	91		69 - 122		02/11/20 12:32	1
Dibromofluoromethane (Surr)	102		78 - 129		02/11/20 12:32	1

**Lab Sample ID: LCS 240-422314/4**  
**Matrix: Water**  
**Analysis Batch: 422314**

**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	10.0		ug/L		100	73 - 129
cis-1,2-Dichloroethene	10.0	9.90		ug/L		99	75 - 124
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 125
trans-1,2-Dichloroethene	10.0	9.62		ug/L		96	74 - 130
Trichloroethene	10.0	8.91		ug/L		89	71 - 121
Vinyl chloride	10.0	7.01		ug/L		70	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		75 - 130
4-Bromofluorobenzene (Surr)	99		47 - 134
Toluene-d8 (Surr)	91		69 - 122
Dibromofluoromethane (Surr)	99		78 - 129

**Lab Sample ID: MB 240-422316/7**  
**Matrix: Water**  
**Analysis Batch: 422316**

**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			02/11/20 12:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/11/20 12:31	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/11/20 12:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/11/20 12:31	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/11/20 12:31	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/11/20 12:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130		02/11/20 12:31	1
4-Bromofluorobenzene (Surr)	71		47 - 134		02/11/20 12:31	1
Toluene-d8 (Surr)	85		69 - 122		02/11/20 12:31	1

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-125921-1

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

**Lab Sample ID: MB 240-422316/7**  
**Matrix: Water**  
**Analysis Batch: 422316**

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	90		78 - 129		02/11/20 12:31	1

**Lab Sample ID: LCS 240-422316/4**  
**Matrix: Water**  
**Analysis Batch: 422316**

**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	10.5		ug/L		105	73 - 129	
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	75 - 124	
Tetrachloroethene	10.0	10.4		ug/L		104	70 - 125	
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	74 - 130	
Trichloroethene	10.0	10.7		ug/L		107	71 - 121	
Vinyl chloride	10.0	7.70		ug/L		77	61 - 134	

  

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	86		75 - 130
4-Bromofluorobenzene (Surr)	75		47 - 134
Toluene-d8 (Surr)	83		69 - 122
Dibromofluoromethane (Surr)	90		78 - 129

**Lab Sample ID: 240-125887-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 422316**

**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	
cis-1,2-Dichloroethene	110		50.0	151		ug/L		81	68 - 121	
Tetrachloroethene	5.0	U	50.0	43.2		ug/L		86	52 - 129	
trans-1,2-Dichloroethene	1.3	J	50.0	45.2		ug/L		88	69 - 126	
Trichloroethene	25		50.0	70.7		ug/L		92	56 - 124	
Vinyl chloride	13		50.0	58.3		ug/L		90	49 - 136	

  

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	90		75 - 130
4-Bromofluorobenzene (Surr)	82		47 - 134
Toluene-d8 (Surr)	86		69 - 122
Dibromofluoromethane (Surr)	93		78 - 129

**Lab Sample ID: 240-125887-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 422316**

**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
cis-1,2-Dichloroethene	110		50.0	148		ug/L		75	68 - 121	2	35	
Tetrachloroethene	5.0	U	50.0	46.5		ug/L		93	52 - 129	7	35	
trans-1,2-Dichloroethene	1.3	J	50.0	45.5		ug/L		89	69 - 126	1	35	
Trichloroethene	25		50.0	70.6		ug/L		92	56 - 124	0	35	
Vinyl chloride	13		50.0	52.2		ug/L		78	49 - 136	11	35	

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-125921-1

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

**Lab Sample ID: 240-125887-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 422316**

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	73	X	75 - 130
4-Bromofluorobenzene (Surr)	66		47 - 134
Toluene-d8 (Surr)	72		69 - 122
Dibromofluoromethane (Surr)	76	X	78 - 129

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

**Lab Sample ID: MB 240-422139/5**  
**Matrix: Water**  
**Analysis Batch: 422139**

**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			02/10/20 12:33	1

  

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 133		02/10/20 12:33	1

**Lab Sample ID: LCS 240-422139/4**  
**Matrix: Water**  
**Analysis Batch: 422139**

**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	9.74		ug/L		97	80 - 135

  

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		70 - 133

**Lab Sample ID: 240-125897-G-3 MS**  
**Matrix: Water**  
**Analysis Batch: 422139**

**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	2.0	U	10.0	10.3		ug/L		103	46 - 170

  

