

# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

Ford LTP - On Site

## JOB NUMBER

240-200151-1

# Eurofins Cleveland

## 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: 240-200151-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: Ford LTP - On Site

Job ID: 240-200151-1

**Job ID: 240-200151-1**

**Eurofins Cleveland**

## Job Narrative 240-200151-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

### Receipt

The samples were received on 2/28/2024 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.3°C, 2.6°C, 3.1°C and 4.2°C.

### GC/MS VOA

Method 8260D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for the following sample associated with analytical batch 240-604629 were outside control limits: (240-200131-B-2 MS) and (240-200131-B-2 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method 8260D\_SIM: Surrogate recovery for the following sample was outside the upper control limit: MW-220S\_022324 (240-200151-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D\_SIM: The surrogate for the MS (240-200139-F-5 MS) failed high. The MS/MSD was done for batch QC only and not client specific. No further analysis for the MS/MSD was done.

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

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# Method Summary

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

Job ID: 240-200151-1

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

**Protocol References:**

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

**Laboratory References:**

EET CLE = Eurofins Cleveland, 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: 240-200151-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-200151-1	TRIP BLANK_109	Water	02/23/24 00:00	02/28/24 10:00
240-200151-2	MW-220S_022324	Water	02/23/24 09:33	02/28/24 10:00
240-200151-3	MW-22_022324	Water	02/23/24 10:57	02/28/24 10:00
240-200151-4	DUP-02	Water	02/23/24 00:00	02/28/24 10:00

- 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: 240-200151-1

## Client Sample ID: TRIP BLANK\_109

Lab Sample ID: 240-200151-1

No Detections.

## Client Sample ID: MW-220S\_022324

Lab Sample ID: 240-200151-2

No Detections.

## Client Sample ID: MW-22\_022324

Lab Sample ID: 240-200151-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	43		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	1200		40	18	ug/L	40		8260D	Total/NA

## Client Sample ID: DUP-02

Lab Sample ID: 240-200151-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	45		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	1200		50	23	ug/L	50		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: 240-200151-1

**Client Sample ID: TRIP BLANK\_109**

**Lab Sample ID: 240-200151-1**

Date Collected: 02/23/24 00:00

Matrix: Water

Date Received: 02/28/24 10:00

**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			03/01/24 00:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 00:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 00:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 00:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 00:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 00:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		62 - 137		03/01/24 00:57	1
4-Bromofluorobenzene (Surr)	96		56 - 136		03/01/24 00:57	1
Toluene-d8 (Surr)	97		78 - 122		03/01/24 00:57	1
Dibromofluoromethane (Surr)	99		73 - 120		03/01/24 00:57	1

# Client Sample Results

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

Job ID: 240-200151-1

**Client Sample ID: MW-220S\_022324**

**Lab Sample ID: 240-200151-2**

Date Collected: 02/23/24 09:33

Matrix: Water

Date Received: 02/28/24 10:00

**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			03/01/24 14:33	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)	133	S1+	68 - 127					03/01/24 14:33	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			03/01/24 02:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 02:12	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 02:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 02:12	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 02:12	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 02:12	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)	108		62 - 137					03/01/24 02:12	1
4-Bromofluorobenzene (Surr)	96		56 - 136					03/01/24 02:12	1
Toluene-d8 (Surr)	98		78 - 122					03/01/24 02:12	1
Dibromofluoromethane (Surr)	94		73 - 120					03/01/24 02:12	1

# Client Sample Results

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

Job ID: 240-200151-1

**Client Sample ID: MW-22\_022324**

**Lab Sample ID: 240-200151-3**

Date Collected: 02/23/24 10:57

Matrix: Water

Date Received: 02/28/24 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	43		2.0	0.86	ug/L			03/01/24 14:57	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)	107		68 - 127					03/01/24 14:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	40	U	40	20	ug/L			03/01/24 02:38	40
cis-1,2-Dichloroethene	40	U	40	18	ug/L			03/01/24 02:38	40
Tetrachloroethene	40	U	40	18	ug/L			03/01/24 02:38	40
trans-1,2-Dichloroethene	40	U	40	20	ug/L			03/01/24 02:38	40
Trichloroethene	40	U	40	18	ug/L			03/01/24 02:38	40
Vinyl chloride	1200		40	18	ug/L			03/01/24 02:38	40
<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)	103		62 - 137					03/01/24 02:38	40
4-Bromofluorobenzene (Surr)	93		56 - 136					03/01/24 02:38	40
Toluene-d8 (Surr)	96		78 - 122					03/01/24 02:38	40
Dibromofluoromethane (Surr)	88		73 - 120					03/01/24 02:38	40

