

# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

Ford LTP

## JOB NUMBER

240-205041-1

# Eurofins Cleveland

## Job Notes

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## Authorization



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# Definitions/Glossary

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

Job ID: 240-205041-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
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: Ford LTP

Job ID: 240-205041-1

**Job ID: 240-205041-1**

**Eurofins Cleveland**

## Job Narrative 240-205041-1

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 5/23/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8°C and 3.4°C.

### GC/MS VOA

Method 8260D: Method 8260D no longer uses the BFB tune as the point to where the method's 12 hour tune time is established. Rather, the first CCV is used as the point of initial tune time. The laboratory still analyzes and uploads the BFB as an in house check for instrument performance.

(240-204973-B-1 MSD)

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-614817 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D\_SIM: The following samples were analyzed outside of analytical holding time due to analyst oversight: MW-40\_052124 (240-205041-2) and MW-41\_052124 (240-205041-3).

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

Job ID: 240-205041-1

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

Job ID: 240-205041-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205041-1	TRIP BLANK_80	Water	05/21/24 00:00	05/23/24 08:00
240-205041-2	MW-40_052124	Water	05/21/24 09:20	05/23/24 08:00
240-205041-3	MW-41_052124	Water	05/21/24 13:15	05/23/24 08:00
240-205041-4	MW-42_052124	Water	05/21/24 12:05	05/23/24 08:00
240-205041-5	MW-113_052124	Water	05/21/24 15:15	05/23/24 08:00

- 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

Job ID: 240-205041-1

## Client Sample ID: TRIP BLANK\_80

Lab Sample ID: 240-205041-1

No Detections.

## Client Sample ID: MW-40\_052124

Lab Sample ID: 240-205041-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.1		1.0	0.46	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-41\_052124

Lab Sample ID: 240-205041-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	13	H	2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.62	J	1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-42\_052124

Lab Sample ID: 240-205041-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.3	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	0.66	J	1.0	0.45	ug/L	1		8260D	Total/NA

## Client Sample ID: MW-113\_052124

Lab Sample ID: 240-205041-5

No Detections.

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

Job ID: 240-205041-1

**Client Sample ID: TRIP BLANK\_80**

**Lab Sample ID: 240-205041-1**

Date Collected: 05/21/24 00:00

Matrix: Water

Date Received: 05/23/24 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			05/30/24 19:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 19:34	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 19:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 19:34	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 19:34	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/24 19:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		05/30/24 19:34	1
4-Bromofluorobenzene (Surr)	91		56 - 136		05/30/24 19:34	1
Toluene-d8 (Surr)	94		78 - 122		05/30/24 19:34	1
Dibromofluoromethane (Surr)	99		73 - 120		05/30/24 19:34	1

# Client Sample Results

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

Job ID: 240-205041-1

**Client Sample ID: MW-40\_052124**

**Lab Sample ID: 240-205041-2**

Date Collected: 05/21/24 09:20

Matrix: Water

Date Received: 05/23/24 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 H	2.0	0.86	ug/L			06/06/24 10:23	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)	105		68 - 127					06/06/24 10:23	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			05/31/24 00:34	1
<b>cis-1,2-Dichloroethene</b>	<b>2.1</b>		1.0	0.46	ug/L			05/31/24 00:34	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/31/24 00:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/31/24 00:34	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/31/24 00:34	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/31/24 00:34	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)	118		62 - 137					05/31/24 00:34	1
4-Bromofluorobenzene (Surr)	94		56 - 136					05/31/24 00:34	1
Toluene-d8 (Surr)	101		78 - 122					05/31/24 00:34	1
Dibromofluoromethane (Surr)	104		73 - 120					05/31/24 00:34	1

