

# ANALYTICAL REPORT

## PREPARED FOR

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Generated 3/10/2023 9:03:23 AM

## JOB DESCRIPTION

Ford LTP - On Site

## JOB NUMBER

240-181132-1

# Eurofins Canton

## Job Notes

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## Authorization



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# Definitions/Glossary

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

Job ID: 240-181132-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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: 240-181132-1

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**Job ID: 240-181132-1**

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**Laboratory: Eurofins Canton**

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**Narrative**

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**Job Narrative**  
**240-181132-1**

**Receipt**

The samples were received on 3/1/2023 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2°C, 1.0°C and 3.2°C

**GC/MS VOA**

Method 8260D: Batch analytical batch 240-564352 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was made on a sample that was canceled for re-analysis. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch.

No additional 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 - On Site

Job ID: 240-181132-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8260D SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN

**Protocol References:**

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

**Laboratory References:**

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396



# Sample Summary

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

Job ID: 240-181132-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181132-1	TRIP BLANK_169	Water	02/24/23 00:00	03/01/23 09:50
240-181132-2	MW-48R_022423	Water	02/24/23 10:14	03/01/23 09:50
240-181132-3	MW-220S_022423	Water	02/24/23 11:35	03/01/23 09:50
240-181132-4	MW-49_022423	Water	02/24/23 13:39	03/01/23 09:50
240-181132-5	MW-20_022423	Water	02/24/23 12:35	03/01/23 09:50
240-181132-6	MW-21_022423	Water	02/24/23 14:40	03/01/23 09:50
240-181132-7	DUP-01	Water	02/24/23 00:00	03/01/23 09:50

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

# Detection Summary

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

Job ID: 240-181132-1

## Client Sample ID: TRIP BLANK\_169

Lab Sample ID: 240-181132-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.59	J	1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-48R\_022423

Lab Sample ID: 240-181132-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	8.8		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.76	J	1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-220S\_022423

Lab Sample ID: 240-181132-3

No Detections.

## Client Sample ID: MW-49\_022423

Lab Sample ID: 240-181132-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.1		2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	3.4		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	2.2		1.0	0.51	ug/L	1		8260D	Total/NA
Vinyl chloride	41		1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-20\_022423

Lab Sample ID: 240-181132-5

No Detections.

## Client Sample ID: MW-21\_022423

Lab Sample ID: 240-181132-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	8.8		4.0	1.7	ug/L	2		8260D SIM	Total/NA
cis-1,2-Dichloroethene	46		1.0	0.46	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	2.2		1.0	0.51	ug/L	1		8260D	Total/NA
Vinyl chloride	45		1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: DUP-01

Lab Sample ID: 240-181132-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	8.4		4.0	1.7	ug/L	2		8260D SIM	Total/NA
cis-1,2-Dichloroethene	54		2.0	0.92	ug/L	2		8260D	Total/NA
trans-1,2-Dichloroethene	2.5		1.0	0.51	ug/L	1		8260D	Total/NA
Vinyl chloride	51		2.0	0.90	ug/L	2		8260D	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: 240-181132-1

**Client Sample ID: TRIP BLANK\_169**

**Lab Sample ID: 240-181132-1**

**Date Collected: 02/24/23 00:00**

**Matrix: Water**

**Date Received: 03/01/23 09:50**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/06/23 20:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/06/23 20:48	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 20:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/06/23 20:48	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 20:48	1
<b>Vinyl chloride</b>	<b>0.59</b>	<b>J</b>	1.0	0.45	ug/L			03/06/23 20:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		62 - 137		03/06/23 20:48	1
4-Bromofluorobenzene (Surr)	119		56 - 136		03/06/23 20:48	1
Toluene-d8 (Surr)	93		78 - 122		03/06/23 20:48	1
Dibromofluoromethane (Surr)	114		73 - 120		03/06/23 20:48	1

# Client Sample Results

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

Job ID: 240-181132-1

**Client Sample ID: MW-48R\_022423**

**Lab Sample ID: 240-181132-2**

Date Collected: 02/24/23 10:14

Matrix: Water

Date Received: 03/01/23 09:50

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	8.8		2.0	0.86	ug/L			03/03/23 17:24	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)	89		66 - 120					03/03/23 17:24	1

