

ANALYTICAL REPORT

PREPARED FOR

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Generated 3/8/2023 8:34:52 AM

JOB DESCRIPTION

Ford LTP - On Site

JOB NUMBER

240-181135-1

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: 240-181135-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	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: 240-181135-1

Job ID: 240-181135-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-181135-1

Receipt

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

GC/MS VOA

Method 8260D: Batch analytical batch 240-564279 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was performed on another sample that needed a different dilution. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch.

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



Method Summary

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

Job ID: 240-181135-1

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

Protocol References:

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

Laboratory References:

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



Sample Summary

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

Job ID: 240-181135-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181135-1	TRIP BLANK_150	Water	02/24/23 00:00	03/01/23 09:50
240-181135-2	MW-66_022423	Water	02/24/23 10:55	03/01/23 09:50
240-181135-3	MW-44_022423	Water	02/24/23 12:05	03/01/23 09:50
240-181135-4	MW-22_022423	Water	02/24/23 13:05	03/01/23 09:50
240-181135-5	MW-23_022423	Water	02/24/23 14:28	03/01/23 09:50
240-181135-6	PW-16-01_022423	Water	02/24/23 15:28	03/01/23 09:50
240-181135-7	DUP-05	Water	02/24/23 00:00	03/01/23 09:50
240-181135-8	DUP-02	Water	02/24/23 00:00	03/01/23 09:50

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

Detection Summary

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

Job ID: 240-181135-1

Client Sample ID: TRIP BLANK_150

Lab Sample ID: 240-181135-1

No Detections.

Client Sample ID: MW-66_022423

Lab Sample ID: 240-181135-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.2		1.0	0.45	ug/L	1		8260D	Total/NA

Client Sample ID: MW-44_022423

Lab Sample ID: 240-181135-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	5.9		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	170		5.0	2.3	ug/L	5		8260D	Total/NA

Client Sample ID: MW-22_022423

Lab Sample ID: 240-181135-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	53		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	1600		40	18	ug/L	40		8260D	Total/NA

Client Sample ID: MW-23_022423

Lab Sample ID: 240-181135-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1300		40	18	ug/L	40		8260D	Total/NA
trans-1,2-Dichloroethene	70		40	20	ug/L	40		8260D	Total/NA
Trichloroethene	170		40	18	ug/L	40		8260D	Total/NA
Vinyl chloride	110		40	18	ug/L	40		8260D	Total/NA

Client Sample ID: PW-16-01_022423

Lab Sample ID: 240-181135-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.0	J	2.0	0.86	ug/L	1		8260D SIM	Total/NA
cis-1,2-Dichloroethene	67		20	9.2	ug/L	20		8260D	Total/NA
Vinyl chloride	600		20	9.0	ug/L	20		8260D	Total/NA

Client Sample ID: DUP-05

Lab Sample ID: 240-181135-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.6		2.0	0.86	ug/L	1		8260D SIM	Total/NA
Vinyl chloride	150		5.0	2.3	ug/L	5		8260D	Total/NA

Client Sample ID: DUP-02

Lab Sample ID: 240-181135-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1300		50	23	ug/L	50		8260D	Total/NA
trans-1,2-Dichloroethene	72	F2	50	26	ug/L	50		8260D	Total/NA
Trichloroethene	160		50	22	ug/L	50		8260D	Total/NA
Vinyl chloride	110		50	23	ug/L	50		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: TRIP BLANK_150

Lab Sample ID: 240-181135-1

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/06/23 15:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/06/23 15:59	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 15:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/06/23 15:59	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 15:59	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/06/23 15:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		62 - 137		03/06/23 15:59	1
4-Bromofluorobenzene (Surr)	103		56 - 136		03/06/23 15:59	1
Toluene-d8 (Surr)	92		78 - 122		03/06/23 15:59	1
Dibromofluoromethane (Surr)	88		73 - 120		03/06/23 15:59	1

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: MW-66_022423

Lab Sample ID: 240-181135-2

Date Collected: 02/24/23 10:55

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/03/23 19:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		66 - 120					03/03/23 19:50	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			03/05/23 20:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/05/23 20:14	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/05/23 20:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/05/23 20:14	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/05/23 20:14	1
Vinyl chloride	2.2		1.0	0.45	ug/L			03/05/23 20:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		62 - 137					03/05/23 20:14	1
4-Bromofluorobenzene (Surr)	116		56 - 136					03/05/23 20:14	1
Toluene-d8 (Surr)	102		78 - 122					03/05/23 20:14	1
Dibromofluoromethane (Surr)	95		73 - 120					03/05/23 20:14	1