# Client Sample Results

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

Job ID: 240-205041-1

**Client Sample ID: MW-41\_052124**

**Lab Sample ID: 240-205041-3**

Date Collected: 05/21/24 13:15

Matrix: Water

Date Received: 05/23/24 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	13	H	2.0	0.86	ug/L			06/06/24 10:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		68 - 127					06/06/24 10:47	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			05/30/24 23:44	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 23:44	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 23:44	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 23:44	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 23:44	1
Vinyl chloride	0.62	J	1.0	0.45	ug/L			05/30/24 23:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		62 - 137					05/30/24 23:44	1
1,2-Dichloroethane-d4 (Surr)	116		62 - 137					05/31/24 00:59	1
4-Bromofluorobenzene (Surr)	93		56 - 136					05/30/24 23:44	1
4-Bromofluorobenzene (Surr)	90		56 - 136					05/31/24 00:59	1
Toluene-d8 (Surr)	100		78 - 122					05/30/24 23:44	1
Toluene-d8 (Surr)	99		78 - 122					05/31/24 00:59	1
Dibromofluoromethane (Surr)	104		73 - 120					05/30/24 23:44	1
Dibromofluoromethane (Surr)	102		73 - 120					05/31/24 00:59	1

# Client Sample Results

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

Job ID: 240-205041-1

**Client Sample ID: MW-42\_052124**

**Lab Sample ID: 240-205041-4**

Date Collected: 05/21/24 12:05

Matrix: Water

Date Received: 05/23/24 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	1.3	J	2.0	0.86	ug/L			06/01/24 08:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 127					06/01/24 08:52	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			05/31/24 01:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/31/24 01:24	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/31/24 01:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/31/24 01:24	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/31/24 01:24	1
Vinyl chloride	0.66	J	1.0	0.45	ug/L			05/31/24 01:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		62 - 137					05/31/24 01:24	1
4-Bromofluorobenzene (Surr)	93		56 - 136					05/31/24 01:24	1
Toluene-d8 (Surr)	101		78 - 122					05/31/24 01:24	1
Dibromofluoromethane (Surr)	103		73 - 120					05/31/24 01:24	1

# Client Sample Results

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

Job ID: 240-205041-1

**Client Sample ID: MW-113\_052124**

**Lab Sample ID: 240-205041-5**

Date Collected: 05/21/24 15:15

Matrix: Water

Date Received: 05/23/24 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			06/01/24 09:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		68 - 127					06/01/24 09:16	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			05/30/24 08:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 08:34	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 08:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 08:34	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 08:34	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/24 08:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		62 - 137					05/30/24 08:34	1
4-Bromofluorobenzene (Surr)	89		56 - 136					05/30/24 08:34	1
Toluene-d8 (Surr)	93		78 - 122					05/30/24 08:34	1
Dibromofluoromethane (Surr)	106		73 - 120					05/30/24 08:34	1

# Surrogate Summary

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

Job ID: 240-205041-1

## 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	DCA	BFB	TOL	DBFM
		(62-137)	(56-136)	(78-122)	(73-120)
240-204972-A-5 MS	Matrix Spike	97	97	97	98
240-204972-B-5 MSD	Matrix Spike Duplicate	96	94	93	99
240-204973-B-1 MS	Matrix Spike	101	103	103	96
240-204973-B-1 MSD	Matrix Spike Duplicate	98	103	101	94
240-205041-1	TRIP BLANK_80	102	91	94	99
240-205041-2	MW-40_052124	118	94	101	104
240-205041-3	MW-41_052124	118	93	100	104
240-205041-3	MW-41_052124	116	90	99	102
240-205041-4	MW-42_052124	119	93	101	103
240-205041-5	MW-113_052124	116	89	93	106
240-205042-B-5 MS	Matrix Spike	109	109	103	102
240-205042-B-5 MSD	Matrix Spike Duplicate	107	109	103	102
LCS 240-614815/5	Lab Control Sample	97	102	99	94
LCS 240-614817/3	Lab Control Sample	108	110	102	102
LCS 240-614939/4	Lab Control Sample	96	96	96	98
MB 240-614815/8	Method Blank	106	89	91	104
MB 240-614817/5	Method Blank	114	97	101	102
MB 240-614939/5	Method Blank	99	91	94	97

#### 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
		(68-127)
240-205041-2	MW-40_052124	105
240-205041-3	MW-41_052124	105
240-205041-4	MW-42_052124	108
240-205041-5	MW-113_052124	105
240-205042-A-2 MS	Matrix Spike	104
240-205042-A-2 MSD	Matrix Spike Duplicate	105
240-205411-A-6 MS	Matrix Spike	111
240-205411-E-6 MSD	Matrix Spike Duplicate	110
LCS 240-615090/4	Lab Control Sample	105
LCS 240-615662/4	Lab Control Sample	101
MB 240-615090/6	Method Blank	106
MB 240-615662/6	Method Blank	104

