

# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

Ford LTP - On Site

## JOB NUMBER

240-176842-1

# 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: 240-176842-1

## 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: 240-176842-1

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**Job ID: 240-176842-1**

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**Laboratory: Eurofins Canton**

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**Narrative**

**Job Narrative  
240-176842-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 11/19/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described 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: 240-176842-1

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

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# Sample Summary

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

Job ID: 240-176842-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-176842-1	TRIP BLANK_187	Water	11/17/22 00:00	11/19/22 08:00
240-176842-2	MW-198S_111722	Water	11/17/22 09:50	11/19/22 08:00
240-176842-3	MW-198_111722	Water	11/17/22 10:35	11/19/22 08:00
240-176842-4	MW-197S_111722	Water	11/17/22 11:40	11/19/22 08:00

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# Detection Summary

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

Job ID: 240-176842-1

**Client Sample ID: TRIP BLANK\_187**

**Lab Sample ID: 240-176842-1**

No Detections.

**Client Sample ID: MW-198S\_111722**

**Lab Sample ID: 240-176842-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	1.3		1.0	0.44	ug/L		1	8260D	Total/NA

**Client Sample ID: MW-198\_111722**

**Lab Sample ID: 240-176842-3**

No Detections.

**Client Sample ID: MW-197S\_111722**

**Lab Sample ID: 240-176842-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	0.74	J	1.0	0.49	ug/L		1	8260D	Total/NA
cis-1,2-Dichloroethene	21		1.0	0.46	ug/L		1	8260D	Total/NA
trans-1,2-Dichloroethene	1.6		1.0	0.51	ug/L		1	8260D	Total/NA
Trichloroethene	120		1.0	0.44	ug/L		1	8260D	Total/NA
Vinyl chloride	1.3		1.0	0.45	ug/L		1	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: 240-176842-1

**Client Sample ID: TRIP BLANK\_187**

**Lab Sample ID: 240-176842-1**

**Date Collected: 11/17/22 00:00**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

**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			11/29/22 08:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/22 08:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 08:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/22 08:35	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 08:35	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/22 08:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		62 - 137		11/29/22 08:35	1
4-Bromofluorobenzene (Surr)	100		56 - 136		11/29/22 08:35	1
Toluene-d8 (Surr)	104		78 - 122		11/29/22 08:35	1
Dibromofluoromethane (Surr)	98		73 - 120		11/29/22 08:35	1

# Client Sample Results

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

Job ID: 240-176842-1

**Client Sample ID: MW-198S\_111722**

**Lab Sample ID: 240-176842-2**

Date Collected: 11/17/22 09:50

Matrix: Water

Date Received: 11/19/22 08:00

**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			11/29/22 00:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		66 - 120		11/29/22 00:11	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			11/29/22 11:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/22 11:07	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 11:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/22 11:07	1
<b>Trichloroethene</b>	<b>1.3</b>		1.0	0.44	ug/L			11/29/22 11:07	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/22 11:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		62 - 137		11/29/22 11:07	1
4-Bromofluorobenzene (Surr)	99		56 - 136		11/29/22 11:07	1
Toluene-d8 (Surr)	103		78 - 122		11/29/22 11:07	1
Dibromofluoromethane (Surr)	99		73 - 120		11/29/22 11:07	1

# Client Sample Results

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

Job ID: 240-176842-1

**Client Sample ID: MW-198\_111722**

**Lab Sample ID: 240-176842-3**

**Date Collected: 11/17/22 10:35**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

**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			11/29/22 00:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 120		11/29/22 00:35	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			11/29/22 11:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/22 11:32	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 11:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/22 11:32	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 11:32	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/22 11:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		11/29/22 11:32	1
4-Bromofluorobenzene (Surr)	99		56 - 136		11/29/22 11:32	1
Toluene-d8 (Surr)	103		78 - 122		11/29/22 11:32	1
Dibromofluoromethane (Surr)	99		73 - 120		11/29/22 11:32	1

