

## ANALYTICAL REPORT

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

Laboratory Job ID: 240-135270-1  
Client Project/Site: Ford LTP On-Site

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

Attn: Kristoffer Hinskey

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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 On-Site

Job ID: 240-135270-1

## Qualifiers

### GC/MS VOA

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

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

# Case Narrative

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

Job ID: 240-135270-1

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## Job ID: 240-135270-1

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Laboratory: Eurofins TestAmerica, Canton

### Narrative

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#### Job Narrative 240-135270-1

### Comments

No additional comments.

### Receipt

The samples were received on 8/20/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

### GC/MS VOA

Method 8260B: Method 8260 stipulates a 12 hour sequence for the analysis of samples. Due to a power outage, the MS/MSD for sample(s) exceeded the 12 hour time limit. This was not client specific, therefore MS/MSD was reported for batch QC.

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

### VOA Prep

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

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# Method Summary

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

Job ID: 240-135270-1

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 On-Site

Job ID: 240-135270-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-135270-1	TRIP BLANK	Water	08/18/20 00:00	08/20/20 09:20	
240-135270-2	TW-16-03_081820	Water	08/18/20 10:05	08/20/20 09:20	
240-135270-3	TW-16-04_081820	Water	08/18/20 11:10	08/20/20 09:20	
240-135270-4	TW-16-02_081820	Water	08/18/20 12:40	08/20/20 09:20	
240-135270-5	TW-16-01_081820	Water	08/18/20 13:52	08/20/20 09:20	

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- 10
- 11
- 12
- 13
- 14

# Detection Summary

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

Job ID: 240-135270-1

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-135270-1

No Detections.

## Client Sample ID: TW-16-03\_081820

Lab Sample ID: 240-135270-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	32		5.0	1.9	ug/L	5		8260B	Total/NA
Vinyl chloride	84		5.0	2.5	ug/L	5		8260B	Total/NA

## Client Sample ID: TW-16-04\_081820

Lab Sample ID: 240-135270-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	14		2.5	0.96	ug/L	2.5		8260B	Total/NA
Vinyl chloride	20		2.5	1.2	ug/L	2.5		8260B	Total/NA

## Client Sample ID: TW-16-02\_081820

Lab Sample ID: 240-135270-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	720		330	130	ug/L	333.33		8260B	Total/NA
Vinyl chloride	3700		330	170	ug/L	333.33		8260B	Total/NA

## Client Sample ID: TW-16-01\_081820

Lab Sample ID: 240-135270-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	88		13	5.1	ug/L	13.33		8260B	Total/NA
Vinyl chloride	190		13	6.6	ug/L	13.33		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

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

Job ID: 240-135270-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 240-135270-1**

**Date Collected: 08/18/20 00:00**

**Matrix: Water**

**Date Received: 08/20/20 09:20**

**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	0.46	ug/L			08/28/20 23:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/28/20 23:20	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/28/20 23:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/28/20 23:20	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/28/20 23:20	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/28/20 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 130		08/28/20 23:20	1
4-Bromofluorobenzene (Surr)	99		47 - 134		08/28/20 23:20	1
Toluene-d8 (Surr)	90		69 - 122		08/28/20 23:20	1
Dibromofluoromethane (Surr)	87		78 - 129		08/28/20 23:20	1



# Client Sample Results

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

Job ID: 240-135270-1

**Client Sample ID: TW-16-03\_081820**

**Lab Sample ID: 240-135270-2**

Date Collected: 08/18/20 10:05

Matrix: Water

Date Received: 08/20/20 09:20

**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			08/27/20 10:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	86		70 - 133					08/27/20 10:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			08/28/20 23:44	5
<b>cis-1,2-Dichloroethene</b>	<b>32</b>		5.0	1.9	ug/L			08/28/20 23:44	5
Tetrachloroethene	5.0	U	5.0	1.6	ug/L			08/28/20 23:44	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			08/28/20 23:44	5
Trichloroethene	5.0	U	5.0	1.8	ug/L			08/28/20 23:44	5
<b>Vinyl chloride</b>	<b>84</b>		5.0	2.5	ug/L			08/28/20 23:44	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	92		75 - 130					08/28/20 23:44	5
4-Bromofluorobenzene (Surr)	98		47 - 134					08/28/20 23:44	5
Toluene-d8 (Surr)	91		69 - 122					08/28/20 23:44	5
Dibromofluoromethane (Surr)	86		78 - 129					08/28/20 23:44	5

