

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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Tel: (330)497-9396

Laboratory Job ID: 240-159546-1
Client Project/Site: Ford LTP - Off-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
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Novi, Michigan 48377

Attn: Kristoffer Hinskey



Authorized for release by:
11/22/2021 10:25:28 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 240-159546-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

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

Job ID: 240-159546-1

Job ID: 240-159546-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative 240-159546-1

Comments

No additional comments.

Receipt

The samples were received on 11/6/2021 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3° C.

GC/MS VOA

Method 8260B: The continuing calibration verification (CCV) for analytical batch 512819 exceeded control criteria for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compounds were detected; therefore the data has been reported. No further corrective action was required: TRIP BLANK_53 (240-159546-1), MW-105S_110321 (240-159546-2) and MW-102S_110321 (240-159546-3).

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

VOA Prep

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



Method Summary

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

Job ID: 240-159546-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8260B SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396



Sample Summary

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

Job ID: 240-159546-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-159546-1	TRIP BLANK_53	Water	11/03/21 00:00	11/06/21 08:00
240-159546-2	MW-105S_110321	Water	11/03/21 12:10	11/06/21 08:00
240-159546-3	MW-102S_110321	Water	11/03/21 14:55	11/06/21 08:00
240-159546-4	MW-102_110321	Water	11/03/21 16:45	11/06/21 08:00
240-159546-5	DUP-14	Water	11/03/21 00:00	11/06/21 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 - Off-Site

Job ID: 240-159546-1

Client Sample ID: TRIP BLANK_53

Lab Sample ID: 240-159546-1

No Detections.

Client Sample ID: MW-105S_110321

Lab Sample ID: 240-159546-2

No Detections.

Client Sample ID: MW-102S_110321

Lab Sample ID: 240-159546-3

No Detections.

Client Sample ID: MW-102_110321

Lab Sample ID: 240-159546-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.8		1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-14

Lab Sample ID: 240-159546-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.7		1.0	0.45	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Canton

Client Sample Results

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

Job ID: 240-159546-1

Client Sample ID: TRIP BLANK_53

Lab Sample ID: 240-159546-1

Date Collected: 11/03/21 00:00

Matrix: Water

Date Received: 11/06/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/13/21 20:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/13/21 20:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 20:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/13/21 20:51	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 20:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/13/21 20:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	130		62 - 137		11/13/21 20:51	1
4-Bromofluorobenzene (Surr)	67		56 - 136		11/13/21 20:51	1
Toluene-d8 (Surr)	89		78 - 122		11/13/21 20:51	1
Dibromofluoromethane (Surr)	115		73 - 120		11/13/21 20:51	1

Client Sample Results

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

Job ID: 240-159546-1

Client Sample ID: MW-105S_110321

Lab Sample ID: 240-159546-2

Date Collected: 11/03/21 12:10

Matrix: Water

Date Received: 11/06/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U F1	2.0	0.86	ug/L			11/16/21 21:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		66 - 120					11/16/21 21:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/13/21 21:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/13/21 21:13	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 21:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/13/21 21:13	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 21:13	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/13/21 21:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		62 - 137					11/13/21 21:13	1
4-Bromofluorobenzene (Surr)	67		56 - 136					11/13/21 21:13	1
Toluene-d8 (Surr)	88		78 - 122					11/13/21 21:13	1
Dibromofluoromethane (Surr)	112		73 - 120					11/13/21 21:13	1

Client Sample Results

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

Job ID: 240-159546-1

Client Sample ID: MW-102S_110321

Lab Sample ID: 240-159546-3

Date Collected: 11/03/21 14:55

Matrix: Water

Date Received: 11/06/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/13/21 00:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		66 - 120					11/13/21 00:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/13/21 21:35	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/13/21 21:35	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 21:35	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/13/21 21:35	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 21:35	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/13/21 21:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	127		62 - 137					11/13/21 21:35	1
4-Bromofluorobenzene (Surr)	66		56 - 136					11/13/21 21:35	1
Toluene-d8 (Surr)	88		78 - 122					11/13/21 21:35	1
Dibromofluoromethane (Surr)	114		73 - 120					11/13/21 21:35	1