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: MW-44_022423

Lab Sample ID: 240-181135-3

Date Collected: 02/24/23 12:05

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	5.9		2.0	0.86	ug/L			03/03/23 20:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		66 - 120					03/03/23 20:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/L			03/05/23 20:38	5
cis-1,2-Dichloroethene	5.0	U	5.0	2.3	ug/L			03/05/23 20:38	5
Tetrachloroethene	5.0	U	5.0	2.2	ug/L			03/05/23 20:38	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.6	ug/L			03/05/23 20:38	5
Trichloroethene	5.0	U	5.0	2.2	ug/L			03/05/23 20:38	5
Vinyl chloride	170		5.0	2.3	ug/L			03/05/23 20:38	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		62 - 137					03/05/23 20:38	5
4-Bromofluorobenzene (Surr)	114		56 - 136					03/05/23 20:38	5
Toluene-d8 (Surr)	99		78 - 122					03/05/23 20:38	5
Dibromofluoromethane (Surr)	93		73 - 120					03/05/23 20:38	5

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: MW-22_022423

Lab Sample ID: 240-181135-4

Date Collected: 02/24/23 13:05

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	53		2.0	0.86	ug/L			03/03/23 20:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 120					03/03/23 20:39	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			03/05/23 21:02	40
cis-1,2-Dichloroethene	40	U	40	18	ug/L			03/05/23 21:02	40
Tetrachloroethene	40	U	40	18	ug/L			03/05/23 21:02	40
trans-1,2-Dichloroethene	40	U	40	20	ug/L			03/05/23 21:02	40
Trichloroethene	40	U	40	18	ug/L			03/05/23 21:02	40
Vinyl chloride	1600		40	18	ug/L			03/05/23 21:02	40
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		62 - 137					03/05/23 21:02	40
4-Bromofluorobenzene (Surr)	114		56 - 136					03/05/23 21:02	40
Toluene-d8 (Surr)	99		78 - 122					03/05/23 21:02	40
Dibromofluoromethane (Surr)	93		73 - 120					03/05/23 21:02	40

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: MW-23_022423

Lab Sample ID: 240-181135-5

Date Collected: 02/24/23 14:28

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/03/23 21:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 120					03/03/23 21:03	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			03/06/23 16:23	40
cis-1,2-Dichloroethene	1300		40	18	ug/L			03/06/23 16:23	40
Tetrachloroethene	40	U	40	18	ug/L			03/06/23 16:23	40
trans-1,2-Dichloroethene	70		40	20	ug/L			03/06/23 16:23	40
Trichloroethene	170		40	18	ug/L			03/06/23 16:23	40
Vinyl chloride	110		40	18	ug/L			03/06/23 16:23	40
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		62 - 137					03/06/23 16:23	40
4-Bromofluorobenzene (Surr)	107		56 - 136					03/06/23 16:23	40
Toluene-d8 (Surr)	94		78 - 122					03/06/23 16:23	40
Dibromofluoromethane (Surr)	89		73 - 120					03/06/23 16:23	40

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: PW-16-01_022423

Lab Sample ID: 240-181135-6

Date Collected: 02/24/23 15:28

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.0	J	2.0	0.86	ug/L			03/03/23 21:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		66 - 120					03/03/23 21:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	20	U	20	9.8	ug/L			03/05/23 21:50	20
cis-1,2-Dichloroethene	67		20	9.2	ug/L			03/05/23 21:50	20
Tetrachloroethene	20	U	20	8.8	ug/L			03/05/23 21:50	20
trans-1,2-Dichloroethene	20	U	20	10	ug/L			03/05/23 21:50	20
Trichloroethene	20	U	20	8.8	ug/L			03/05/23 21:50	20
Vinyl chloride	600		20	9.0	ug/L			03/05/23 21:50	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		62 - 137					03/05/23 21:50	20
4-Bromofluorobenzene (Surr)	117		56 - 136					03/05/23 21:50	20
Toluene-d8 (Surr)	101		78 - 122					03/05/23 21:50	20
Dibromofluoromethane (Surr)	96		73 - 120					03/05/23 21:50	20