# Client Sample Results

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

Job ID: 240-200151-1

**Client Sample ID: DUP-02**

**Lab Sample ID: 240-200151-4**

Date Collected: 02/23/24 00:00

Matrix: Water

Date Received: 02/28/24 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	45		2.0	0.86	ug/L			03/01/24 15:21	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)	119		68 - 127					03/01/24 15:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	25	ug/L			03/01/24 03:02	50
cis-1,2-Dichloroethene	50	U	50	23	ug/L			03/01/24 03:02	50
Tetrachloroethene	50	U	50	22	ug/L			03/01/24 03:02	50
trans-1,2-Dichloroethene	50	U	50	26	ug/L			03/01/24 03:02	50
Trichloroethene	50	U	50	22	ug/L			03/01/24 03:02	50
Vinyl chloride	1200		50	23	ug/L			03/01/24 03:02	50
<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					03/01/24 03:02	50
4-Bromofluorobenzene (Surr)	104		56 - 136					03/01/24 03:02	50
Toluene-d8 (Surr)	108		78 - 122					03/01/24 03:02	50
Dibromofluoromethane (Surr)	102		73 - 120					03/01/24 03:02	50

# Surrogate Summary

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

Job ID: 240-200151-1

## 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)
240-200131-B-2 MS	Matrix Spike	104	105	101	97
240-200131-B-2 MSD	Matrix Spike Duplicate	100	105	101	95
240-200151-1	TRIP BLANK_109	109	96	97	99
240-200151-2	MW-220S_022324	108	96	98	94
240-200151-3	MW-22_022324	103	93	96	88
240-200151-4	DUP-02	112	104	108	102
LCS 240-604629/5	Lab Control Sample	101	102	91	105
MB 240-604629/8	Method Blank	104	100	95	93

**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 (68-127)
240-200139-F-5 MS	Matrix Spike	146 S1+
240-200139-F-5 MSD	Matrix Spike Duplicate	123
240-200151-2	MW-220S_022324	133 S1+
240-200151-3	MW-22_022324	107
240-200151-4	DUP-02	119
LCS 240-604663/6	Lab Control Sample	116
MB 240-604663/5	Method Blank	103

**Surrogate Legend**

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

# QC Sample Results

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

Job ID: 240-200151-1

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

Lab Sample ID: MB 240-604629/8

Matrix: Water

Analysis Batch: 604629

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			02/29/24 19:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			02/29/24 19:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			02/29/24 19:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			02/29/24 19:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			02/29/24 19:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			02/29/24 19:33	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		02/29/24 19:33	1
4-Bromofluorobenzene (Surr)	100		56 - 136		02/29/24 19:33	1
Toluene-d8 (Surr)	95		78 - 122		02/29/24 19:33	1
Dibromofluoromethane (Surr)	93		73 - 120		02/29/24 19:33	1

Lab Sample ID: LCS 240-604629/5

Matrix: Water

Analysis Batch: 604629

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	23.1		ug/L		92	63 - 134
cis-1,2-Dichloroethene	25.0	25.6		ug/L		102	77 - 123
Tetrachloroethene	25.0	25.8		ug/L		103	76 - 123
trans-1,2-Dichloroethene	25.0	25.4		ug/L		102	75 - 124
Trichloroethene	25.0	25.6		ug/L		103	70 - 122
Vinyl chloride	12.5	9.66		ug/L		77	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	91		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120

Lab Sample ID: 240-200131-B-2 MS

Matrix: Water

Analysis Batch: 604629

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	20	U	500	499		ug/L		100	56 - 135
cis-1,2-Dichloroethene	52		500	556		ug/L		101	66 - 128
Tetrachloroethene	20	U	500	491		ug/L		98	62 - 131
trans-1,2-Dichloroethene	20	U	500	514		ug/L		103	56 - 136
Trichloroethene	20	U F2	500	549		ug/L		110	61 - 124
Vinyl chloride	810	F1	250	869	F1	ug/L		23	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	104		62 - 137
4-Bromofluorobenzene (Surr)	105		56 - 136
Toluene-d8 (Surr)	101		78 - 122