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/06/23 21:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/06/23 21:13	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 21:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/06/23 21:13	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 21:13	1
Vinyl chloride	0.76	J	1.0	0.45	ug/L			03/06/23 21:13	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)	121		62 - 137					03/06/23 21:13	1
4-Bromofluorobenzene (Surr)	117		56 - 136					03/06/23 21:13	1
Toluene-d8 (Surr)	93		78 - 122					03/06/23 21:13	1
Dibromofluoromethane (Surr)	117		73 - 120					03/06/23 21:13	1

# Client Sample Results

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

Job ID: 240-181132-1

**Client Sample ID: MW-220S\_022423**

**Lab Sample ID: 240-181132-3**

**Date Collected: 02/24/23 11:35**

**Matrix: Water**

**Date Received: 03/01/23 09:50**

**Method: SW846 8260D 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			03/03/23 17:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		66 - 120		03/03/23 17:49	1

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/07/23 18:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/07/23 18:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 18:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/07/23 18:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 18:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/07/23 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		62 - 137		03/07/23 18:57	1
4-Bromofluorobenzene (Surr)	78		56 - 136		03/07/23 18:57	1
Toluene-d8 (Surr)	85		78 - 122		03/07/23 18:57	1
Dibromofluoromethane (Surr)	86		73 - 120		03/07/23 18:57	1

# Client Sample Results

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

Job ID: 240-181132-1

**Client Sample ID: MW-49\_022423**

**Lab Sample ID: 240-181132-4**

Date Collected: 02/24/23 13:39

Matrix: Water

Date Received: 03/01/23 09:50

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.1		2.0	0.86	ug/L			03/03/23 18:13	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)	92		66 - 120					03/03/23 18:13	1

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/07/23 19:42	1
cis-1,2-Dichloroethene	3.4		1.0	0.46	ug/L			03/07/23 19:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 19:42	1
trans-1,2-Dichloroethene	2.2		1.0	0.51	ug/L			03/07/23 19:42	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 19:42	1
Vinyl chloride	41		1.0	0.45	ug/L			03/07/23 19:42	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)	112		62 - 137					03/07/23 19:42	1
4-Bromofluorobenzene (Surr)	122		56 - 136					03/07/23 19:42	1
Toluene-d8 (Surr)	93		78 - 122					03/07/23 19:42	1
Dibromofluoromethane (Surr)	115		73 - 120					03/07/23 19:42	1

# Client Sample Results

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

Job ID: 240-181132-1

**Client Sample ID: MW-20\_022423**

**Lab Sample ID: 240-181132-5**

Date Collected: 02/24/23 12:35

Matrix: Water

Date Received: 03/01/23 09:50

**Method: SW846 8260D 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			03/03/23 18:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		66 - 120					03/03/23 18:37	1

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/07/23 19:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/07/23 19:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 19:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/07/23 19:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 19:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/07/23 19:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		62 - 137					03/07/23 19:22	1
4-Bromofluorobenzene (Surr)	79		56 - 136					03/07/23 19:22	1
Toluene-d8 (Surr)	84		78 - 122					03/07/23 19:22	1
Dibromofluoromethane (Surr)	85		73 - 120					03/07/23 19:22	1

# Client Sample Results

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

Job ID: 240-181132-1

**Client Sample ID: MW-21\_022423**

**Lab Sample ID: 240-181132-6**

Date Collected: 02/24/23 14:40

Matrix: Water

Date Received: 03/01/23 09:50

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	8.8		4.0	1.7	ug/L			03/03/23 19:02	2
<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)	89		66 - 120					03/03/23 19:02	2

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/08/23 16:27	1
cis-1,2-Dichloroethene	46		1.0	0.46	ug/L			03/08/23 16:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/23 16:27	1
trans-1,2-Dichloroethene	2.2		1.0	0.51	ug/L			03/08/23 16:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/08/23 16:27	1
Vinyl chloride	45		1.0	0.45	ug/L			03/08/23 16:27	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)	83		62 - 137					03/08/23 16:27	1
4-Bromofluorobenzene (Surr)	77		56 - 136					03/08/23 16:27	1
Toluene-d8 (Surr)	84		78 - 122					03/08/23 16:27	1
Dibromofluoromethane (Surr)	86		73 - 120					03/08/23 16:27	1