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: DUP-05

Lab Sample ID: 240-181135-7

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	6.6		2.0	0.86	ug/L			03/03/23 21:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		66 - 120					03/03/23 21:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.5	ug/L			03/06/23 16:47	5
cis-1,2-Dichloroethene	5.0	U	5.0	2.3	ug/L			03/06/23 16:47	5
Tetrachloroethene	5.0	U	5.0	2.2	ug/L			03/06/23 16:47	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.6	ug/L			03/06/23 16:47	5
Trichloroethene	5.0	U	5.0	2.2	ug/L			03/06/23 16:47	5
Vinyl chloride	150		5.0	2.3	ug/L			03/06/23 16:47	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		62 - 137					03/06/23 16:47	5
4-Bromofluorobenzene (Surr)	106		56 - 136					03/06/23 16:47	5
Toluene-d8 (Surr)	92		78 - 122					03/06/23 16:47	5
Dibromofluoromethane (Surr)	89		73 - 120					03/06/23 16:47	5

Client Sample Results

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

Job ID: 240-181135-1

Client Sample ID: DUP-02

Lab Sample ID: 240-181135-8

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/03/23 22:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		66 - 120					03/03/23 22:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	25	ug/L			03/06/23 17:11	50
cis-1,2-Dichloroethene	1300		50	23	ug/L			03/06/23 17:11	50
Tetrachloroethene	50	U	50	22	ug/L			03/06/23 17:11	50
trans-1,2-Dichloroethene	72	F2	50	26	ug/L			03/06/23 17:11	50
Trichloroethene	160		50	22	ug/L			03/06/23 17:11	50
Vinyl chloride	110		50	23	ug/L			03/06/23 17:11	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	78		62 - 137					03/06/23 17:11	50
4-Bromofluorobenzene (Surr)	104		56 - 136					03/06/23 17:11	50
Toluene-d8 (Surr)	90		78 - 122					03/06/23 17:11	50
Dibromofluoromethane (Surr)	88		73 - 120					03/06/23 17:11	50

Surrogate Summary

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

Job ID: 240-181135-1

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)
240-181135-1	TRIP BLANK_150	77	103	92	88
240-181135-2	MW-66_022423	85	116	102	95
240-181135-3	MW-44_022423	83	114	99	93
240-181135-4	MW-22_022423	84	114	99	93
240-181135-5	MW-23_022423	80	107	94	89
240-181135-6	PW-16-01_022423	86	117	101	96
240-181135-7	DUP-05	78	106	92	89
240-181135-8	DUP-02	78	104	90	88
240-181135-8 MS	DUP-02	78	107	92	89
240-181135-8 MSD	DUP-02	79	106	95	92
LCS 240-564279/5	Lab Control Sample	80	112	98	94
LCS 240-564331/5	Lab Control Sample	77	106	93	90
MB 240-564279/10	Method Blank	83	115	100	93
MB 240-564331/10	Method Blank	77	105	92	87

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCA (66-120)
240-180978-K-2 MS	Matrix Spike	82
240-180978-L-2 MSD	Matrix Spike Duplicate	90
240-181135-2	MW-66_022423	89
240-181135-3	MW-44_022423	90
240-181135-4	MW-22_022423	95
240-181135-5	MW-23_022423	102
240-181135-6	PW-16-01_022423	96
240-181135-7	DUP-05	92
240-181135-8	DUP-02	98
LCS 240-564197/4	Lab Control Sample	89
MB 240-564197/6	Method Blank	83

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-181135-1

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

Lab Sample ID: MB 240-564279/10

Matrix: Water

Analysis Batch: 564279

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/05/23 15:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/05/23 15:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/05/23 15:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/05/23 15:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/05/23 15:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/05/23 15:51	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	83		62 - 137		03/05/23 15:51	1
4-Bromofluorobenzene (Surr)	115		56 - 136		03/05/23 15:51	1
Toluene-d8 (Surr)	100		78 - 122		03/05/23 15:51	1
Dibromofluoromethane (Surr)	93		73 - 120		03/05/23 15:51	1

Lab Sample ID: LCS 240-564279/5

Matrix: Water

Analysis Batch: 564279

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	20.0	19.9		ug/L		99	77 - 123
Tetrachloroethene	20.0	19.0		ug/L		95	76 - 123
trans-1,2-Dichloroethene	20.0	21.4		ug/L		107	75 - 124
Trichloroethene	20.0	19.6		ug/L		98	70 - 122
Vinyl chloride	20.0	19.6		ug/L		98	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	80		62 - 137
4-Bromofluorobenzene (Surr)	112		56 - 136
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120