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# QC Sample Results

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

Job ID: 240-200151-1

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

Lab Sample ID: 240-200131-B-2 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604629

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	97		73 - 120

Lab Sample ID: 240-200131-B-2 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604629

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	464		ug/L		93	56 - 135	7	26
cis-1,2-Dichloroethene	52		500	501		ug/L		90	66 - 128	10	14
Tetrachloroethene	20	U	500	427		ug/L		85	62 - 131	14	20
trans-1,2-Dichloroethene	20	U	500	472		ug/L		94	56 - 136	9	15
Trichloroethene	20	U F2	500	410	F2	ug/L		82	61 - 124	29	15
Vinyl chloride	810	F1	250	788	F1	ug/L		-9	43 - 157	10	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	105		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120

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

Lab Sample ID: MB 240-604663/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604663

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			03/01/24 10:35	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	103		68 - 127		03/01/24 10:35	1

Lab Sample ID: LCS 240-604663/6

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604663

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	9.20		ug/L		92	75 - 121

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	116		68 - 127

Lab Sample ID: 240-200139-F-5 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 604663

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.0	U	10.0	9.40		ug/L		94	20 - 180

Eurofins Cleveland

# QC Sample Results

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

Job ID: 240-200151-1

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

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	146	S1+	68 - 127

**Lab Sample ID: 240-200139-F-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 604663**

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

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,4-Dioxane	2.0	U	10.0	8.59		ug/L		86	20 - 180	9	20

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	123		68 - 127

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# QC Association Summary

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

Job ID: 240-200151-1

## GC/MS VOA

### Analysis Batch: 604629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200151-1	TRIP BLANK_109	Total/NA	Water	8260D	
240-200151-2	MW-220S_022324	Total/NA	Water	8260D	
240-200151-3	MW-22_022324	Total/NA	Water	8260D	
240-200151-4	DUP-02	Total/NA	Water	8260D	
MB 240-604629/8	Method Blank	Total/NA	Water	8260D	
LCS 240-604629/5	Lab Control Sample	Total/NA	Water	8260D	
240-200131-B-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-200131-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 604663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-200151-2	MW-220S_022324	Total/NA	Water	8260D SIM	
240-200151-3	MW-22_022324	Total/NA	Water	8260D SIM	
240-200151-4	DUP-02	Total/NA	Water	8260D SIM	
MB 240-604663/5	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-604663/6	Lab Control Sample	Total/NA	Water	8260D SIM	
240-200139-F-5 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-200139-F-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

# Lab Chronicle

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

Job ID: 240-200151-1

**Client Sample ID: TRIP BLANK\_109**

**Lab Sample ID: 240-200151-1**

Date Collected: 02/23/24 00:00

Matrix: Water

Date Received: 02/28/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	604629	CDG	EET CLE	03/01/24 00:57

**Client Sample ID: MW-220S\_022324**

**Lab Sample ID: 240-200151-2**

Date Collected: 02/23/24 09:33

Matrix: Water

Date Received: 02/28/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	604629	CDG	EET CLE	03/01/24 02:12
Total/NA	Analysis	8260D SIM		1	604663	MDH	EET CLE	03/01/24 14:33

**Client Sample ID: MW-22\_022324**

**Lab Sample ID: 240-200151-3**

Date Collected: 02/23/24 10:57

Matrix: Water

Date Received: 02/28/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		40	604629	CDG	EET CLE	03/01/24 02:38
Total/NA	Analysis	8260D SIM		1	604663	MDH	EET CLE	03/01/24 14:57

**Client Sample ID: DUP-02**

**Lab Sample ID: 240-200151-4**

Date Collected: 02/23/24 00:00

Matrix: Water

Date Received: 02/28/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		50	604629	CDG	EET CLE	03/01/24 03:02
Total/NA	Analysis	8260D SIM		1	604663	MDH	EET CLE	03/01/24 15:21

**Laboratory References:**

EET CLE = Eurofins Cleveland, 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: 240-200151-1