#### Surrogate Legend

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

# QC Sample Results

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

Job ID: 240-205041-1

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

**Lab Sample ID: MB 240-614815/8**  
**Matrix: Water**  
**Analysis Batch: 614815**

**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			05/30/24 06:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 06:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 06:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 06:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 06:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/24 06:51	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		05/30/24 06:51	1
4-Bromofluorobenzene (Surr)	89		56 - 136		05/30/24 06:51	1
Toluene-d8 (Surr)	91		78 - 122		05/30/24 06:51	1
Dibromofluoromethane (Surr)	104		73 - 120		05/30/24 06:51	1

**Lab Sample ID: LCS 240-614815/5**  
**Matrix: Water**  
**Analysis Batch: 614815**

**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	23.8		ug/L		95	63 - 134
cis-1,2-Dichloroethene	25.0	21.7		ug/L		87	77 - 123
Tetrachloroethene	25.0	25.0		ug/L		100	76 - 123
trans-1,2-Dichloroethene	25.0	21.2		ug/L		85	75 - 124
Trichloroethene	25.0	22.4		ug/L		90	70 - 122
Vinyl chloride	12.5	11.1		ug/L		89	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
4-Bromofluorobenzene (Surr)	102		56 - 136
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

**Lab Sample ID: 240-204973-B-1 MS**  
**Matrix: Water**  
**Analysis Batch: 614815**

**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	500	U	12500	13300		ug/L		106	56 - 135
cis-1,2-Dichloroethene	1300		12500	12800		ug/L		92	66 - 128
Tetrachloroethene	500	U	12500	13300		ug/L		107	62 - 131
trans-1,2-Dichloroethene	500	U	12500	11500		ug/L		92	56 - 136
Trichloroethene	3300		12500	14400		ug/L		89	61 - 124
Vinyl chloride	500	U	6250	6120		ug/L		98	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	103		78 - 122

# QC Sample Results

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

Job ID: 240-205041-1

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

Lab Sample ID: 240-204973-B-1 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614815

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	96		73 - 120

Lab Sample ID: 240-204973-B-1 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614815

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1-Dichloroethene	500	U	12500	11500		ug/L		92	56 - 135	14	26
cis-1,2-Dichloroethene	1300		12500	11200		ug/L		80	66 - 128	13	14
Tetrachloroethene	500	U	12500	11700		ug/L		94	62 - 131	12	20
trans-1,2-Dichloroethene	500	U	12500	9830		ug/L		79	56 - 136	15	15
Trichloroethene	3300		12500	13300		ug/L		80	61 - 124	8	15
Vinyl chloride	500	U	6250	4790		ug/L		77	43 - 157	24	24

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	98		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

Lab Sample ID: MB 240-614817/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614817

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		05/30/24 17:56	1	
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L		05/30/24 17:56	1	
Tetrachloroethene	1.0	U	1.0	0.44	ug/L		05/30/24 17:56	1	
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L		05/30/24 17:56	1	
Trichloroethene	1.0	U	1.0	0.44	ug/L		05/30/24 17:56	1	
Vinyl chloride	1.0	U	1.0	0.45	ug/L		05/30/24 17:56	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	114		62 - 137		05/30/24 17:56	1
4-Bromofluorobenzene (Surr)	97		56 - 136		05/30/24 17:56	1
Toluene-d8 (Surr)	101		78 - 122		05/30/24 17:56	1
Dibromofluoromethane (Surr)	102		73 - 120		05/30/24 17:56	1

Lab Sample ID: LCS 240-614817/3

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 614817

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
1,1-Dichloroethene	25.0	27.5		ug/L		110	63 - 134
cis-1,2-Dichloroethene	25.0	25.6		ug/L		102	77 - 123
Tetrachloroethene	25.0	24.8		ug/L		99	76 - 123
trans-1,2-Dichloroethene	25.0	25.6		ug/L		103	75 - 124
Trichloroethene	25.0	25.1		ug/L		100	70 - 122