# Client Sample Results

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

Job ID: 240-181132-1

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-181132-7**

**Date Collected: 02/24/23 00:00**

**Matrix: Water**

**Date Received: 03/01/23 09:50**

**Method: SW846 8260D SIM - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	8.4		4.0	1.7	ug/L			03/03/23 19:26	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		66 - 120		03/03/23 19:26	2

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/07/23 19:47	1
cis-1,2-Dichloroethene	54		2.0	0.92	ug/L			03/08/23 16:52	2
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 19:47	1
trans-1,2-Dichloroethene	2.5		1.0	0.51	ug/L			03/07/23 19:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 19:47	1
Vinyl chloride	51		2.0	0.90	ug/L			03/08/23 16:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		62 - 137		03/07/23 19:47	1
1,2-Dichloroethane-d4 (Surr)	83		62 - 137		03/08/23 16:52	2
4-Bromofluorobenzene (Surr)	79		56 - 136		03/07/23 19:47	1
4-Bromofluorobenzene (Surr)	77		56 - 136		03/08/23 16:52	2
Toluene-d8 (Surr)	84		78 - 122		03/07/23 19:47	1
Toluene-d8 (Surr)	83		78 - 122		03/08/23 16:52	2
Dibromofluoromethane (Surr)	88		73 - 120		03/07/23 19:47	1
Dibromofluoromethane (Surr)	86		73 - 120		03/08/23 16:52	2

# Surrogate Summary

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

Job ID: 240-181132-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-181110-C-3 MS	Matrix Spike	85	83	85	88
240-181110-C-3 MSD	Matrix Spike Duplicate	86	82	85	90
240-181132-1	TRIP BLANK_169	117	119	93	114
240-181132-2	MW-48R_022423	121	117	93	117
240-181132-3	MW-220S_022423	85	78	85	86
240-181132-4	MW-49_022423	112	122	93	115
240-181132-5	MW-20_022423	84	79	84	85
240-181132-6	MW-21_022423	83	77	84	86
240-181132-7	DUP-01	84	79	84	88
240-181132-7	DUP-01	83	77	83	86
240-181151-E-9 MS	Matrix Spike	111	118	96	112
240-181151-E-9 MSD	Matrix Spike Duplicate	110	123	97	110
240-181238-B-4 MS	Matrix Spike	86	80	84	90
240-181238-B-4 MSD	Matrix Spike Duplicate	84	79	82	88
LCS 240-564352/5	Lab Control Sample	110	120	96	108
LCS 240-564467/5	Lab Control Sample	110	116	93	111
LCS 240-564515/5	Lab Control Sample	80	80	84	87
LCS 240-564664/5	Lab Control Sample	84	81	85	87
MB 240-564352/9	Method Blank	110	118	93	115
MB 240-564467/9	Method Blank	116	121	94	118
MB 240-564515/8	Method Blank	84	81	85	90
MB 240-564664/8	Method Blank	85	80	84	88

### Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-180978-K-2 MS	Matrix Spike	82
240-180978-L-2 MSD	Matrix Spike Duplicate	90
240-181132-2	MW-48R_022423	89
240-181132-3	MW-220S_022423	91
240-181132-4	MW-49_022423	92
240-181132-5	MW-20_022423	89
240-181132-6	MW-21_022423	89
240-181132-7	DUP-01	84
LCS 240-564197/4	Lab Control Sample	89
MB 240-564197/6	Method Blank	83

### Surrogate Legend

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



# QC Sample Results

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

Job ID: 240-181132-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

**Lab Sample ID: MB 240-564352/9**  
**Matrix: Water**  
**Analysis Batch: 564352**

**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	0.49	ug/L			03/06/23 14:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/06/23 14:11	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 14:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/06/23 14:11	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 14:11	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/06/23 14:11	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		03/06/23 14:11	1
4-Bromofluorobenzene (Surr)	118		56 - 136		03/06/23 14:11	1
Toluene-d8 (Surr)	93		78 - 122		03/06/23 14:11	1
Dibromofluoromethane (Surr)	115		73 - 120		03/06/23 14:11	1