# Client Sample Results

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

Job ID: 240-176842-1

**Client Sample ID: MW-197S\_111722**

**Lab Sample ID: 240-176842-4**

**Date Collected: 11/17/22 11:40**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

**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			11/29/22 00:59	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)	111		66 - 120					11/29/22 00:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>1,1-Dichloroethene</b>	<b>0.74</b>	<b>J</b>	1.0	0.49	ug/L			12/01/22 07:20	1
<b>cis-1,2-Dichloroethene</b>	<b>21</b>		1.0	0.46	ug/L			12/01/22 07:20	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			12/01/22 07:20	1
<b>trans-1,2-Dichloroethene</b>	<b>1.6</b>		1.0	0.51	ug/L			12/01/22 07:20	1
<b>Trichloroethene</b>	<b>120</b>		1.0	0.44	ug/L			12/01/22 07:20	1
<b>Vinyl chloride</b>	<b>1.3</b>		1.0	0.45	ug/L			12/01/22 07:20	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)	90		62 - 137					12/01/22 07:20	1
4-Bromofluorobenzene (Surr)	97		56 - 136					12/01/22 07:20	1
Toluene-d8 (Surr)	103		78 - 122					12/01/22 07:20	1
Dibromofluoromethane (Surr)	96		73 - 120					12/01/22 07:20	1

# Surrogate Summary

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

Job ID: 240-176842-1

## Method: 8260D - Volatile Organic Compounds by 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 (62-137)	BFB (56-136)	TOL (78-122)	DBFM (73-120)
240-176842-1	TRIP BLANK_187	91	100	104	98
240-176842-2	MW-198S_111722	89	99	103	99
240-176842-3	MW-198_111722	92	99	103	99
240-176842-4	MW-197S_111722	90	97	103	96
240-176843-D-5 MS	Matrix Spike	85	99	104	99
240-176843-D-5 MSD	Matrix Spike Duplicate	83	98	104	96
240-176901-H-2 MS	Matrix Spike	83	97	105	96
240-176901-N-2 MSD	Matrix Spike Duplicate	83	97	105	96
LCS 240-553659/3	Lab Control Sample	84	101	105	97
LCS 240-554038/4	Lab Control Sample	85	100	105	99
MB 240-553659/4	Method Blank	91	99	101	97
MB 240-554038/5	Method Blank	93	102	106	103

#### 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

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(66-120)
240-176838-B-2 MS	Matrix Spike	98
240-176838-B-2 MSD	Matrix Spike Duplicate	102
240-176842-2	MW-198S_111722	103
240-176842-3	MW-198_111722	95
240-176842-4	MW-197S_111722	111
LCS 240-553632/3	Lab Control Sample	96
MB 240-553632/4	Method Blank	102

#### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-176842-1

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

**Lab Sample ID: MB 240-553659/4**  
**Matrix: Water**  
**Analysis Batch: 553659**

**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			11/29/22 06:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/29/22 06:53	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 06:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/29/22 06:53	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/29/22 06:53	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/29/22 06:53	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	91		62 - 137		11/29/22 06:53	1
4-Bromofluorobenzene (Surr)	99		56 - 136		11/29/22 06:53	1
Toluene-d8 (Surr)	101		78 - 122		11/29/22 06:53	1
Dibromofluoromethane (Surr)	97		73 - 120		11/29/22 06:53	1

**Lab Sample ID: LCS 240-553659/3**  
**Matrix: Water**  
**Analysis Batch: 553659**

**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	27.3		ug/L		109	63 - 134
cis-1,2-Dichloroethene	25.0	24.4		ug/L		97	77 - 123
Tetrachloroethene	25.0	25.0		ug/L		100	76 - 123
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	75 - 124
Trichloroethene	25.0	23.4		ug/L		94	70 - 122
Vinyl chloride	25.0	25.3		ug/L		101	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	84		62 - 137
4-Bromofluorobenzene (Surr)	101		56 - 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120