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# QC Sample Results

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

Job ID: 240-205041-1

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

Lab Sample ID: LCS 240-614817/3

Matrix: Water

Analysis Batch: 614817

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	12.5	9.10		ug/L		73	60 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		62 - 137
4-Bromofluorobenzene (Surr)	110		56 - 136
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-205042-B-5 MS

Matrix: Water

Analysis Batch: 614817

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 F2	25.0	25.7		ug/L		103	56 - 135
cis-1,2-Dichloroethene	1.0	U F2	25.0	23.8		ug/L		95	66 - 128
Tetrachloroethene	1.0	U F2	25.0	23.2		ug/L		93	62 - 131
trans-1,2-Dichloroethene	1.0	U F2	25.0	23.8		ug/L		95	56 - 136
Trichloroethene	1.0	U F2	25.0	22.2		ug/L		89	61 - 124
Vinyl chloride	1.0	U F2	12.5	9.88		ug/L		79	43 - 157

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		62 - 137
4-Bromofluorobenzene (Surr)	109		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

Lab Sample ID: 240-205042-B-5 MSD

Matrix: Water

Analysis Batch: 614817

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 F2	25.0	19.1	F2	ug/L		76	56 - 135	29	26
cis-1,2-Dichloroethene	1.0	U F2	25.0	17.6	F2	ug/L		71	66 - 128	30	14
Tetrachloroethene	1.0	U F2	25.0	17.3	F2	ug/L		69	62 - 131	29	20
trans-1,2-Dichloroethene	1.0	U F2	25.0	17.9	F2	ug/L		72	56 - 136	29	15
Trichloroethene	1.0	U F2	25.0	16.9	F2	ug/L		67	61 - 124	27	15
Vinyl chloride	1.0	U F2	12.5	5.62	F2	ug/L		45	43 - 157	55	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		62 - 137
4-Bromofluorobenzene (Surr)	109		56 - 136
Toluene-d8 (Surr)	103		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120

# QC Sample Results

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

Job ID: 240-205041-1

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

Lab Sample ID: MB 240-614939/5

Matrix: Water

Analysis Batch: 614939

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			05/30/24 16:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			05/30/24 16:53	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 16:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			05/30/24 16:53	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			05/30/24 16:53	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			05/30/24 16:53	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		05/30/24 16:53	1
4-Bromofluorobenzene (Surr)	91		56 - 136		05/30/24 16:53	1
Toluene-d8 (Surr)	94		78 - 122		05/30/24 16:53	1
Dibromofluoromethane (Surr)	97		73 - 120		05/30/24 16:53	1

Lab Sample ID: LCS 240-614939/4

Matrix: Water

Analysis Batch: 614939

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	25.0	23.4		ug/L		94	77 - 123
Tetrachloroethene	25.0	25.7		ug/L		103	76 - 123
trans-1,2-Dichloroethene	25.0	28.5		ug/L		114	75 - 124
Trichloroethene	25.0	24.7		ug/L		99	70 - 122
Vinyl chloride	12.5	9.36		ug/L		75	60 - 144

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

Lab Sample ID: 240-204972-A-5 MS

Matrix: Water

Analysis Batch: 614939

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	25.0	26.1		ug/L		104	56 - 135
cis-1,2-Dichloroethene	1.0	U	25.0	23.5		ug/L		94	66 - 128
Tetrachloroethene	1.0	U	25.0	23.4		ug/L		94	62 - 131
trans-1,2-Dichloroethene	1.0	U	25.0	27.5		ug/L		110	56 - 136
Trichloroethene	1.0	U	25.0	23.5		ug/L		94	61 - 124
Vinyl chloride	1.0	U	12.5	8.53		ug/L		68	43 - 157