## Laboratory: Eurofins Cleveland

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	02-27-24 *
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-01-24
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

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



Eurofins - Cleveland Sample Receipt Form/Narrative  
 Barberon Facility  
 Login # \_\_\_\_\_

Client ARCADIS Site Name \_\_\_\_\_  
 Cooler Received on 2-28-24 Opened on 2-28-24 Cooler unpacked by: M. J. Jovan

FedEx 1st Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other \_\_\_\_\_  
 Receipt After-hour? Drop-off Date/Time Storage Location \_\_\_\_\_

Eurofins Cooler # 12 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 \_\_\_\_\_  
 IR GUN # \_\_\_\_\_ (CF \_\_\_\_\_ °C) Observed Cooler Temp \_\_\_\_\_ °C Corrected Cooler Temp \_\_\_\_\_ °C  
 See Multiple Cooler Form

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No 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 (LHhg/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 DMN, # of containers DMN, and sample type of grab/comp DMN?  
 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

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

13 Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC316719  
 14 Were VOAs on the COC? Yes No  
 15 Were air bubbles > 6 mm in any VOA vials? Yes No Larger than this.  
 16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_  
 17 Was a LL Hg or Me Hg trip blank present? Yes No  
 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 \_\_\_\_\_



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eurofins

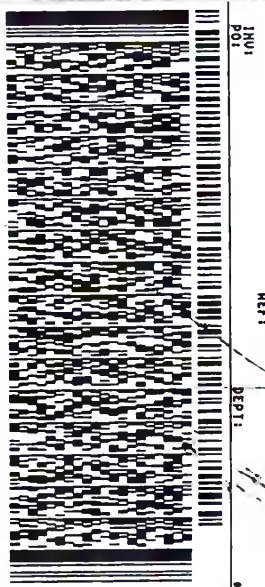


240-200151 Waybill  
 : 27FEB24  
 19 53 LB  
 3192/CMF3755  
 ZIPENT

ORIGIN ID:DE06 (810) 229-276  
 SHIPPING DEPARTMENT  
 EUROFINS MICHIGAN SERVICE CEN  
 10448 CITATION DRIVE  
 SUITE 200  
 BRIGHTON, MI 48116  
 UNITED STATES US

TO ATTN: SAMPLE RECEIVING  
 EUROFINS CLEVELAND  
 180 S. VAN BUREN AVE.

BARBERTON OH 44203



1 of 3  
 TRK# 6189 7344 4086  
 0201

WED - 28 FEB 10:30A  
 PRIORITY OVERNIGHT

# MASTER #  
**64 CAKA**

44203  
 OH-US CLE



# DATA VERIFICATION REPORT



March 05, 2024

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  
Event Specific Scope of Work References: Sample COC  
Laboratory: Eurofins Environment Testing LLC - Cleveland  
Laboratory submittal: 200151-1  
Sample date: 2024-02-23  
Report received by CADENA: 2024-03-05  
Initial Data Verification completed by CADENA: 2024-03-05  
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.**

The following minor QC exceptions or missing information were noted:

GCMS VOC SIM sample -002 SURROGATE recovery was outlying biased high for 1 surrogate. Associated client sample results were non-detect so qualification was not required based on this high bias QC outlier.

GCMS VOC/SIM 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.

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

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

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

Please contact me if you have any questions.

Sincerely,



Jim Tomalia

Project Scientist

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

## CADENA Valid Qualifiers

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

# Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 200151-1

<b>Sample Name:</b>	TRIP BLANK_109	MW-220S_022324	MW-22_022324	DUP-02
<b>Lab Sample ID:</b>	2402001511	2402001512	2402001513	2402001514
<b>Sample Date:</b>	2/23/2024	2/23/2024	2/23/2024	2/23/2024

Analyte	Cas No.	Report				Valid				Report				Valid			
		Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	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	40	ug/l	---	ND	50	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	40	ug/l	---	ND	50	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	40	ug/l	---	ND	50	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	40	ug/l	---	ND	50	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	40	ug/l	---	ND	50	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	1200	40	ug/l	---	1200	50	ug/l	---
<u>OSW-8260DSIM</u>																	
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	43	2.0	ug/l	---	45	2.0	ug/l	---