Client Sample Results

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

Job ID: 240-159546-1

Client Sample ID: MW-102_110321

Lab Sample ID: 240-159546-4

Date Collected: 11/03/21 16:45

Matrix: Water

Date Received: 11/06/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/13/21 01:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		66 - 120		11/13/21 01:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/15/21 13:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/15/21 13:39	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/15/21 13:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/15/21 13:39	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/15/21 13:39	1
Vinyl chloride	2.8		1.0	0.45	ug/L			11/15/21 13:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	124		62 - 137		11/15/21 13:39	1
4-Bromofluorobenzene (Surr)	73		56 - 136		11/15/21 13:39	1
Toluene-d8 (Surr)	90		78 - 122		11/15/21 13:39	1
Dibromofluoromethane (Surr)	107		73 - 120		11/15/21 13:39	1

Client Sample Results

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

Job ID: 240-159546-1

Client Sample ID: DUP-14

Lab Sample ID: 240-159546-5

Date Collected: 11/03/21 00:00

Matrix: Water

Date Received: 11/06/21 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/13/21 01:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		66 - 120		11/13/21 01:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/15/21 14:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/15/21 14:01	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/15/21 14:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/15/21 14:01	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/15/21 14:01	1
Vinyl chloride	2.7		1.0	0.45	ug/L			11/15/21 14:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		62 - 137		11/15/21 14:01	1
4-Bromofluorobenzene (Surr)	70		56 - 136		11/15/21 14:01	1
Toluene-d8 (Surr)	88		78 - 122		11/15/21 14:01	1
Dibromofluoromethane (Surr)	108		73 - 120		11/15/21 14:01	1

Surrogate Summary

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

Job ID: 240-159546-1

Method: 8260B - Volatile Organic Compounds (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)
240-159546-1	TRIP BLANK_53	130	67	89	115
240-159546-2	MW-105S_110321	129	67	88	112
240-159546-2 MS	MW-105S-MS_110321	105	96	102	93
240-159546-2 MSD	MW-105S-MSD_110321	102	98	101	91
240-159546-3	MW-102S_110321	127	66	88	114
240-159546-4	MW-102_110321	124	73	90	107
240-159546-5	DUP-14	125	70	88	108
240-159554-E-1 MSD	Matrix Spike Duplicate	101	101	102	91
240-159554-H-1 MS	Matrix Spike	107	101	102	98
LCS 240-512819/4	Lab Control Sample	100	99	100	91
LCS 240-512968/4	Lab Control Sample	103	100	101	93
MB 240-512819/7	Method Blank	119	75	89	102
MB 240-512968/7	Method Blank	120	74	89	106

Surrogate Legend

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

Method: 8260B 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)
240-159543-G-3 MS	Matrix Spike	85
240-159543-O-3 MSD	Matrix Spike Duplicate	83
240-159546-2	MW-105S_110321	84
240-159546-2 MS	MW-105S-MS_110321	82
240-159546-2 MSD	MW-105S-MSD_110321	85
240-159546-3	MW-102S_110321	82
240-159546-4	MW-102_110321	87
240-159546-5	DUP-14	86
LCS 240-512758/4	Lab Control Sample	83
LCS 240-513286/4	Lab Control Sample	82
MB 240-512758/5	Method Blank	84
MB 240-513286/5	Method Blank	85

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-159546-1

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

Lab Sample ID: MB 240-512819/7
Matrix: Water
Analysis Batch: 512819

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/13/21 13:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/13/21 13:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 13:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/13/21 13:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/13/21 13:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/13/21 13:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	119		62 - 137		11/13/21 13:57	1
4-Bromofluorobenzene (Surr)	75		56 - 136		11/13/21 13:57	1
Toluene-d8 (Surr)	89		78 - 122		11/13/21 13:57	1
Dibromofluoromethane (Surr)	102		73 - 120		11/13/21 13:57	1

Lab Sample ID: LCS 240-512819/4
Matrix: Water
Analysis Batch: 512819

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	10.0	9.01		ug/L		90	63 - 134
cis-1,2-Dichloroethene	10.0	10.7		ug/L		107	77 - 123
Tetrachloroethene	10.0	9.49		ug/L		95	76 - 123
trans-1,2-Dichloroethene	10.0	11.0		ug/L		110	75 - 124
Trichloroethene	10.0	9.48		ug/L		95	70 - 122
Vinyl chloride	10.0	8.38		ug/L		84	60 - 144

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	100		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	91		73 - 120