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

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# QC Sample Results

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

Job ID: 240-205041-1

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

**Lab Sample ID: 240-204972-A-5 MS**  
**Matrix: Water**  
**Analysis Batch: 614939**

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	98		73 - 120

**Lab Sample ID: 240-204972-B-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 614939**

**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	27.0		ug/L		108	56 - 135	4	26
cis-1,2-Dichloroethene	1.0	U	25.0	23.9		ug/L		96	66 - 128	2	14
Tetrachloroethene	1.0	U	25.0	24.1		ug/L		96	62 - 131	3	20
trans-1,2-Dichloroethene	1.0	U	25.0	27.5		ug/L		110	56 - 136	0	15
Trichloroethene	1.0	U	25.0	23.8		ug/L		95	61 - 124	2	15
Vinyl chloride	1.0	U	12.5	8.91		ug/L		71	43 - 157	4	24

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
4-Bromofluorobenzene (Surr)	94		56 - 136
Toluene-d8 (Surr)	93		78 - 122
Dibromofluoromethane (Surr)	99		73 - 120

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

**Lab Sample ID: MB 240-615090/6**  
**Matrix: Water**  
**Analysis Batch: 615090**

**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			06/01/24 02:02	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	106		68 - 127		06/01/24 02:02	1

**Lab Sample ID: LCS 240-615090/4**  
**Matrix: Water**  
**Analysis Batch: 615090**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	10.8		ug/L		108	75 - 121

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		68 - 127

**Lab Sample ID: 240-205042-A-2 MS**  
**Matrix: Water**  
**Analysis Batch: 615090**

**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	2.3		10.0	11.6		ug/L		93	20 - 180

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# QC Sample Results

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

Job ID: 240-205041-1

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

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		68 - 127

Lab Sample ID: 240-205042-A-2 MSD  
Matrix: Water  
Analysis Batch: 615090

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.3		10.0	11.7		ug/L		94	20 - 180	1	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		68 - 127

Lab Sample ID: MB 240-615662/6  
Matrix: Water  
Analysis Batch: 615662

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			06/06/24 08:50	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	104		68 - 127		06/06/24 08:50	1

Lab Sample ID: LCS 240-615662/4  
Matrix: Water  
Analysis Batch: 615662

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	9.73		ug/L		97	75 - 121

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		68 - 127

Lab Sample ID: 240-205411-A-6 MS  
Matrix: Water  
Analysis Batch: 615662

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	9.47		ug/L		95	20 - 180

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		68 - 127

Lab Sample ID: 240-205411-E-6 MSD  
Matrix: Water  
Analysis Batch: 615662

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	9.89		ug/L		99	20 - 180	4	20

# QC Sample Results

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

Job ID: 240-205041-1

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

Lab Sample ID: 240-205411-E-6 MSD

Matrix: Water

Analysis Batch: 615662

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)	110		68 - 127

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

# QC Association Summary

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

Job ID: 240-205041-1

## GC/MS VOA

### Analysis Batch: 614815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205041-5	MW-113_052124	Total/NA	Water	8260D	
MB 240-614815/8	Method Blank	Total/NA	Water	8260D	
LCS 240-614815/5	Lab Control Sample	Total/NA	Water	8260D	
240-204973-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
240-204973-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 614817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205041-2	MW-40_052124	Total/NA	Water	8260D	
240-205041-3	MW-41_052124	Total/NA	Water	8260D	
240-205041-3	MW-41_052124	Total/NA	Water	8260D	
240-205041-4	MW-42_052124	Total/NA	Water	8260D	
MB 240-614817/5	Method Blank	Total/NA	Water	8260D	
LCS 240-614817/3	Lab Control Sample	Total/NA	Water	8260D	
240-205042-B-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-205042-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 614939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205041-1	TRIP BLANK_80	Total/NA	Water	8260D	
MB 240-614939/5	Method Blank	Total/NA	Water	8260D	
LCS 240-614939/4	Lab Control Sample	Total/NA	Water	8260D	
240-204972-A-5 MS	Matrix Spike	Total/NA	Water	8260D	
240-204972-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

### Analysis Batch: 615090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205041-4	MW-42_052124	Total/NA	Water	8260D SIM	
240-205041-5	MW-113_052124	Total/NA	Water	8260D SIM	
MB 240-615090/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-615090/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-205042-A-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-205042-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

### Analysis Batch: 615662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205041-2	MW-40_052124	Total/NA	Water	8260D SIM	
240-205041-3	MW-41_052124	Total/NA	Water	8260D SIM	
MB 240-615662/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-615662/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-205411-A-6 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-205411-E-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