# Client Sample Results

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

Job ID: 240-135270-1

**Client Sample ID: TW-16-04\_081820**

**Lab Sample ID: 240-135270-3**

Date Collected: 08/18/20 11:10

Matrix: Water

Date Received: 08/20/20 09:20

**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			08/27/20 10:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		70 - 133		08/27/20 10:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	2.5	U	2.5	1.2	ug/L			08/29/20 00:09	2.5
<b>cis-1,2-Dichloroethene</b>	<b>14</b>		2.5	0.96	ug/L			08/29/20 00:09	2.5
Tetrachloroethene	2.5	U	2.5	0.82	ug/L			08/29/20 00:09	2.5
trans-1,2-Dichloroethene	2.5	U	2.5	1.1	ug/L			08/29/20 00:09	2.5
Trichloroethene	2.5	U	2.5	0.90	ug/L			08/29/20 00:09	2.5
<b>Vinyl chloride</b>	<b>20</b>		2.5	1.2	ug/L			08/29/20 00:09	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		75 - 130		08/29/20 00:09	2.5
4-Bromofluorobenzene (Surr)	97		47 - 134		08/29/20 00:09	2.5
Toluene-d8 (Surr)	92		69 - 122		08/29/20 00:09	2.5
Dibromofluoromethane (Surr)	85		78 - 129		08/29/20 00:09	2.5

# Client Sample Results

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

Job ID: 240-135270-1

**Client Sample ID: TW-16-02\_081820**

**Lab Sample ID: 240-135270-4**

Date Collected: 08/18/20 12:40

Matrix: Water

Date Received: 08/20/20 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.2	J	2.0	0.86	ug/L			08/27/20 10:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		70 - 133					08/27/20 10:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	330	U	330	150	ug/L			08/31/20 15:31	333.33
cis-1,2-Dichloroethene	720		330	130	ug/L			08/31/20 15:31	333.33
Tetrachloroethene	330	U	330	110	ug/L			08/31/20 15:31	333.33
trans-1,2-Dichloroethene	330	U	330	140	ug/L			08/31/20 15:31	333.33
Trichloroethene	330	U	330	120	ug/L			08/31/20 15:31	333.33
Vinyl chloride	3700		330	170	ug/L			08/31/20 15:31	333.33
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		75 - 130					08/31/20 15:31	333.33
4-Bromofluorobenzene (Surr)	94		47 - 134					08/31/20 15:31	333.33
Toluene-d8 (Surr)	92		69 - 122					08/31/20 15:31	333.33
Dibromofluoromethane (Surr)	79		78 - 129					08/31/20 15:31	333.33

# Client Sample Results

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

Job ID: 240-135270-1

**Client Sample ID: TW-16-01\_081820**

**Lab Sample ID: 240-135270-5**

Date Collected: 08/18/20 13:52

Matrix: Water

Date Received: 08/20/20 09:20

**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			08/27/20 11:17	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	87		70 - 133					08/27/20 11:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	13	U	13	6.1	ug/L			08/31/20 15:56	13.33
<b>cis-1,2-Dichloroethene</b>	<b>88</b>		13	5.1	ug/L			08/31/20 15:56	13.33
Tetrachloroethene	13	U	13	4.4	ug/L			08/31/20 15:56	13.33
trans-1,2-Dichloroethene	13	U	13	5.8	ug/L			08/31/20 15:56	13.33
Trichloroethene	13	U	13	4.8	ug/L			08/31/20 15:56	13.33
<b>Vinyl chloride</b>	<b>190</b>		13	6.6	ug/L			08/31/20 15:56	13.33
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	87		75 - 130					08/31/20 15:56	13.33
4-Bromofluorobenzene (Surr)	96		47 - 134					08/31/20 15:56	13.33
Toluene-d8 (Surr)	91		69 - 122					08/31/20 15:56	13.33
Dibromofluoromethane (Surr)	81		78 - 129					08/31/20 15:56	13.33

# Surrogate Summary

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

Job ID: 240-135270-1

## 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)
240-135219-B-1 MS	Matrix Spike	98	98	91	89
240-135219-B-1 MSD	Matrix Spike Duplicate	93	101	90	90
240-135270-1	TRIP BLANK	94	99	90	87
240-135270-2	TW-16-03_081820	92	98	91	86
240-135270-3	TW-16-04_081820	90	97	92	85
240-135270-4	TW-16-02_081820	86	94	92	79
240-135270-5	TW-16-01_081820	87	96	91	81
240-135270-5 MS	TW-16-01_081820	89	98	88	83
240-135270-5 MSD	TW-16-01_081820	87	101	92	83
LCS 240-449199/4	Lab Control Sample	87	103	92	79
LCS 240-449402/4	Lab Control Sample	87	95	88	82
MB 240-449199/7	Method Blank	92	101	91	84
MB 240-449402/7	Method Blank	88	100	93	81