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		70 - 133

**Lab Sample ID: 240-125897-G-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 422139**

**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	10.2		ug/L		102	46 - 170	0	26

  

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 133

Eurofins TestAmerica, Canton

# QC Association Summary

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

Job ID: 240-125921-1

## GC/MS VOA

### Analysis Batch: 422139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125921-1	MW-207S_020520	Total/NA	Water	8260B SIM	
MB 240-422139/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-422139/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-125897-G-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-125897-G-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 422314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125921-2	TRIP BLANK	Total/NA	Water	8260B	
MB 240-422314/6	Method Blank	Total/NA	Water	8260B	
LCS 240-422314/4	Lab Control Sample	Total/NA	Water	8260B	

### Analysis Batch: 422316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-125921-1	MW-207S_020520	Total/NA	Water	8260B	
MB 240-422316/7	Method Blank	Total/NA	Water	8260B	
LCS 240-422316/4	Lab Control Sample	Total/NA	Water	8260B	
240-125887-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-125887-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-125921-1

**Client Sample ID: MW-207S\_020520**

**Lab Sample ID: 240-125921-1**

**Date Collected: 02/05/20 12:20**

**Matrix: Water**

**Date Received: 02/07/20 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422316	02/11/20 12:53	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	422139	02/10/20 21:55	SAM	TAL CAN

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-125921-2**

**Date Collected: 02/05/20 00:00**

**Matrix: Water**

**Date Received: 02/07/20 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	422314	02/11/20 20:20	LEE	TAL CAN

**Laboratory References:**

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

# Accreditation/Certification Summary

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

Job ID: 240-125921-1

## 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	06-01-21
Kansas	NELAP	E-10336	04-30-20
Kentucky (UST)	State	112225	02-23-20 *
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-20
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	01-12-21
West Virginia DEP	State	210	12-31-20

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





1.0/1-7

Regulatory Program:  DW  NPDES  RCRA  Other:

**Client Contact**  
ARCADIS of Michigan  
28550 Cabot Drive Suite 500  
Novi, Michigan 48377  
(248)-994-2240 Phone  
(248)-994-2241 FAX  
Project Name: Ford LTP Off-Site  
Site: Ford LTP  
P O # 30042006 0402.02

**Client Project Manager: Kris Hinskey**  
Tel/Fax: 248-994-2240

**Site Contact: Julia McClafferty**  
**Lab Contact: Mike DeMonico**

**Analysis Turnaround Time**  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below: 3 Day  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:																		
						Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Vinyl Chloride 8260B	TCE 8260B	cis-1,2-DCE 8260B	trans-1,2-DCE 8260B	1,1-DCE 8260B	PCE 8260B	1,4-Dioxane 8260B SIM	COC No.	Sampler Name	For Lab Use Only: Walk-in Client: Lab Sampling:	Job / SDG No.:						
TRIP BLANK	2-5-2010	1:00	G	W	1																			
MW-2075-020570	2-5-2010	1:20	G	W	6																			
TRIP BLANK			C	W	1																			



**Preservation Used:** 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other

**Possible Hazard Identification:** Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Return to Client  Disposal by Lab  Archive for Months

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**

Custody Seal No.:	Company:	Date/Time:	Received by:	Company:	Date/Time:	Received by:	Company:	Cooler Temp. (°C):	Obs'd:	Corr'd:	Company:	Date/Time:	Received by:	Company:	Date/Time:	Received by:	Company:
	ARCADIS	2-5-2010 1:00	ARCADIS	Novi Cold Storage	2-5-2010 1:00	Novi Cold Storage	Novi Cold Storage				ARCADIS	2-5-2010 1:00	Novi Cold Storage	ARCADIS	2-5-2010 1:00	Novi Cold Storage	ARCADIS
	ARCADIS	2-5-2010 1:20	ARCADIS	Novi Cold Storage	2-5-2010 1:20	Novi Cold Storage	Novi Cold Storage				ARCADIS	2-5-2010 1:20	Novi Cold Storage	ARCADIS	2-5-2010 1:20	Novi Cold Storage	ARCADIS
	ARCADIS	2-5-2010 1:40	ARCADIS	Novi Cold Storage	2-5-2010 1:40	Novi Cold Storage	Novi Cold Storage				ARCADIS	2-5-2010 1:40	Novi Cold Storage	ARCADIS	2-5-2010 1:40	Novi Cold Storage	ARCADIS