**Lab Sample ID: LCS 240-564352/5**  
**Matrix: Water**  
**Analysis Batch: 564352**

**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	20.0	19.1		ug/L		95	63 - 134
cis-1,2-Dichloroethene	20.0	18.1		ug/L		91	77 - 123
Tetrachloroethene	20.0	19.2		ug/L		96	76 - 123
trans-1,2-Dichloroethene	20.0	18.6		ug/L		93	75 - 124
Trichloroethene	20.0	19.6		ug/L		98	70 - 122
Vinyl chloride	20.0	16.2		ug/L		81	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	110		62 - 137
4-Bromofluorobenzene (Surr)	120		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	108		73 - 120

**Lab Sample ID: MB 240-564467/9**  
**Matrix: Water**  
**Analysis Batch: 564467**

**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	0.49	ug/L			03/07/23 16:00	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/07/23 16:00	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 16:00	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/07/23 16:00	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 16:00	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/07/23 16:00	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	116		62 - 137		03/07/23 16:00	1
4-Bromofluorobenzene (Surr)	121		56 - 136		03/07/23 16:00	1
Toluene-d8 (Surr)	94		78 - 122		03/07/23 16:00	1

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# QC Sample Results

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

Job ID: 240-181132-1

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

**Lab Sample ID: MB 240-564467/9**  
**Matrix: Water**  
**Analysis Batch: 564467**

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

<u>Surrogate</u>	<u>MB</u>	<u>MB</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Dibromofluoromethane (Surr)	118	Qualifier	73 - 120		03/07/23 16:00	1

**Lab Sample ID: LCS 240-564467/5**  
**Matrix: Water**  
**Analysis Batch: 564467**

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

<u>Analyte</u>	<u>Spike</u>	<u>LCS</u>	<u>LCS</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec</u>	<u>Limits</u>
	<u>Added</u>	<u>Result</u>	<u>Qualifier</u>					
1,1-Dichloroethene	20.0	20.1		ug/L		101		63 - 134
cis-1,2-Dichloroethene	20.0	20.1		ug/L		101		77 - 123
Tetrachloroethene	20.0	20.3		ug/L		102		76 - 123
trans-1,2-Dichloroethene	20.0	20.4		ug/L		102		75 - 124
Trichloroethene	20.0	20.6		ug/L		103		70 - 122
Vinyl chloride	20.0	17.8		ug/L		89		60 - 144

  

<u>Surrogate</u>	<u>LCS</u>	<u>LCS</u>	<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
1,2-Dichloroethane-d4 (Surr)	110		62 - 137
4-Bromofluorobenzene (Surr)	116		56 - 136
Toluene-d8 (Surr)	93		78 - 122
Dibromofluoromethane (Surr)	111		73 - 120

**Lab Sample ID: 240-181151-E-9 MS**  
**Matrix: Water**  
**Analysis Batch: 564467**

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

<u>Analyte</u>	<u>Sample</u>	<u>Sample</u>	<u>Spike</u>	<u>MS</u>	<u>MS</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec</u>	<u>Limits</u>
	<u>Result</u>	<u>Qualifier</u>	<u>Added</u>	<u>Result</u>	<u>Qualifier</u>					
1,1-Dichloroethene	25	U	500	516		ug/L		103		56 - 135
cis-1,2-Dichloroethene	82		500	601		ug/L		104		66 - 128
Tetrachloroethene	25	U	500	475		ug/L		95		62 - 131
trans-1,2-Dichloroethene	50		500	553		ug/L		101		56 - 136
Trichloroethene	1200		500	1590		ug/L		87		61 - 124
Vinyl chloride	25	U	500	457		ug/L		91		43 - 157

  

<u>Surrogate</u>	<u>MS</u>	<u>MS</u>	<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
1,2-Dichloroethane-d4 (Surr)	111		62 - 137
4-Bromofluorobenzene (Surr)	118		56 - 136
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	112		73 - 120