**Lab Sample ID: 240-176843-D-5 MS**  
**Matrix: Water**  
**Analysis Batch: 553659**

**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				
1,1-Dichloroethene	1.0	U	25.0	28.4		ug/L		114	56 - 135
cis-1,2-Dichloroethene	4.8		25.0	32.9		ug/L		112	66 - 128
Tetrachloroethene	1.0	U	25.0	24.7		ug/L		99	62 - 131
trans-1,2-Dichloroethene	0.74	J	25.0	24.1		ug/L		93	56 - 136
Trichloroethene	1.0	U	25.0	23.0		ug/L		92	61 - 124
Vinyl chloride	5.4		25.0	32.1		ug/L		107	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	85		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	104		78 - 122

# QC Sample Results

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

Job ID: 240-176842-1

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

**Lab Sample ID: 240-176843-D-5 MS**  
**Matrix: Water**  
**Analysis Batch: 553659**

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	99		73 - 120

**Lab Sample ID: 240-176843-D-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 553659**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	25.0	27.2		ug/L		109	56 - 135	4	26
cis-1,2-Dichloroethene	4.8		25.0	31.3		ug/L		106	66 - 128	5	14
Tetrachloroethene	1.0	U	25.0	24.2		ug/L		97	62 - 131	2	20
trans-1,2-Dichloroethene	0.74	J	25.0	23.2		ug/L		90	56 - 136	4	15
Trichloroethene	1.0	U	25.0	22.6		ug/L		90	61 - 124	2	15
Vinyl chloride	5.4		25.0	30.9		ug/L		102	43 - 157	4	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

**Lab Sample ID: MB 240-554038/5**  
**Matrix: Water**  
**Analysis Batch: 554038**

**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			11/30/22 23:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/30/22 23:42	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/30/22 23:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/30/22 23:42	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/30/22 23:42	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/30/22 23:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		11/30/22 23:42	1
4-Bromofluorobenzene (Surr)	102		56 - 136		11/30/22 23:42	1
Toluene-d8 (Surr)	106		78 - 122		11/30/22 23:42	1
Dibromofluoromethane (Surr)	103		73 - 120		11/30/22 23:42	1

**Lab Sample ID: LCS 240-554038/4**  
**Matrix: Water**  
**Analysis Batch: 554038**

**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	25.0	31.5		ug/L		126	63 - 134
cis-1,2-Dichloroethene	25.0	23.4		ug/L		94	77 - 123
Tetrachloroethene	25.0	25.2		ug/L		101	76 - 123
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	75 - 124
Trichloroethene	25.0	23.2		ug/L		93	70 - 122

Eurofins Canton

# QC Sample Results

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

Job ID: 240-176842-1

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

**Lab Sample ID: LCS 240-554038/4**  
**Matrix: Water**  
**Analysis Batch: 554038**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	25.0	21.6		ug/L		86	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		62 - 137
4-Bromofluorobenzene (Surr)	100		56 - 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

**Lab Sample ID: 240-176901-H-2 MS**  
**Matrix: Water**  
**Analysis Batch: 554038**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.0	U	25.0	26.9		ug/L		108	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	21.4		ug/L		86	66 - 128
Tetrachloroethene	1.0	U	25.0	23.8		ug/L		95	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	20.6		ug/L		83	56 - 136
Trichloroethene	1.0	U	25.0	20.6		ug/L		82	61 - 124
Vinyl chloride	0.75	J	25.0	20.3		ug/L		78	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

**Lab Sample ID: 240-176901-N-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 554038**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	25.0	28.9		ug/L		116	56 - 135	7	26
cis-1,2-Dichloroethene	1.0	U	25.0	21.5		ug/L		86	66 - 128	1	14
Tetrachloroethene	1.0	U	25.0	24.6		ug/L		99	62 - 131	4	20
trans-1,2-Dichloroethene	1.0	U	25.0	20.9		ug/L		84	56 - 136	1	15
Trichloroethene	1.0	U	25.0	21.4		ug/L		86	61 - 124	4	15
Vinyl chloride	0.75	J	25.0	20.5		ug/L		79	43 - 157	1	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		62 - 137
4-Bromofluorobenzene (Surr)	97		56 - 136
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120