<b>Eurofins TestAmerica Canton Sample Receipt Form/Narrative</b>		Login # : <u>125921</u>
<b>Canton Facility</b>		
Client <u>Arcadis</u>	Site Name _____	Cooler unpacked by: <u>Adam Jensen</u>
Cooler Received on <u>2-7-20</u>	Opened on <u>2-7-20</u>	
FedEx: 1 <sup>st</sup> <input checked="" type="checkbox"/> <u>Grd</u> Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____		
Receipt After-hours: Drop-off Date/Time _____		Storage Location _____
TestAmerica Cooler # <u>7A</u>	Foam Box _____	Client Cooler Box Other _____
Packing material used: <u>Bubble Wrap</u> Foam <u>Plastic Bag</u> None Other _____		
COOLANT: <u>Wet Ice</u> Blue Ice Dry Ice Water None		
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form		
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. <u>1.0</u> °C Corrected Cooler Temp. <u>1.7</u> °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 <u>1</u>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
-Were the seals on the outside of the cooler(s) signed & dated?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
-Were tamper/custody seals intact and uncompromised?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No NA
3. Shippers' packing slip attached to the cooler(s)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. Did custody papers accompany the sample(s)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Were the custody papers relinquished & signed in the appropriate place?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Was/were the person(s) who collected the samples clearly identified on the COC?		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7. Did all bottles arrive in good condition (Unbroken)?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
8. Could all bottle labels be reconciled with the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9. Were correct bottle(s) used for the test(s) indicated?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
10. Sufficient quantity received to perform indicated analyses?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
11. Are these work share samples?		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA pH Strip Lot# <u>HC995364</u>
13. Were VOAs on the COC?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
14. Were air bubbles >6 mm in any VOA vials?  Larger than this. <u>ABC</u>		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>517701E</u>		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes
16. Was a LL Hg or Me Hg trip blank present?		<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

<b>17. CHAIN OF CUSTODY &amp; SAMPLE DISCREPANCIES</b>	Samples processed by: <u>AG</u>
<p><u>Did not receive TB for this job,</u> <u>Found this trip blank in the ICE.</u></p>	
<b>18. SAMPLE CONDITION</b>	
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)	
<b>19. SAMPLE PRESERVATION</b>	
Sample(s) _____ were further preserved in the laboratory.	
Time preserved: _____ Preservative(s) added/Lot number(s): _____	
VOA Sample Preservation - Date/Time VOAs Frozen: _____	



# DATA VERIFICATION REPORT



February 12, 2020

Kris Hinskey  
Arcadis Inc  
10559 Citation Ave  
Suite 100  
Brighton, MI 48116

CADENA project ID: E203631  
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater  
Project number: 30042006.0402.02  
Event Specific Scope of Work References: Sample COC  
Laboratory: TestAmerica - North Canton  
Laboratory submittal: 125921-1  
Sample date: 2020-02-05  
Report received by CADENA: 2020-02-12  
Initial Data Verification completed by CADENA: 2020-02-12  
Number of Samples:2  
Sample Matrices:Water  
Test Categories:GCMS VOC

**Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.**

The following minor QC exceptions or missing information were noted:

GCMS VOC QC batch MS/MSD issues as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

GCMS VOC non-client MS/MSD surrogate outliers did not result in qualification of data.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <http://clms.cadenaco.com/index.cfm>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

## CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminants) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

## SAMPLING AND ANALYSIS SUMMARY

**CADENA Project ID:** E203631

**Laboratory:** TestAmerica-North Canton

**Laboratory Submittal:** 125921-1

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	Volatile Organics by GCMS	8260B with Single Ion Monitoring	Comment
2401259211	MW-207S_020520	2/5/2020	12:20:00	X	X	
2401259212	TRIP BLANK	2/5/2020	12:00:00	X		

# Analytical Results Summary

## Reportable Results Only

CADENA Project ID: E203631

Laboratory: TestAmerica - North Canton

Laboratory Submittal: 125921-1

Sample Name: MW-207S\_020520                      TRIP BLANK  
Lab Sample ID: 2401259211                      2401259212  
Sample Date: 2/5/2020                              2/5/2020

Analyte	Cas No.	Report		Valid		Report		Valid		
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	
<b>GC/MS VOC</b>										
<u>OSW-8260B</u>										
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	
<u>OSW-8260BBSim</u>										
1,4-Dioxane	123-91-1	ND	2.0	ug/l	---					