# Lab Chronicle

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

Job ID: 240-205041-1

**Client Sample ID: TRIP BLANK\_80**

**Lab Sample ID: 240-205041-1**

Date Collected: 05/21/24 00:00

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614939	CS	EET CLE	05/30/24 19:34

**Client Sample ID: MW-40\_052124**

**Lab Sample ID: 240-205041-2**

Date Collected: 05/21/24 09:20

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/31/24 00:34
Total/NA	Analysis	8260D SIM		1	615662	MDH	EET CLE	06/06/24 10:23

**Client Sample ID: MW-41\_052124**

**Lab Sample ID: 240-205041-3**

Date Collected: 05/21/24 13:15

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/30/24 23:44
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/31/24 00:59
Total/NA	Analysis	8260D SIM		1	615662	MDH	EET CLE	06/06/24 10:47

**Client Sample ID: MW-42\_052124**

**Lab Sample ID: 240-205041-4**

Date Collected: 05/21/24 12:05

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614817	TJL2	EET CLE	05/31/24 01:24
Total/NA	Analysis	8260D SIM		1	615090	MDH	EET CLE	06/01/24 08:52

**Client Sample ID: MW-113\_052124**

**Lab Sample ID: 240-205041-5**

Date Collected: 05/21/24 15:15

Matrix: Water

Date Received: 05/23/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	614815	TJL2	EET CLE	05/30/24 08:34
Total/NA	Analysis	8260D SIM		1	615090	MDH	EET CLE	06/01/24 09:16

**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

Job ID: 240-205041-1

## Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

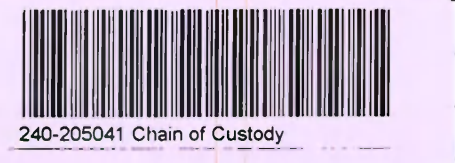
Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
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



## Chain of Custody Record

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

<b>Client Contact</b>		<b>Regulatory program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other										<b>TestAmerica Laboratories, Inc.</b>														
Company Name: Arcadis		Client Project Manager: Kris Hinskey			Site Contact: Christina Weaver			Lab Contact: Mike DeMossico			COC No:															
Address: 28550 Cabot Drive, Suite 500		Telephone: 248-994-2240			Telephone: 248-994-2240			Telephone: 330-497-9396			1 of 1 COCs															
City/State/Zip: Novi, MI, 48377		Email: kristoffer.hinskey@arcadis.com			<b>Analysis Turnaround Time</b>			<b>Analyses</b>			For lab use only															
Phone: 248-994-2240		Sampler Name: <i>Kent Kasper</i>			TAT if different from below 10 day <input checked="" type="checkbox"/> 3 weeks <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Walk-in client															
Project Name: Ford LTP On-Site		Method of Shipments/Carrier:			Filtered Sample (Y/N) Composite=C / Grab=G			1,1-DCE 82600 cis-1,2-DCE 82600 Trans-1,2-DCE 82600 PCE 82600 TCE 82600 Vinyl Chloride 82600 1,4-Dioxane 82600 SIM			Lab sampling															
Project Number: 30167538.401.03		Shipping/Tracking No:									Job/SDG No:															
PO # 30167538.401.03												Sample Specific Notes / Special Instructions:														
Sample Identification		Sample Date	Sample Time	Matrix					Containers & Preservatives																	
				Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	Zn-Ac	MROB	Urejas	Other:										
✓ TRIP BLANK_ 80		---	---	X						1							NG	X	X	X	X	X	X			1 Trip Blank
✓ MW-40-052124		5/21/24	0920	G						G							NG	X	X	X	X	X	X			3 VOAs for 82600 3 VOAs for 82600 SIM
✓ MW-41-052124		5/21/24	1315	G						G							NG	X	X	X	X	X	X			
✓ MW-42-052124		5/21/24	1205	G						G							NG	X	X	X	X	X	X			
✓ MW-113-052124		5/21/24	1515	G						G							NG	X	X	X	X	X	X			