Lab Sample ID: 240-159546-2 MS
Matrix: Water
Analysis Batch: 512819

Client Sample ID: MW-105S-MS_110321
Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	1.0	U	10.0	7.61		ug/L		76	56 - 135
cis-1,2-Dichloroethene	1.0	U	10.0	9.48		ug/L		95	66 - 128
Tetrachloroethene	1.0	U	10.0	7.41		ug/L		74	62 - 131
trans-1,2-Dichloroethene	1.0	U	10.0	9.49		ug/L		95	56 - 136
Trichloroethene	1.0	U	10.0	7.75		ug/L		77	61 - 124
Vinyl chloride	1.0	U	10.0	7.30		ug/L		73	43 - 157

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	96		56 - 136
Toluene-d8 (Surr)	102		78 - 122

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QC Sample Results

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

Job ID: 240-159546-1

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

Lab Sample ID: 240-159546-2 MS
Matrix: Water
Analysis Batch: 512819

Client Sample ID: MW-105S-MS_110321
Prep Type: Total/NA

Surrogate	%Recovery	MS MS Qualifier	Limits
Dibromofluoromethane (Surr)	93		73 - 120

Lab Sample ID: 240-159546-2 MSD
Matrix: Water
Analysis Batch: 512819

Client Sample ID: MW-105S-MSD_110321
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	10.0	8.50		ug/L		85	56 - 135	11	26
cis-1,2-Dichloroethene	1.0	U	10.0	9.62		ug/L		96	66 - 128	1	14
Tetrachloroethene	1.0	U	10.0	8.67		ug/L		87	62 - 131	16	20
trans-1,2-Dichloroethene	1.0	U	10.0	9.76		ug/L		98	56 - 136	3	15
Trichloroethene	1.0	U	10.0	8.44		ug/L		84	61 - 124	9	15
Vinyl chloride	1.0	U	10.0	7.09		ug/L		71	43 - 157	3	24

Surrogate	%Recovery	MSD MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		62 - 137
4-Bromofluorobenzene (Surr)	98		56 - 136
Toluene-d8 (Surr)	101		78 - 122
Dibromofluoromethane (Surr)	91		73 - 120

Lab Sample ID: MB 240-512968/7
Matrix: Water
Analysis Batch: 512968

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			11/15/21 12:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/15/21 12:55	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/15/21 12:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/15/21 12:55	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/15/21 12:55	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/15/21 12:55	1

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		62 - 137		11/15/21 12:55	1
4-Bromofluorobenzene (Surr)	74		56 - 136		11/15/21 12:55	1
Toluene-d8 (Surr)	89		78 - 122		11/15/21 12:55	1
Dibromofluoromethane (Surr)	106		73 - 120		11/15/21 12:55	1

Lab Sample ID: LCS 240-512968/4
Matrix: Water
Analysis Batch: 512968

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	7.79		ug/L		78	63 - 134
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	77 - 123
Tetrachloroethene	10.0	9.14		ug/L		91	76 - 123
trans-1,2-Dichloroethene	10.0	10.5		ug/L		105	75 - 124
Trichloroethene	10.0	9.43		ug/L		94	70 - 122

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-159546-1

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

Lab Sample ID: LCS 240-512968/4
Matrix: Water
Analysis Batch: 512968

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	10.0	7.99		ug/L		80	60 - 144
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	103		62 - 137				
4-Bromofluorobenzene (Surr)	100		56 - 136				
Toluene-d8 (Surr)	101		78 - 122				
Dibromofluoromethane (Surr)	93		73 - 120				

Lab Sample ID: 240-159554-E-1 MSD
Matrix: Water
Analysis Batch: 512968

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	10.0	9.29		ug/L		93	56 - 135	5	26
cis-1,2-Dichloroethene	1.0	U	10.0	10.5		ug/L		105	66 - 128	2	14
Tetrachloroethene	0.69	J	10.0	10.3		ug/L		96	62 - 131	10	20
trans-1,2-Dichloroethene	1.0	U	10.0	11.0		ug/L		110	56 - 136	1	15
Trichloroethene	1.0	U	10.0	9.69		ug/L		97	61 - 124	6	15
Vinyl chloride	1.0	U	10.0	7.94		ug/L		79	43 - 157	4	24
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	101		62 - 137								
4-Bromofluorobenzene (Surr)	101		56 - 136								
Toluene-d8 (Surr)	102		78 - 122								
Dibromofluoromethane (Surr)	91		73 - 120								