# Ford Motor Company – Livonia Transmission Project

## DATA REVIEW

### Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-125921-1

CADENA Verification Report: 2020-02-12

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #35840R

Review Level: Tier III

Project: 30042006.0402.02



## DATA REVIEW

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-125921-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis		
						VOC (Full Scan)	VOC (SIM)	MISC
240-125921-1	MW-207S_020520	240-125921-1	Water	2/5/2020		X	X	
	TRIP BLANK	240-125921-2	Water	2/5/2020		X		

## DATA REVIEW

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

## DATA REVIEW

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
  - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
  - J+ The result is an estimated quantity, but the result may be biased high.
  - J- The result is an estimated quantity, but the result may be biased low.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

## DATA REVIEW

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

#### 2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

#### 3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

##### 3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

##### 3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

#### 4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

## DATA REVIEW

### 5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not performed on a sample within this SDG.

### 6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW**

**DATA VALIDATION CHECKLIST FOR VOCs**

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)</b>					
<b>Tier II Validation</b>					
Holding times/Preservation		X		X	
<b>Tier III Validation</b>					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: February 17, 2020

PEER REVIEW: Dennis Capria

DATE: March 6, 2020



**CHAIN OF CUSTODY  
CORRECTED SAMPLE ANALYSIS DATA  
SHEETS**





**NO CORRECTIONS/QUALIFIERS ADDED  
TO SAMPLE ANALYSIS DATA SHEETS**



TestAmerica Michigan  
10448 Citation Drive  
Suite 200  
Brighton, MI 48116-6561  
phone 810.229.2763 fax

MICHIGAN  
190

Chain of Custody Record

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

1.0/1-7

TestAmerica Laboratories, Inc.

Regulatory Program:  DW  NPDES  RCRA  Other:

Client Contact  
ARCADIS of Michigan  
28550 Cabot Drive Suite 500  
Novi, Michigan 48377  
(248)-994-2240 Phone  
(248)-994-2241 FAX  
Project Name: Ford LTP Off-Site  
Site: Ford LTP  
P O # 30042006 0402.02

Client Project Manager: Kris Hinskey  
Tel/Fax: 248-994-2240

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below: 3 Day  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Vinyl Chloride 8260B	cis-1,2-DCE 8260B	trans-1,2-DCE 8260B	1,1-DCE 8260B	PCE 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes:
TRIP BLANK	2-5-2010	1800	G	W	1	N	N	X	X	X	X	X	X	
Mw-2075-020570	2-5-2010	1800	G	W	6	N	N	X	X	X	X	X	X	
TRIP BLANK			C	W	1	N	N	X	X	X	X	X	X	3L 105-2c



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification: Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:  
Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631  
Level IV Reporting requested

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for Months

Custody Seal No.:	Company:	Date/Time:	Received by:	Company:	Corr'd:	Cooler Temp. (°C):	Obs'd:	Therm ID No.:
	ARCADIS	2-5-2010 1800	DAVE IN	Novi Cold Storage				
	ARCADIS	2-5-2010 1800	TRIP BLANK and blank	ETAH-MI				
	ARCADIS	2-7-20 0900	Molly Holsen	ETAH-MI				

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# Client Sample Results

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

Job ID: 240-125921-1

**Client Sample ID: MW-207S\_020520**

**Lab Sample ID: 240-125921-1**

Date Collected: 02/05/20 12:20

Matrix: Water

Date Received: 02/07/20 09:00

**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	-		02/10/20 21:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 133		02/10/20 21:55	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	-		02/11/20 12:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L	-		02/11/20 12:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L	-		02/11/20 12:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L	-		02/11/20 12:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L	-		02/11/20 12:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L	-		02/11/20 12:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		02/11/20 12:53	1
4-Bromofluorobenzene (Surr)	68		47 - 134		02/11/20 12:53	1
Toluene-d8 (Surr)	78		69 - 122		02/11/20 12:53	1
Dibromofluoromethane (Surr)	82		78 - 129		02/11/20 12:53	1

# Client Sample Results

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

Job ID: 240-125921-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-125921-2**

**Date Collected: 02/05/20 00:00**

**Matrix: Water**

**Date Received: 02/07/20 09:00**

**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			02/11/20 20:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/11/20 20:20	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/11/20 20:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/11/20 20:20	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/11/20 20:20	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/11/20 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 130		02/11/20 20:20	1
4-Bromofluorobenzene (Surr)	103		47 - 134		02/11/20 20:20	1
Toluene-d8 (Surr)	94		69 - 122		02/11/20 20:20	1
Dibromofluoromethane (Surr)	96		78 - 129		02/11/20 20:20	1