**Possible Hazard Identification**  
 Non-Hazard  Flammable  Irritant  Poison B  Unknown  
**Sample Disposal (A fee may be assessed if samples are retained for...)**  
 Return to Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

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

Relinquished by: <i>[Signature]</i>	Company: Arcadis	Date/Time: 5/21/24 1627	Received by: <i>[Signature]</i>	Company: Arcadis	Date/Time: 5/21/24 1627
Relinquished by: <i>[Signature]</i>	Company: Arcadis	Date/Time: 5/22/24 1440	Received by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: 5/22/24 1440
Relinquished by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: 5/22/24 1500	Received in Laboratory by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: 5/23/24 0800

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Eurofins - Cleveland Sample Receipt Form/Narrative Login # 205641  
 Barberion Facility

Client Arcadis Site Name LTP Cooler unpacked by: me

Cooler Received on 5-23-24 Opened on 5-23-24  
 FedEx: 1<sup>st</sup> Grd Exp UPS FAS Waypoint 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 18 (CF 0.0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp \_\_\_\_\_ °C  
 IR GUN # \_\_\_\_\_ See Multiple Cooler Form

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea 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 (LIHg/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 NA  
 4. Did custody papers accompany the sample(s)? Yes No NA  
 5 Were the custody papers relinquished & signed in the appropriate place? Yes No NA  
 6 Was/were the person(s) who collected the samples clearly identified on the COC? Yes No NA  
 7 Did all bottles arrive in good condition (Unbroken)? Yes No NA  
 8 Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No NA  
 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 NA  
 10 Were correct bottle(s) used for the test(s) indicated? Yes No NA  
 11 Sufficient quantity received to perform indicated analyses? Yes No NA  
 12. Are these work share samples and all listed on the COC? Yes No NA

Tests that are not checked for pH by Receiving VOA's Oil and Grease TOC

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 Strp Lot# HC439975  
 14. Were VOAs on the COC? Yes No  
 15 Were air bubbles >6 mm in any VOA vials? Yes NA  
 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 2041301F Yes No  
 17 Was a LI. Hg or Me Hg trip blank present? Yes NA

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. \_\_\_\_\_



Login # . 205041

Eurofins Cleveland Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC Client box Other	IR GUN #: <u>18</u>	<u>3.4</u>	<u>3.4</u>	<u>Water</u> Blue Ice Dry Ice
EC Client box Other	IR GUN #: <u>18</u>	<u>1.8</u>	<u>1.8</u>	<u>Water</u> Blue Ice Dry Ice
EC Client box Other	IR GUN #:			Water None
EC Client box Other	IR GUN #:			Water None
EC Client box Other	IR GUN #:			Water None
EC Client box Other	IR GUN #:			Water None
EC Client box Other	IR GUN #:			Water None
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EC Client box Other	IR GUN #:			Water None
EC Client box Other	IR GUN #:			Water None
EC Client box Other	IR GUN #:			Water None