Lab Sample ID: 240-159554-H-1 MS
Matrix: Water
Analysis Batch: 512968

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	10.0	8.82		ug/L		88	56 - 135
cis-1,2-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	66 - 128
Tetrachloroethene	0.69	J	10.0	9.36		ug/L		87	62 - 131
trans-1,2-Dichloroethene	1.0	U	10.0	10.9		ug/L		109	56 - 136
Trichloroethene	1.0	U	10.0	9.16		ug/L		92	61 - 124
Vinyl chloride	1.0	U	10.0	8.27		ug/L		83	43 - 157
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	107		62 - 137						
4-Bromofluorobenzene (Surr)	101		56 - 136						
Toluene-d8 (Surr)	102		78 - 122						
Dibromofluoromethane (Surr)	98		73 - 120						

QC Sample Results

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

Job ID: 240-159546-1

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

Lab Sample ID: MB 240-512758/5
Matrix: Water
Analysis Batch: 512758

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/12/21 16:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		66 - 120					11/12/21 16:51	1

Lab Sample ID: LCS 240-512758/4
Matrix: Water
Analysis Batch: 512758

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	9.63		ug/L		96	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	83		66 - 120				

Lab Sample ID: 240-159543-G-3 MS
Matrix: Water
Analysis Batch: 512758

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 F1	10.0	9.98		ug/L		100	51 - 153
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	85		66 - 120						

Lab Sample ID: 240-159543-O-3 MSD
Matrix: Water
Analysis Batch: 512758

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	2.0	U F1	10.0	9.71		ug/L		97	51 - 153	3	16
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	83		66 - 120								

Lab Sample ID: MB 240-513286/5
Matrix: Water
Analysis Batch: 513286

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/16/21 19:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		66 - 120					11/16/21 19:44	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-159546-1

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

Lab Sample ID: LCS 240-513286/4
Matrix: Water
Analysis Batch: 513286

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	9.78		ug/L		98	80 - 122
Surrogate							
	%Recovery	LCS Qualifier	LCS Limits				
1,2-Dichloroethane-d4 (Surr)	82		66 - 120				

Lab Sample ID: 240-159546-2 MS
Matrix: Water
Analysis Batch: 513286

Client Sample ID: MW-105S-MS_110321
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 F1	10.0	11.0		ug/L		110	51 - 153
Surrogate									
	%Recovery	MS Qualifier	MS Limits						
1,2-Dichloroethane-d4 (Surr)	82		66 - 120						

Lab Sample ID: 240-159546-2 MSD
Matrix: Water
Analysis Batch: 513286

Client Sample ID: MW-105S-MSD_110321
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 F1	10.0	9.83		ug/L		98	51 - 153	11	16
Surrogate											
	%Recovery	MSD Qualifier	MSD Limits								
1,2-Dichloroethane-d4 (Surr)	85		66 - 120								

QC Association Summary

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

Job ID: 240-159546-1

GC/MS VOA

Analysis Batch: 512758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159546-3	MW-102S_110321	Total/NA	Water	8260B SIM	
240-159546-4	MW-102_110321	Total/NA	Water	8260B SIM	
240-159546-5	DUP-14	Total/NA	Water	8260B SIM	
MB 240-512758/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-512758/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-159543-G-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-159543-O-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 512819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159546-1	TRIP BLANK_53	Total/NA	Water	8260B	
240-159546-2	MW-105S_110321	Total/NA	Water	8260B	
240-159546-3	MW-102S_110321	Total/NA	Water	8260B	
MB 240-512819/7	Method Blank	Total/NA	Water	8260B	
LCS 240-512819/4	Lab Control Sample	Total/NA	Water	8260B	
240-159546-2 MS	MW-105S-MS_110321	Total/NA	Water	8260B	
240-159546-2 MSD	MW-105S-MSD_110321	Total/NA	Water	8260B	

Analysis Batch: 512968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159546-4	MW-102_110321	Total/NA	Water	8260B	
240-159546-5	DUP-14	Total/NA	Water	8260B	
MB 240-512968/7	Method Blank	Total/NA	Water	8260B	
LCS 240-512968/4	Lab Control Sample	Total/NA	Water	8260B	
240-159554-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-159554-H-1 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 513286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-159546-2	MW-105S_110321	Total/NA	Water	8260B SIM	
MB 240-513286/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-513286/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-159546-2 MS	MW-105S-MS_110321	Total/NA	Water	8260B SIM	
240-159546-2 MSD	MW-105S-MSD_110321	Total/NA	Water	8260B SIM	