# QC Sample Results

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

Job ID: 240-176842-1

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

**Lab Sample ID: MB 240-553632/4**  
**Matrix: Water**  
**Analysis Batch: 553632**

**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			11/28/22 16:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					11/28/22 16:04	1

**Lab Sample ID: LCS 240-553632/3**  
**Matrix: Water**  
**Analysis Batch: 553632**

**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	9.87		ug/L		99	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	96		66 - 120				

**Lab Sample ID: 240-176838-B-2 MS**  
**Matrix: Water**  
**Analysis Batch: 553632**

**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	9.65		ug/L		96	51 - 153
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		66 - 120						

**Lab Sample ID: 240-176838-B-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 553632**

**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	Limit
1,4-Dioxane	2.0	U	10.0	9.68		ug/L		97	51 - 153	0	16
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	102		66 - 120								

# QC Association Summary

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

Job ID: 240-176842-1

## GC/MS VOA

### Analysis Batch: 553632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176842-2	MW-198S_111722	Total/NA	Water	8260D SIM	
240-176842-3	MW-198_111722	Total/NA	Water	8260D SIM	
240-176842-4	MW-197S_111722	Total/NA	Water	8260D SIM	
MB 240-553632/4	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-553632/3	Lab Control Sample	Total/NA	Water	8260D SIM	
240-176838-B-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-176838-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

### Analysis Batch: 553659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176842-1	TRIP BLANK_187	Total/NA	Water	8260D	
240-176842-2	MW-198S_111722	Total/NA	Water	8260D	
240-176842-3	MW-198_111722	Total/NA	Water	8260D	
MB 240-553659/4	Method Blank	Total/NA	Water	8260D	
LCS 240-553659/3	Lab Control Sample	Total/NA	Water	8260D	
240-176843-D-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-176843-D-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 554038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-176842-4	MW-197S_111722	Total/NA	Water	8260D	
MB 240-554038/5	Method Blank	Total/NA	Water	8260D	
LCS 240-554038/4	Lab Control Sample	Total/NA	Water	8260D	
240-176901-H-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-176901-N-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

# Lab Chronicle

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

Job ID: 240-176842-1

**Client Sample ID: TRIP BLANK\_187**

**Lab Sample ID: 240-176842-1**

**Date Collected: 11/17/22 00:00**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	553659	CS	EET CAN	11/29/22 08:35

**Client Sample ID: MW-198S\_111722**

**Lab Sample ID: 240-176842-2**

**Date Collected: 11/17/22 09:50**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	553659	CS	EET CAN	11/29/22 11:07
Total/NA	Analysis	8260D SIM		1	553632	CS	EET CAN	11/29/22 00:11

**Client Sample ID: MW-198\_111722**

**Lab Sample ID: 240-176842-3**

**Date Collected: 11/17/22 10:35**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	553659	CS	EET CAN	11/29/22 11:32
Total/NA	Analysis	8260D SIM		1	553632	CS	EET CAN	11/29/22 00:35

**Client Sample ID: MW-197S\_111722**

**Lab Sample ID: 240-176842-4**

**Date Collected: 11/17/22 11:40**

**Matrix: Water**

**Date Received: 11/19/22 08:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	554038	CS	EET CAN	12/01/22 07:20
Total/NA	Analysis	8260D SIM		1	553632	CS	EET CAN	11/29/22 00:59

**Laboratory References:**

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

# Accreditation/Certification Summary

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

Job ID: 240-176842-1

## 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	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
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	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