**Lab Sample ID: 240-181151-E-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 564467**

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

<u>Analyte</u>	<u>Sample</u>	<u>Sample</u>	<u>Spike</u>	<u>MSD</u>	<u>MSD</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec</u>	<u>Limits</u>	<u>RPD</u>	<u>RPD</u>
	<u>Result</u>	<u>Qualifier</u>	<u>Added</u>	<u>Result</u>	<u>Qualifier</u>						<u>Limit</u>	
1,1-Dichloroethene	25	U	500	584		ug/L		117		56 - 135	12	26
cis-1,2-Dichloroethene	82		500	633		ug/L		110		66 - 128	5	14
Tetrachloroethene	25	U	500	513		ug/L		103		62 - 131	8	20
trans-1,2-Dichloroethene	50		500	585		ug/L		107		56 - 136	6	15
Trichloroethene	1200		500	1610		ug/L		89		61 - 124	1	15

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# QC Sample Results

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

Job ID: 240-181132-1

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

**Lab Sample ID: 240-181151-E-9 MSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 564467**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride	25	U	500	489		ug/L		98	43 - 157	7	24
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	110		62 - 137								
4-Bromofluorobenzene (Surr)	123		56 - 136								
Toluene-d8 (Surr)	97		78 - 122								
Dibromofluoromethane (Surr)	110		73 - 120								

**Lab Sample ID: MB 240-564515/8**

**Client Sample ID: Method Blank**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 564515**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/07/23 14:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/07/23 14:48	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 14:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/07/23 14:48	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/07/23 14:48	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/07/23 14:48	1
<b>MB MB</b>									
<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)	84		62 - 137				03/07/23 14:48		1
4-Bromofluorobenzene (Surr)	81		56 - 136				03/07/23 14:48		1
Toluene-d8 (Surr)	85		78 - 122				03/07/23 14:48		1
Dibromofluoromethane (Surr)	90		73 - 120				03/07/23 14:48		1

**Lab Sample ID: LCS 240-564515/5**

**Client Sample ID: Lab Control Sample**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 564515**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	25.0	25.5		ug/L		102	63 - 134
cis-1,2-Dichloroethene	25.0	24.3		ug/L		97	77 - 123
Tetrachloroethene	25.0	25.3		ug/L		101	76 - 123
trans-1,2-Dichloroethene	25.0	24.7		ug/L		99	75 - 124
Trichloroethene	25.0	23.4		ug/L		94	70 - 122
Vinyl chloride	12.5	10.7		ug/L		85	60 - 144
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	80		62 - 137				
4-Bromofluorobenzene (Surr)	80		56 - 136				
Toluene-d8 (Surr)	84		78 - 122				
Dibromofluoromethane (Surr)	87		73 - 120				

# QC Sample Results

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

Job ID: 240-181132-1

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

**Lab Sample ID: 240-181110-C-3 MS**

**Matrix: Water**

**Analysis Batch: 564515**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	20	U	500	504		ug/L		101	56 - 135
cis-1,2-Dichloroethene	79		500	567		ug/L		98	66 - 128
Tetrachloroethene	53	F1	500	865	F1	ug/L		162	62 - 131
trans-1,2-Dichloroethene	20	U	500	481		ug/L		96	56 - 136
Trichloroethene	44		500	517		ug/L		95	61 - 124
Vinyl chloride	20	U	250	217		ug/L		87	43 - 157

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	85		62 - 137
4-Bromofluorobenzene (Surr)	83		56 - 136
Toluene-d8 (Surr)	85		78 - 122
Dibromofluoromethane (Surr)	88		73 - 120

**Lab Sample ID: 240-181110-C-3 MSD**

**Matrix: Water**

**Analysis Batch: 564515**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	20	U	500	501		ug/L		100	56 - 135	1	26
cis-1,2-Dichloroethene	79		500	594		ug/L		103	66 - 128	5	14
Tetrachloroethene	53	F1	500	806	F1	ug/L		151	62 - 131	7	20
trans-1,2-Dichloroethene	20	U	500	491		ug/L		98	56 - 136	2	15
Trichloroethene	44		500	530		ug/L		97	61 - 124	2	15
Vinyl chloride	20	U	250	199		ug/L		80	43 - 157	9	24

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	86		62 - 137
4-Bromofluorobenzene (Surr)	82		56 - 136
Toluene-d8 (Surr)	85		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