See Temperature Excursion Form

WJ-MC-099 Cooler Receipt Form Page 2 - Multiple Coolers



Temperature readings

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Container Temp</u>	<u>Preservation Added</u>	<u>Preservation Lot Number</u>
TRIP BLANK_80	240-205041-A-1	Yoa Vial 40ml - Hydrochloric Acid				
MW-40_052124	240-205041-A-2	Yoa Vial 40ml - Hydrochloric Acid				
MW-40_052124	240-205041-B-2	Yoa Vial 40ml - Hydrochloric Acid				
MW-40_052124	240-205041-C-2	Yoa Vial 40ml - Hydrochloric Acid				
MW-40_052124	240-205041-D-2	Yoa Vial 40ml - Hydrochloric Acid				
MW-40_052124	240-205041-E-2	Yoa Vial 40ml - Hydrochloric Acid				
MW-40_052124	240-205041-F-2	Yoa Vial 40ml - Hydrochloric Acid				
MW-41_052124	240-205041-A-3	Yoa Vial 40ml - Hydrochloric Acid				
MW-41_052124	240-205041-B-3	Yoa Vial 40ml - Hydrochloric Acid				
MW-41_052124	240-205041-C-3	Yoa Vial 40ml - Hydrochloric Acid				
MW-41_052124	240-205041-D-3	Yoa Vial 40ml - Hydrochloric Acid				
MW-41_052124	240-205041-E-3	Yoa Vial 40ml - Hydrochloric Acid				
MW-41_052124	240-205041-F-3	Yoa Vial 40ml - Hydrochloric Acid				
MW-42_052124	240-205041-A-4	Yoa Vial 40ml - Hydrochloric Acid				
MW-42_052124	240-205041-B-4	Yoa Vial 40ml - Hydrochloric Acid				
MW-42_052124	240-205041-C-4	Yoa Vial 40ml - Hydrochloric Acid				
MW-42_052124	240-205041-D-4	Yoa Vial 40ml - Hydrochloric Acid				
MW-42_052124	240-205041-E-4	Yoa Vial 40ml - Hydrochloric Acid				
MW-42_052124	240-205041-F-4	Yoa Vial 40ml - Hydrochloric Acid				
MW-113_052124	240-205041-A-5	Yoa Vial 40ml - Hydrochloric Acid				
MW-113_052124	240-205041-B-5	Yoa Vial 40ml - Hydrochloric Acid				
MW-113_052124	240-205041-C-5	Yoa Vial 40ml - Hydrochloric Acid				
MW-113_052124	240-205041-D-5	Yoa Vial 40ml - Hydrochloric Acid				
MW-113_052124	240-205041-E-5	Yoa Vial 40ml - Hydrochloric Acid				
MW-113_052124	240-205041-F-5	Yoa Vial 40ml - Hydrochloric Acid				

# DATA VERIFICATION REPORT



June 07, 2024

Megan Meckley  
Arcadis  
28550 Cabot Drive  
Suite 500  
Novi, MI US 48377

CADENA project ID: E203728  
Project: Ford Livonia Transmission Plant - Soil Gas, Ground Water and Soil  
Project number: 30206169.401.03  
Event Specific Scope of Work References: Sample COC  
Laboratory: Eurofins Environment Testing LLC - Cleveland  
Laboratory submittal: 205041-1  
Sample date: 2024-05-21  
Report received by CADENA: 2024-06-06  
Initial Data Verification completed by CADENA: 2024-06-07  
Number of Samples:5  
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:

HTQ - Sample result should be considered estimated and qualified with a J flag if detected and UJ flag if non-detect. Client sample was received/prepped/analyzed outside of the referenced holding time for the noted test: GCMS-SIM VOC samples -02, -03 - J/UJ flags.

MS/MSD recovery outliers or sample duplicate RPD outliers were not determined using a client sample from this submittal for the test and QC batch noted so qualification was not required based on these sample-specific QC outliers: GCMS VOC QC batch 614817.

GCMS VOC CCV STANDARD response outliers 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.

Qualifiers added during verification have been added to the electronic data which is available for download from the CADENA CLMS. Refer to the attached table of analytical results that have been qualified during verification.

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 - Cleveland

**Laboratory Submittal:** 205041-1

<b>Sample Name:</b>	MW-40_052124	MW-41_052124
<b>Lab Sample ID:</b>	2402050412	2402050413
<b>Sample Date:</b>	5/21/2024	5/21/2024

Analyte	Cas No.	Report		Units	Valid		Report		Valid	
		Result	Limit		Qualifier	Result	Limit	Units	Qualifier	
<b>GC/MS VOC</b>										
<u>OSW-8260DSIM</u>										
1,4-Dioxane	123-91-1	ND	2.0	ug/l	UJ	13	2.0	ug/l	J	



## Analytical Results Summary

CADENA Project ID: E203728

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 205041-1

Analyte	Cas No.	Sample Name: TRIP BLANK_80				MW-40_052124				MW-41_052124				MW-42_052124				MW-113_052124			
		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	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	2.1	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	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	---
trans-1,2-Dichloroethene	156-60-5	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	---
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	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	0.62	1.0	ug/l	J	0.66	1.0	ug/l	J	ND	1.0	ug/l	---
<u>OSW-8260DSIM</u>																					
1,4-Dioxane	123-91-1					ND	2.0	ug/l	UJ	13	2.0	ug/l	J	1.3	2.0	ug/l	J	ND	2.0	ug/l	---