#### 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)
240-135204-B-3 MS	Matrix Spike	85
240-135204-B-3 MSD	Matrix Spike Duplicate	87
240-135270-2	TW-16-03_081820	86
240-135270-3	TW-16-04_081820	83
240-135270-4	TW-16-02_081820	84
240-135270-5	TW-16-01_081820	87
LCS 240-448902/4	Lab Control Sample	85
MB 240-448902/5	Method Blank	85

#### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-135270-1

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

**Lab Sample ID: MB 240-449199/7**  
**Matrix: Water**  
**Analysis Batch: 449199**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/28/20 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/28/20 14:41	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/28/20 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/28/20 14:41	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/28/20 14:41	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/28/20 14:41	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		08/28/20 14:41	1
4-Bromofluorobenzene (Surr)	101		47 - 134		08/28/20 14:41	1
Toluene-d8 (Surr)	91		69 - 122		08/28/20 14:41	1
Dibromofluoromethane (Surr)	84		78 - 129		08/28/20 14:41	1

**Lab Sample ID: LCS 240-449199/4**  
**Matrix: Water**  
**Analysis Batch: 449199**

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1-Dichloroethene	10.0	9.78		ug/L		98	73 - 129
cis-1,2-Dichloroethene	10.0	9.73		ug/L		97	75 - 124
Tetrachloroethene	10.0	10.3		ug/L		103	70 - 125
trans-1,2-Dichloroethene	10.0	8.96		ug/L		90	74 - 130
Trichloroethene	10.0	9.66		ug/L		97	71 - 121
Vinyl chloride	10.0	10.3		ug/L		103	61 - 134

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	87		75 - 130
4-Bromofluorobenzene (Surr)	103		47 - 134
Toluene-d8 (Surr)	92		69 - 122
Dibromofluoromethane (Surr)	79		78 - 129

**Lab Sample ID: 240-135219-B-1 MS**  
**Matrix: Water**  
**Analysis Batch: 449199**

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

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
cis-1,2-Dichloroethene	83	J	1000	1040		ug/L		96	68 - 121
Tetrachloroethene	100	U	1000	817		ug/L		82	52 - 129
trans-1,2-Dichloroethene	100	U	1000	878		ug/L		88	69 - 126
Trichloroethene	1100		1000	1950		ug/L		82	56 - 124
Vinyl chloride	100	U	1000	1100		ug/L		110	49 - 136

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	98		75 - 130
4-Bromofluorobenzene (Surr)	98		47 - 134
Toluene-d8 (Surr)	91		69 - 122
Dibromofluoromethane (Surr)	89		78 - 129

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-135270-1

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

**Lab Sample ID: 240-135219-B-1 MSD**

**Matrix: Water**  
**Analysis Batch: 449199**

**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	83	J	1000	1060		ug/L		98	68 - 121	2	35
Tetrachloroethene	100	U	1000	840		ug/L		84	52 - 129	3	35
trans-1,2-Dichloroethene	100	U	1000	940		ug/L		94	69 - 126	7	35
Trichloroethene	1100		1000	2000		ug/L		87	56 - 124	3	35
Vinyl chloride	100	U	1000	1150		ug/L		115	49 - 136	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	93		75 - 130
4-Bromofluorobenzene (Surr)	101		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	90		78 - 129

**Lab Sample ID: MB 240-449402/7**

**Matrix: Water**  
**Analysis Batch: 449402**

**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	0.46	ug/L			08/31/20 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/31/20 14:41	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/31/20 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/31/20 14:41	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/31/20 14:41	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/31/20 14:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		08/31/20 14:41	1
4-Bromofluorobenzene (Surr)	100		47 - 134		08/31/20 14:41	1
Toluene-d8 (Surr)	93		69 - 122		08/31/20 14:41	1
Dibromofluoromethane (Surr)	81		78 - 129		08/31/20 14:41	1

**Lab Sample ID: LCS 240-449402/4**

**Matrix: Water**  
**Analysis Batch: 449402**

**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	9.39		ug/L		94	73 - 129
cis-1,2-Dichloroethene	10.0	9.54		ug/L		95	75 - 124
Tetrachloroethene	10.0	9.89		ug/L		99	70 - 125
trans-1,2-Dichloroethene	10.0	9.33		ug/L		93	74 - 130
Trichloroethene	10.0	9.63		ug/L		96	71 - 121
Vinyl chloride	10.0	9.88		ug/L		99	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	88		69 - 122
Dibromofluoromethane (Surr)	82		78 - 129