**Lab Sample ID: MB 240-564664/8**

**Matrix: Water**

**Analysis Batch: 564664**

**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	0.49	ug/L			03/08/23 14:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/08/23 14:47	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/08/23 14:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/08/23 14:47	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/08/23 14:47	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/08/23 14:47	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		62 - 137		03/08/23 14:47	1
4-Bromofluorobenzene (Surr)	80		56 - 136		03/08/23 14:47	1
Toluene-d8 (Surr)	84		78 - 122		03/08/23 14:47	1

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# QC Sample Results

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

Job ID: 240-181132-1

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

**Lab Sample ID: MB 240-564664/8**  
**Matrix: Water**  
**Analysis Batch: 564664**

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	88		73 - 120		03/08/23 14:47	1

**Lab Sample ID: LCS 240-564664/5**  
**Matrix: Water**  
**Analysis Batch: 564664**

**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	25.0	25.1		ug/L		100	63 - 134
cis-1,2-Dichloroethene	25.0	25.7		ug/L		103	77 - 123
Tetrachloroethene	25.0	25.2		ug/L		101	76 - 123
trans-1,2-Dichloroethene	25.0	25.4		ug/L		101	75 - 124
Trichloroethene	25.0	24.6		ug/L		98	70 - 122
Vinyl chloride	12.5	10.5		ug/L		84	60 - 144

  

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	84		62 - 137
4-Bromofluorobenzene (Surr)	81		56 - 136
Toluene-d8 (Surr)	85		78 - 122
Dibromofluoromethane (Surr)	87		73 - 120

**Lab Sample ID: 240-181238-B-4 MS**  
**Matrix: Water**  
**Analysis Batch: 564664**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
1,1-Dichloroethene	20	U	500	491		ug/L		98	56 - 135
cis-1,2-Dichloroethene	20	U	500	490		ug/L		98	66 - 128
Tetrachloroethene	20	U	500	485		ug/L		97	62 - 131
trans-1,2-Dichloroethene	20	U	500	475		ug/L		95	56 - 136
Trichloroethene	20	U	500	460		ug/L		92	61 - 124
Vinyl chloride	20	U	250	199		ug/L		80	43 - 157

  

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	86		62 - 137
4-Bromofluorobenzene (Surr)	80		56 - 136
Toluene-d8 (Surr)	84		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

**Lab Sample ID: 240-181238-B-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 564664**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
1,1-Dichloroethene	20	U	500	473		ug/L		95	56 - 135	4	26
cis-1,2-Dichloroethene	20	U	500	479		ug/L		96	66 - 128	2	14
Tetrachloroethene	20	U	500	475		ug/L		95	62 - 131	2	20
trans-1,2-Dichloroethene	20	U	500	461		ug/L		92	56 - 136	3	15
Trichloroethene	20	U	500	445		ug/L		89	61 - 124	3	15

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# QC Sample Results

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

Job ID: 240-181132-1

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

Lab Sample ID: 240-181238-B-4 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564664

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride	20	U	250	194		ug/L		78	43 - 157	2	24

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	84		62 - 137
4-Bromofluorobenzene (Surr)	79		56 - 136
Toluene-d8 (Surr)	82		78 - 122
Dibromofluoromethane (Surr)	88		73 - 120

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

Lab Sample ID: MB 240-564197/6

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

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			03/03/23 15:22	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		66 - 120		03/03/23 15:22	1

Lab Sample ID: LCS 240-564197/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	8.65		ug/L		86	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
1,2-Dichloroethane-d4 (Surr)	89		66 - 120

Lab Sample ID: 240-180978-K-2 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.0	U	10.0	8.72		ug/L		87	51 - 153

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	82		66 - 120

Lab Sample ID: 240-180978-L-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

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	9.66		ug/L		97	51 - 153	10	16

Eurofins Canton

# QC Sample Results

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

Job ID: 240-181132-1

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

Lab Sample ID: 240-180978-L-2 MSD  
Matrix: Water  
Analysis Batch: 564197

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

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
1,2-Dichloroethane-d4 (Surr)	90		66 - 120