Lab Chronicle

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

Job ID: 240-159546-1

Client Sample ID: TRIP BLANK_53

Lab Sample ID: 240-159546-1

Date Collected: 11/03/21 00:00

Matrix: Water

Date Received: 11/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512819	11/13/21 20:51	LEE	TAL CAN

Client Sample ID: MW-105S_110321

Lab Sample ID: 240-159546-2

Date Collected: 11/03/21 12:10

Matrix: Water

Date Received: 11/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512819	11/13/21 21:13	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	513286	11/16/21 21:00	CS	TAL CAN

Client Sample ID: MW-102S_110321

Lab Sample ID: 240-159546-3

Date Collected: 11/03/21 14:55

Matrix: Water

Date Received: 11/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512819	11/13/21 21:35	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	512758	11/13/21 00:51	CS	TAL CAN

Client Sample ID: MW-102_110321

Lab Sample ID: 240-159546-4

Date Collected: 11/03/21 16:45

Matrix: Water

Date Received: 11/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512968	11/15/21 13:39	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	512758	11/13/21 01:15	CS	TAL CAN

Client Sample ID: DUP-14

Lab Sample ID: 240-159546-5

Date Collected: 11/03/21 00:00

Matrix: Water

Date Received: 11/06/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	512968	11/15/21 14:01	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	512758	11/13/21 01:38	CS	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

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

Job ID: 240-159546-1

Laboratory: Eurofins TestAmerica, 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	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

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

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey Telephone: 248-994-2240

Site Contact: Julia McClafferty Telephone: 330-497-9396

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

Company Name: Arcadis Address: 28550 Cabot Drive, Suite 500 City/State/Zip: Novi, MI, 48377

Project Name: Ford LTP OIE-Site Project Number: 30080642.402.04

Sampler Name: SAM VINOLE

Method of Shipment/Carrier: COURIER - CHRISTIANA WERWER

Shipping/Tracking No: 30080642.402.04

Analysis Turnaround Time: TAT if different from below: 10 day

Sample Identification	Sample Date	Sample Time	Matrix					Containers & Preservatives					Filtered Sample (Y/N)	Composite=C / Grab=G	1-1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	COCs
			Air	Aqueous	Sediment	Solid	Other	H2SO4	HNO3	HCl	NaOH	ZnAc										

TRIP BLANK_ 53	---	---	X																			1 of 1	COCs	1 Trip Blank	
MW-1055-110321	11/3/21	1210	6																						3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-1055-MS-110321	11/3/21	1210	5																						ONLY 5 VOAs RUN MS/MSD
MW-1055-MSD-110321	11/3/21	1210	6																						RUN MS/MSD
MW-1025-110321	11/3/21	1455	6																						
MW-102-110321	11/3/21	1645	6																						
DUP-14	11/3/21	---	5																						ONLY 5 VOAs

Barcode: 240-159546 Chain of Custody

Sample Disposal (A fee may apply): Return to Client Unknown

Possible Hazard Identification: Non-Hazard Flammable Irritant Poison B

Special Instructions/QC Requirements & Comments: Submit all results through Cadena at itomalia@cadenaco.com, Cadena #E203631 Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<i>[Signature]</i>	ARCADIS	11/3/21 / 1800	NOVA	COLD STORAGE	ARCADIS
<i>[Signature]</i>	ARCADIS	11/5/21 / 1435	<i>[Signature]</i>	ETA	11/5/21 / 1435
<i>[Signature]</i>	ETA	11/5/21 / 1448	<i>[Signature]</i>	ETA	11/6/21 / 8:00



**Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility**

Login # : 159546

Client ARCADIS Site Name _____


Cooler unpacked by:
Matthew Swana

Cooler Received on 11/6/21 Opened on 11/6/21

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-14 (CF +0.1 °C) Observed Cooler Temp. 0.2 °C Corrected Cooler Temp. 0.3 °C
 IR GUN #IR-15 (CF +0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC157842
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01042016 Yes No
17. 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: [Signature]

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: _____