Chain of Custody Record

241243.1

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

<b>Client Contact</b> Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377 Phone: 248-994-2240 Project Name: Ford LTP On-Site Project Number: 30146655.401.03 PO # 30146655.401.03		<b>Regulatory program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other		<b>Client Project Manager: Kris Hinskey</b> Telephone: 248-994-2240 Email: kris.toffer.hinskey@arcadis.com Sampler Name: <i>Christian Gamble</i> Method of Shipment/Carrier: Shipping/Tracking No:		<b>Site Contact: Christina Weaver</b> Telephone: 248-994-2293 Analysis Turnaround Time TAT if different from below: <input checked="" type="checkbox"/> 3 weeks <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day 10 day		<b>Lab Contact: Mike DeMonico</b> Telephone: 330-497-9396 Analytes 1,1-DCE 8260B Composite-C / Grab-G Filtered Sample (Y/N) Containers & Preservatives H2SO4 HNO3 HCl NaOH ZnAc NaOH Other:		<b>TestAmerica Laboratories, Inc.</b> COC No: For lab use only Walk-in client Lab sampling Job/SDG No: Sample Specific Notes / Special Instructions:		
TRIP BLANK - 187	---	1	NG	X	X	X	X	X	X	X	X	1 Trip Blank
MW-1985-111721	11/17/22 950	6	NG	X	X	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-198-111721	11/17/22 1085	6	NG	X	X	X	X	X	X	X	X	I
MW-1975-111721	11/17/22 1140	6	NG	X	X	X	X	X	X	X	X	



<b>Possible Hazard Identification</b> <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<b>Sample Disposal</b> (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Relinquished by:</b> <i>Christina Weaver</i> Date/Time: 11/17/22 1230 Company: Arcadis		<b>Received by:</b> <i>Novi Cold Storage</i> Date/Time: 11/18/22 0945 Company: Arcadis	
<b>Relinquished by:</b> <i>Christina Weaver</i> Date/Time: 11/18/22 0945 Company: Arcadis		<b>Received by:</b> <i>Novi Cold Storage</i> Date/Time: 11/18/22 0945 Company: Arcadis	
<b>Relinquished by:</b> <i>Christina Weaver</i> Date/Time: 11/18/22 1139 Company: Arcadis		<b>Received in Laboratory by:</b> <i>M.A.D.</i> Date/Time: 11/19/21 8:30 Company: ETC	

Submit all results through Cadena at jtomalia@cadenaco.com, Cadena #E203728  
Level IV Reporting requested.

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**Eurofins - Canton Sample Receipt Form/Narrative** Login #: 176842  
**Barberton Facility**

Client ARCADIS Site Name \_\_\_\_\_ Cooler unpacked by: M. A. A.  
Cooler Received on 11/19/22 Opened on 11/19/22  
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 # EC 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 +0.7°C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 3.1 °C  
IR GUN #IR-15 (CF 0.0°C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No  
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
-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# HC286797  
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 # 0104201G Yes No  
17. Was a LL Hg or Me Hg trip blank present? Yes No

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

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

**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



December 06, 2022

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: 30146655.401.03- onsite groundwater  
Event Specific Scope of Work References: Sample COC  
Laboratory: Eurofins Environment Testing LLC - Barberton  
Laboratory submittal: 176842-1  
Sample date: 2022-11-17  
Report received by CADENA: 2022-12-06  
Initial Data Verification completed by CADENA: 2022-12-06  
Number of Samples:4  
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.**

There were no significant QC anomalies or exceptions to report.

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.

## Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory Submittal: 176842-1

Analyte	Cas No.	Sample Name: TRIP BLANK_187				MW-198S_111722				MW-198_111722				MW-197S_111722			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
		Lab Sample ID: 2401768421				2401768422				2401768423				2401768424			
		Sample Date: 11/17/2022				11/17/2022				11/17/2022				11/17/2022			

### GC/MS VOC

#### OSW-8260D

1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.74	1.0	ug/l	J
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	21	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	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	1.6	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	1.3	1.0	ug/l	---	ND	1.0	ug/l	---	120	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---	1.3	1.0	ug/l	---

#### OSW-8260DSIM

1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---
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