Lab Sample ID: MB 240-564331/10

Matrix: Water

Analysis Batch: 564331

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/06/23 14:23	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/06/23 14:23	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 14:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/06/23 14:23	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/06/23 14:23	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/06/23 14:23	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	77		62 - 137		03/06/23 14:23	1
4-Bromofluorobenzene (Surr)	105		56 - 136		03/06/23 14:23	1
Toluene-d8 (Surr)	92		78 - 122		03/06/23 14:23	1

Eurofins Canton

QC Sample Results

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

Job ID: 240-181135-1

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

Lab Sample ID: MB 240-564331/10

Matrix: Water

Analysis Batch: 564331

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	87		73 - 120		03/06/23 14:23	1

Lab Sample ID: LCS 240-564331/5

Matrix: Water

Analysis Batch: 564331

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	20.0	19.1		ug/L		96	77 - 123
Tetrachloroethene	20.0	17.8		ug/L		89	76 - 123
trans-1,2-Dichloroethene	20.0	19.5		ug/L		98	75 - 124
Trichloroethene	20.0	18.6		ug/L		93	70 - 122
Vinyl chloride	20.0	18.1		ug/L		91	60 - 144

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	77		62 - 137
4-Bromofluorobenzene (Surr)	106		56 - 136
Toluene-d8 (Surr)	93		78 - 122
Dibromofluoromethane (Surr)	90		73 - 120

Lab Sample ID: 240-181135-8 MS

Matrix: Water

Analysis Batch: 564331

Client Sample ID: DUP-02

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	1300		1000	2300		ug/L		100	66 - 128
Tetrachloroethene	50	U	1000	882		ug/L		88	62 - 131
trans-1,2-Dichloroethene	72	F2	1000	1070		ug/L		100	56 - 136
Trichloroethene	160		1000	1090		ug/L		93	61 - 124
Vinyl chloride	110		1000	1070		ug/L		96	43 - 157

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	78		62 - 137
4-Bromofluorobenzene (Surr)	107		56 - 136
Toluene-d8 (Surr)	92		78 - 122
Dibromofluoromethane (Surr)	89		73 - 120

Lab Sample ID: 240-181135-8 MSD

Matrix: Water

Analysis Batch: 564331

Client Sample ID: DUP-02

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	1300		1000	2450		ug/L		115	66 - 128	7	14
Tetrachloroethene	50	U	1000	1050		ug/L		105	62 - 131	17	20
trans-1,2-Dichloroethene	72	F2	1000	1260	F2	ug/L		119	56 - 136	16	15
Trichloroethene	160		1000	1240		ug/L		108	61 - 124	13	15

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QC Sample Results

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

Job ID: 240-181135-1

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

Lab Sample ID: 240-181135-8 MSD

Client Sample ID: DUP-02

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564331

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride	110		1000	1150		ug/L		104	43 - 157	7	24
Surrogate											
	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	79		62 - 137								
4-Bromofluorobenzene (Surr)	106		56 - 136								
Toluene-d8 (Surr)	95		78 - 122								
Dibromofluoromethane (Surr)	92		73 - 120								

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

Lab Sample ID: MB 240-564197/6

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/03/23 15:22	1
Surrogate									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		66 - 120					03/03/23 15:22	1

Lab Sample ID: LCS 240-564197/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	10.0	8.65		ug/L		86	80 - 122
Surrogate							
	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	89		66 - 120				

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

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.0	U	10.0	8.72		ug/L		87	51 - 153
Surrogate									
	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	82		66 - 120						

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

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 564197

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	9.66		ug/L		97	51 - 153	10	16