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# QC Association Summary

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

Job ID: 240-181132-1

## GC/MS VOA

### Analysis Batch: 564197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181132-2	MW-48R_022423	Total/NA	Water	8260D SIM	
240-181132-3	MW-220S_022423	Total/NA	Water	8260D SIM	
240-181132-4	MW-49_022423	Total/NA	Water	8260D SIM	
240-181132-5	MW-20_022423	Total/NA	Water	8260D SIM	
240-181132-6	MW-21_022423	Total/NA	Water	8260D SIM	
240-181132-7	DUP-01	Total/NA	Water	8260D SIM	
MB 240-564197/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-564197/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-180978-K-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-180978-L-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

### Analysis Batch: 564352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181132-1	TRIP BLANK_169	Total/NA	Water	8260D	
240-181132-2	MW-48R_022423	Total/NA	Water	8260D	
MB 240-564352/9	Method Blank	Total/NA	Water	8260D	
LCS 240-564352/5	Lab Control Sample	Total/NA	Water	8260D	

### Analysis Batch: 564467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181132-4	MW-49_022423	Total/NA	Water	8260D	
MB 240-564467/9	Method Blank	Total/NA	Water	8260D	
LCS 240-564467/5	Lab Control Sample	Total/NA	Water	8260D	
240-181151-E-9 MS	Matrix Spike	Total/NA	Water	8260D	
240-181151-E-9 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 564515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181132-3	MW-220S_022423	Total/NA	Water	8260D	
240-181132-5	MW-20_022423	Total/NA	Water	8260D	
240-181132-7	DUP-01	Total/NA	Water	8260D	
MB 240-564515/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564515/5	Lab Control Sample	Total/NA	Water	8260D	
240-181110-C-3 MS	Matrix Spike	Total/NA	Water	8260D	
240-181110-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 564664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181132-6	MW-21_022423	Total/NA	Water	8260D	
240-181132-7	DUP-01	Total/NA	Water	8260D	
MB 240-564664/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564664/5	Lab Control Sample	Total/NA	Water	8260D	
240-181238-B-4 MS	Matrix Spike	Total/NA	Water	8260D	
240-181238-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	



# Lab Chronicle

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

Job ID: 240-181132-1

**Client Sample ID: TRIP BLANK\_169**

**Lab Sample ID: 240-181132-1**

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564352	TJL1	EET CAN	03/06/23 20:48

**Client Sample ID: MW-48R\_022423**

**Lab Sample ID: 240-181132-2**

Date Collected: 02/24/23 10:14

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564352	TJL1	EET CAN	03/06/23 21:13
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 17:24

**Client Sample ID: MW-220S\_022423**

**Lab Sample ID: 240-181132-3**

Date Collected: 02/24/23 11:35

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564515	TES	EET CAN	03/07/23 18:57
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 17:49

**Client Sample ID: MW-49\_022423**

**Lab Sample ID: 240-181132-4**

Date Collected: 02/24/23 13:39

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564467	HMB	EET CAN	03/07/23 19:42
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 18:13

**Client Sample ID: MW-20\_022423**

**Lab Sample ID: 240-181132-5**

Date Collected: 02/24/23 12:35

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564515	TES	EET CAN	03/07/23 19:22
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 18:37

**Client Sample ID: MW-21\_022423**

**Lab Sample ID: 240-181132-6**

Date Collected: 02/24/23 14:40

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564664	SAM	EET CAN	03/08/23 16:27
Total/NA	Analysis	8260D SIM		2	564197	BAJ	EET CAN	03/03/23 19:02

# Lab Chronicle

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

Job ID: 240-181132-1

**Client Sample ID: DUP-01**  
**Date Collected: 02/24/23 00:00**  
**Date Received: 03/01/23 09:50**

**Lab Sample ID: 240-181132-7**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564515	TES	EET CAN	03/07/23 19:47
Total/NA	Analysis	8260D		2	564664	SAM	EET CAN	03/08/23 16:52
Total/NA	Analysis	8260D SIM		2	564197	BAJ	EET CAN	03/03/23 19:26

**Laboratory References:**

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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# Accreditation/Certification Summary

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

Job ID: 240-181132-1

## Laboratory: Eurofins 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	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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