Eurofins TestAmerica, Canton

# QC Sample Results

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

Job ID: 240-135270-1

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

**Lab Sample ID: 240-135270-5 MS**  
**Matrix: Water**  
**Analysis Batch: 449402**

**Client Sample ID: TW-16-01\_081820**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	13	U	133	129		ug/L		97	64 - 132
cis-1,2-Dichloroethene	88		133	216		ug/L		96	68 - 121
Tetrachloroethene	13	U	133	127		ug/L		95	52 - 129
trans-1,2-Dichloroethene	13	U	133	121		ug/L		91	69 - 126
Trichloroethene	13	U	133	130		ug/L		98	56 - 124
Vinyl chloride	190		133	312		ug/L		92	49 - 136
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	89		75 - 130						
4-Bromofluorobenzene (Surr)	98		47 - 134						
Toluene-d8 (Surr)	88		69 - 122						
Dibromofluoromethane (Surr)	83		78 - 129						

**Lab Sample ID: 240-135270-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 449402**

**Client Sample ID: TW-16-01\_081820**  
**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	13	U	133	127		ug/L		95	64 - 132	2	35
cis-1,2-Dichloroethene	88		133	216		ug/L		97	68 - 121	0	35
Tetrachloroethene	13	U	133	126		ug/L		95	52 - 129	1	35
trans-1,2-Dichloroethene	13	U	133	125		ug/L		94	69 - 126	3	35
Trichloroethene	13	U	133	125		ug/L		94	56 - 124	4	35
Vinyl chloride	190		133	307		ug/L		88	49 - 136	2	35
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	87		75 - 130								
4-Bromofluorobenzene (Surr)	101		47 - 134								
Toluene-d8 (Surr)	92		69 - 122								
Dibromofluoromethane (Surr)	83		78 - 129								

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

**Lab Sample ID: MB 240-448902/5**  
**Matrix: Water**  
**Analysis Batch: 448902**

**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			08/27/20 06:20	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	85		70 - 133						
							<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
								08/27/20 06:20	1



# QC Sample Results

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

Job ID: 240-135270-1

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

**Lab Sample ID: LCS 240-448902/4**  
**Matrix: Water**  
**Analysis Batch: 448902**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L		106	80 - 135
<b>Surrogate</b>							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	85		70 - 133				

**Lab Sample ID: 240-135204-B-3 MS**  
**Matrix: Water**  
**Analysis Batch: 448902**

**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	4.4		10.0	13.7		ug/L		94	46 - 170
<b>Surrogate</b>									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	85		70 - 133						

**Lab Sample ID: 240-135204-B-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 448902**

**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	4.4		10.0	12.9		ug/L		85	46 - 170	6	26
<b>Surrogate</b>											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	87		70 - 133								

# QC Association Summary

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

Job ID: 240-135270-1

## GC/MS VOA

### Analysis Batch: 448902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135270-2	TW-16-03_081820	Total/NA	Water	8260B SIM	
240-135270-3	TW-16-04_081820	Total/NA	Water	8260B SIM	
240-135270-4	TW-16-02_081820	Total/NA	Water	8260B SIM	
240-135270-5	TW-16-01_081820	Total/NA	Water	8260B SIM	
MB 240-448902/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-448902/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-135204-B-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-135204-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

### Analysis Batch: 449199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135270-1	TRIP BLANK	Total/NA	Water	8260B	
240-135270-2	TW-16-03_081820	Total/NA	Water	8260B	
240-135270-3	TW-16-04_081820	Total/NA	Water	8260B	
MB 240-449199/7	Method Blank	Total/NA	Water	8260B	
LCS 240-449199/4	Lab Control Sample	Total/NA	Water	8260B	
240-135219-B-1 MS	Matrix Spike	Total/NA	Water	8260B	
240-135219-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

### Analysis Batch: 449402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135270-4	TW-16-02_081820	Total/NA	Water	8260B	
240-135270-5	TW-16-01_081820	Total/NA	Water	8260B	
MB 240-449402/7	Method Blank	Total/NA	Water	8260B	
LCS 240-449402/4	Lab Control Sample	Total/NA	Water	8260B	
240-135270-5 MS	TW-16-01_081820	Total/NA	Water	8260B	
240-135270-5 MSD	TW-16-01_081820	Total/NA	Water	8260B	

# Lab Chronicle

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

Job ID: 240-135270-1

## Client Sample ID: TRIP BLANK

Lab Sample ID: 240-135270-1

Date Collected: 08/18/20 00:00

Matrix: Water

Date Received: 08/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	449199	08/28/20 23:20	LRW	TAL CAN