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QC Sample Results

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

Job ID: 240-181135-1

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

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

Matrix: Water

Analysis Batch: 564197

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

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

- 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 - On Site

Job ID: 240-181135-1

GC/MS VOA

Analysis Batch: 564197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181135-2	MW-66_022423	Total/NA	Water	8260D SIM	
240-181135-3	MW-44_022423	Total/NA	Water	8260D SIM	
240-181135-4	MW-22_022423	Total/NA	Water	8260D SIM	
240-181135-5	MW-23_022423	Total/NA	Water	8260D SIM	
240-181135-6	PW-16-01_022423	Total/NA	Water	8260D SIM	
240-181135-7	DUP-05	Total/NA	Water	8260D SIM	
240-181135-8	DUP-02	Total/NA	Water	8260D SIM	
MB 240-564197/6	Method Blank	Total/NA	Water	8260D SIM	
LCS 240-564197/4	Lab Control Sample	Total/NA	Water	8260D SIM	
240-180978-K-2 MS	Matrix Spike	Total/NA	Water	8260D SIM	
240-180978-L-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM	

Analysis Batch: 564279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181135-2	MW-66_022423	Total/NA	Water	8260D	
240-181135-3	MW-44_022423	Total/NA	Water	8260D	
240-181135-4	MW-22_022423	Total/NA	Water	8260D	
240-181135-6	PW-16-01_022423	Total/NA	Water	8260D	
MB 240-564279/10	Method Blank	Total/NA	Water	8260D	
LCS 240-564279/5	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 564331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181135-1	TRIP BLANK_150	Total/NA	Water	8260D	
240-181135-5	MW-23_022423	Total/NA	Water	8260D	
240-181135-7	DUP-05	Total/NA	Water	8260D	
240-181135-8	DUP-02	Total/NA	Water	8260D	
MB 240-564331/10	Method Blank	Total/NA	Water	8260D	
LCS 240-564331/5	Lab Control Sample	Total/NA	Water	8260D	
240-181135-8 MS	DUP-02	Total/NA	Water	8260D	
240-181135-8 MSD	DUP-02	Total/NA	Water	8260D	

Lab Chronicle

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

Job ID: 240-181135-1

Client Sample ID: TRIP BLANK_150

Lab Sample ID: 240-181135-1

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564331	HMB	EET CAN	03/06/23 15:59

Client Sample ID: MW-66_022423

Lab Sample ID: 240-181135-2

Date Collected: 02/24/23 10:55

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564279	HMB	EET CAN	03/05/23 20:14
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 19:50

Client Sample ID: MW-44_022423

Lab Sample ID: 240-181135-3

Date Collected: 02/24/23 12:05

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		5	564279	HMB	EET CAN	03/05/23 20:38
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 20:14

Client Sample ID: MW-22_022423

Lab Sample ID: 240-181135-4

Date Collected: 02/24/23 13:05

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		40	564279	HMB	EET CAN	03/05/23 21:02
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 20:39

Client Sample ID: MW-23_022423

Lab Sample ID: 240-181135-5

Date Collected: 02/24/23 14:28

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		40	564331	HMB	EET CAN	03/06/23 16:23
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 21:03

Client Sample ID: PW-16-01_022423

Lab Sample ID: 240-181135-6

Date Collected: 02/24/23 15:28

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		20	564279	HMB	EET CAN	03/05/23 21:50
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 21:28

Lab Chronicle

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

Job ID: 240-181135-1

Client Sample ID: DUP-05

Lab Sample ID: 240-181135-7

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		5	564331	HMB	EET CAN	03/06/23 16:47
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 21:52

Client Sample ID: DUP-02

Lab Sample ID: 240-181135-8

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 03/01/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		50	564331	HMB	EET CAN	03/06/23 17:11
Total/NA	Analysis	8260D SIM		1	564197	BAJ	EET CAN	03/03/23 22:16

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: 240-181135-1

Laboratory: Eurofins Canton

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

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

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

Chain of Custody Record

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

Regulatory program: DW NPDES RCRA Other

Client Contact
 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: 30167538-401.03
 PO # 30167538-401.03

Client Project Manager: Kris Hinskey
 Site Contact: Christina Weaver
 Telephone: 248-994-2240
 Email: kristoffer.hinskey@arcadis.com
 Telephone: 330-497-9396

Lab Contact: Mike DeMontico
 Telephone: 330-497-9396

Sampler Name: Sommer Guy
 Method of Shipment/Carrier:
 Shipping/Tracking No:

Sample Identification	Sample Date	Sample Time	Matrix				Containers & Preservatives				Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses							Sample Specific Notes / Special Instructions:
			Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH			ZnAc	Upret	Other:	1-1-DCE 8260B	CS-1-2-DCE 8260B	Trans-1-2-DCE 8260B	PCE 8260B	
TRIP BLANK_150		---	1									NG	X	X	X	X	X	X	1 Trip Blank	
MW-66-622423	2/24/23	1055	6									NG	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260B SIM	
MW-44-022423	2/24/23	1205	6									NG	X	X	X	X	X			
MW-22-022423	2/24/23	1305	6									NG	X	X	X	X	X			
MW-23-022423	2/24/23	1428	6									NG	X	X	X	X	X			
PW-16-01-022423	2/24/23	1528	6									NG	X	X	X	X	X			
DUP-05	2/24/23	-	6									NG	X	X	X	X	X			
DUP-02	2/24/23	-	6									NG	X	X	X	X	X			

Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Sommer Guy	Arcadis	2/24/23 1615	Novi Cold Storage	Arcadis	2/24/23 1615
[Signature]	Arcadis	2/28/23 1200	[Signature]	ETA	2/28/23 1200
[Signature]	ETA	2/28/23 1210	[Signature]	ETA	2/28/23 9:50

240-181135 Chain of Custody


3-1-23

Barberton Facility

Client ARCADIS Site Name _____ Cooler unpacked by: M. Yocum
Cooler Received on 3-1-23 Opened on 3-1-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

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

Eurofins Cooler # 9C 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

- Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
- Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
- Shippers' packing slip attached to the cooler(s)? Yes No
- Did custody papers accompany the sample(s)? Yes No
- Were the custody papers relinquished & signed in the appropriate place? Yes No
- Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- Did all bottles arrive in good condition (Unbroken)? Yes No
- Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
- Were correct bottle(s) used for the test(s) indicated? Yes No
- Sufficient quantity received to perform indicated analyses? Yes No
- 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.
- Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
- Were VOAs on the COC? Yes No
- Were air bubbles >6 mm in any VOA vials? Yes  Larger than this. Yes No NA
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # found off Yes No
- Was a LL Hg or Me Hg trip blank present? Yes No

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

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

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

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

DATA VERIFICATION REPORT



March 08, 2023

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

CADENA project ID: E203728

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

Project number: 30167538.401.03- onsite groundwater

Event Specific Scope of Work References: Sample COC

Laboratory: Eurofins Environment Testing LLC - Barberton

Laboratory submittal: 181135-1

Sample date: 2023-02-24

Report received by CADENA: 2023-03-08

Initial Data Verification completed by CADENA: 2023-03-08

Number of Samples:8

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 batch sample -008 MS and MSD recoveries but not both or RPD only were outliers so for TRANS-1,2-DICHLOROETHENE so were not used to qualify client sample results based on this QC outlier alone. GCMS VOC QC batch MS/MSD issues as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, MS/MSD Recovery, MS/MSD RPD, 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: 181135-1

Analyte	Cas No.	TRIP BLANK_150			MW-66_022423			MW-44_022423			MW-22_022423			MW-23_022423			PW-16-01_022423			DUP-05			DUP-02										
		Result	Limit	Units	Result	Limit	Units	Result	Limit	Units	Result	Limit	Units	Result	Limit	Units	Result	Limit	Units	Result	Limit	Units	Result	Limit	Units								
GC/MS VOC																																	
<u>OSW-8260D</u>																																	
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	40	ug/l	---	ND	40	ug/l	---	ND	20	ug/l	---	ND	5.0	ug/l	---	ND	50	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	40	ug/l	---	1300	40	ug/l	---	67	20	ug/l	---	ND	5.0	ug/l	---	1300	50	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	40	ug/l	---	ND	40	ug/l	---	ND	20	ug/l	---	ND	5.0	ug/l	---	ND	50	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	40	ug/l	---	70	40	ug/l	---	ND	20	ug/l	---	ND	5.0	ug/l	---	72	50	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	5.0	ug/l	---	ND	40	ug/l	---	170	40	ug/l	---	ND	20	ug/l	---	ND	5.0	ug/l	---	160	50	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	2.2	1.0	ug/l	---	170	5.0	ug/l	---	1600	40	ug/l	---	110	40	ug/l	---	600	20	ug/l	---	150	5.0	ug/l	---	110	50	ug/l	---
<u>OSW-8260DSIM</u>																																	
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---	5.9	2.0	ug/l	---	53	2.0	ug/l	---	ND	2.0	ug/l	---	1.0	2.0	ug/l	J	6.6	2.0	ug/l	---	ND	2.0	ug/l	---