Barberton Facility

Client ARCADIS Site Name \_\_\_\_\_ Cooler unpacked by: M. Yoc  
Cooler Received on 3-1-23 Opened on 3-1-23

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

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

Eurofins Cooler # 90 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-13 (CF -0.2 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No \_\_\_\_\_  
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA \_\_\_\_\_  
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA \_\_\_\_\_  
 -Were tamper/custody seals intact and uncompromised? Yes No NA \_\_\_\_\_
- 3. Shippers' packing slip attached to the cooler(s)? Yes No \_\_\_\_\_
- 4. Did custody papers accompany the sample(s)? Yes No \_\_\_\_\_
- 5. Were the custody papers relinquished & signed in the appropriate place? Yes No \_\_\_\_\_
- 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No \_\_\_\_\_
- 7. Did all bottles arrive in good condition (Unbroken)? Yes No \_\_\_\_\_
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No \_\_\_\_\_
- 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No \_\_\_\_\_
- 10. Were correct bottle(s) used for the test(s) indicated? Yes No \_\_\_\_\_
- 11. Sufficient quantity received to perform indicated analyses? Yes No \_\_\_\_\_
- 12. Are these work share samples and all listed on the COC? Yes No \_\_\_\_\_  
 If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
- 14. Were VOAs on the COC? Yes No \_\_\_\_\_
- 15. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # found of Yes No Yes
- 17. Was a LL Hg or Me Hg trip blank present? Yes No Yes

Tests that are not checked for pH by Receiving:  
VOAs  
Oil and Grease  
TOC

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

Concerning \_\_\_\_\_

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page Samples processed by: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19. 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)

20. 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: \_\_\_\_\_



# DATA VERIFICATION REPORT



March 10, 2023

Kris Hinskey  
Arcadis of Michigan  
28550 Cabot Drive  
Suite 500  
Novi, MI US 48377

CADENA project ID: E203728

Project: Ford Livonia Transmission Plant - ON-SITE -Soil Gas, Ground water and Soil

Project number: 30167538.401.03- onsite groundwater

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory submittal: 181132-1

Sample date: 2023-02-24

Report received by CADENA: 2023-03-10

Initial Data Verification completed by CADENA: 2023-03-10

Number of Samples:7

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:

TBK - GCMS VOC TRIP blank had a detection below the RL for the following analyte: VINYL CHLORIDE. The following client sample results should be considered to be non-detect at the RL and qualified with UB flags: -002.

GCMS VOC QC batch MS/MSD recovery outliers were not determined using a client sample so qualification was not required based on these sample-specific QC outliers.

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.

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.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

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.

# Qualified Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 181132-1

Sample Name: MW-48R\_022423

Lab Sample ID: 2401811322

Sample Date: 2/24/2023

Analyte	Cas No.	Report		Units	Valid Qualifier
		Result	Limit		
GC/MS VOC					
<u>OSW-8260D</u> Vinyl chloride	75-01-4	0.76	1.0	ug/l	UB

## Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 181132-1

Analyte	Cas No.	Sample Name: TRIP BLANK_169				MW-48R_022423				MW-220S_022423				MW-49_022423				MW-20_022423				MW-21_022423				DUP-01							
		Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier	Result	Limit	Units	Valid Qualifier				
<b>GC/MS VOC</b>																																	
<u>OSW-8260D</u>																																	
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	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	---	ND	1.0	ug/l	---	3.4	1.0	ug/l	---	ND	1.0	ug/l	---	46	1.0	ug/l	---	54	2.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	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	---	ND	1.0	ug/l	---	2.2	1.0	ug/l	---	ND	1.0	ug/l	---	2.2	1.0	ug/l	---	2.5	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	0.59	1.0	ug/l	J	0.76	1.0	ug/l	UB	ND	1.0	ug/l	---	41	1.0	ug/l	---	ND	1.0	ug/l	---	45	1.0	ug/l	---	51	2.0	ug/l	---	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																																	
1,4-Dioxane	123-91-1					8.8	2.0	ug/l	---	ND	2.0	ug/l	---	2.1	2.0	ug/l	---	ND	2.0	ug/l	---	8.8	4.0	ug/l	---	8.4	4.0	ug/l	---	ND	1.0	ug/l	---