## Client Sample ID: TW-16-03\_081820

Lab Sample ID: 240-135270-2

Date Collected: 08/18/20 10:05

Matrix: Water

Date Received: 08/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	449199	08/28/20 23:44	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448902	08/27/20 10:03	TJL2	TAL CAN

## Client Sample ID: TW-16-04\_081820

Lab Sample ID: 240-135270-3

Date Collected: 08/18/20 11:10

Matrix: Water

Date Received: 08/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2.5	449199	08/29/20 00:09	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448902	08/27/20 10:28	TJL2	TAL CAN

## Client Sample ID: TW-16-02\_081820

Lab Sample ID: 240-135270-4

Date Collected: 08/18/20 12:40

Matrix: Water

Date Received: 08/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		333.33	449402	08/31/20 15:31	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448902	08/27/20 10:52	TJL2	TAL CAN

## Client Sample ID: TW-16-01\_081820

Lab Sample ID: 240-135270-5

Date Collected: 08/18/20 13:52

Matrix: Water

Date Received: 08/20/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		13.33	449402	08/31/20 15:56	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448902	08/27/20 11:17	TJL2	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 On-Site

Job ID: 240-135270-1

## 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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
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.



MICHIGAN  
190

Chain of Custody Record

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

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

Regulatory program:  DW  NPDES  RCRA  Other

Client Contact: Arcadis  
Address: 28550 Cabot Drive, Suite 500  
City/State/Zip: Novi, MI, 48377  
Phone: 248-994-2240  
Project Name: Ford LTP On-Site  
Project Number: 30050315.401.03  
PO # 30050315.401.03

Client Project Manager: Kris Hinskey  
Telephone: 248-994-2240  
Email: kristoffer.hinskey@arcadis.com  
Sampler Name: CHRISTINA WEAVER  
Method of Shipment/Carrier:  
Shipping/Tracking No:

Site Contact: Julia McClafferty  
Telephone: 734-644-5131  
Lab Contact: Mike DeMonico  
Telephone: 330-497-9396

Company Name: Arcadis  
Address: 28550 Cabot Drive, Suite 500  
City/State/Zip: Novi, MI, 48377  
Phone: 248-994-2240  
Project Name: Ford LTP On-Site  
Project Number: 30050315.401.03  
PO # 30050315.401.03

Sample Identification	Sample Date	Sample Time	Matrix						Containers & Preservatives						Filtered Sample (Y/N)	Composite=C/Grab-G	Analyses						Sample Specific Notes / Special Instructions:		
			Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	N/OH	ZnAc	Umpres	Other:			1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B		1,4-Dioxane 8260B SIM	
TRIP BLANK	8/18/20	---	1																						"1 TRIP BLANK"
TW-16-03-081820	8/18/20	1005	6																						"3 VOA'S METHOD 8260B"
TW-16-04-081820	8/18/20	1110	6																						"3 VOA'S METHOD 8260B"
TW-16-02-081820	8/18/20	1240	6																						" "
TW-16-01-081820	8/18/20	1352	6																						" "

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Possible Hazard Identification  
 Non-Hazard  Irritable  Inflammable  Corrosive  Unknown

Special Instructions/OC Requirements & Comments:  
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728  
 Level IV Reporting requested.

Relinquished by: Christina Weaver  
 Relinquished by: Julia McClafferty  
 Relinquished by: Kris Hinskey

Received by: ARCADIS  
 Received by: Arcadis  
 Received by: ERM MI

Date/Time: 8/18/20 / 1455  
 Date/Time: 8/19/20 / 1100  
 Date/Time: 8/19/20 / 11:01

Company: ARCADIS  
 Company: Arcadis  
 Company: ERM MI

Received by Laboratory by: Mike W  
 Received by Laboratory by: A. G. G.

Date/Time: 8/18/20 / 1455  
 Date/Time: 8/19/20 / 11:00  
 Date/Time: 8/20/20 / 900

Company: ARCADIS  
 Company: ERM MI  
 Company: ERM MI

Barcode: 240-135270 Chain of Custody




**Eurofins TestAmerica Canton Sample Receipt Form/Narrative**  
**Canton Facility**

Login # : 135240

Client Ariadis Site Name \_\_\_\_\_ Cooler unpacked by: \_\_\_\_\_  
 Cooler Received on 8-20-20 Opened on 8-20-20

FedEx: 1<sup>st</sup> Grd  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. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 2.9 °C Corrected Cooler Temp. 3.8 °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  
 -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
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
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 # \_\_\_\_\_ 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: \_\_\_\_\_