

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
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North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-140389-1
Client Project/Site: Ford LTP - On Site

For:
ARCADIS U.S., Inc.
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Attn: Kristoffer Hinskey



Authorized for release by:
12/2/2020 8:53:02 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 - On Site

Job ID: 240-140389-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

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

Job ID: 240-140389-1

Job ID: 240-140389-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - On Site

Report Number: 240-140389-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/17/2020 9:10 AM; 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 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-140389-1), MW-42_111420 (240-140389-2), MW-211S_111420 (240-140389-3), MW-35_111420 (240-140389-4) and MW-212S_111420 (240-140389-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/25/2020.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-42_111420 (240-140389-2), MW-211S_111420 (240-140389-3), MW-35_111420 (240-140389-4) and MW-212S_111420 (240-140389-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 11/23/2020.

No 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: 240-140389-1

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

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- 13
- 14

Sample Summary

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

Job ID: 240-140389-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-140389-1	TRIP BLANK	Water	11/14/20 00:00	11/17/20 09:10	
240-140389-2	MW-42_111420	Water	11/14/20 11:05	11/17/20 09:10	
240-140389-3	MW-211S_111420	Water	11/14/20 12:57	11/17/20 09:10	
240-140389-4	MW-35_111420	Water	11/14/20 14:29	11/17/20 09:10	
240-140389-5	MW-212S_111420	Water	11/14/20 15:33	11/17/20 09:10	

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- 10
- 11
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- 13
- 14

Detection Summary

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

Job ID: 240-140389-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140389-1

No Detections.

Client Sample ID: MW-42_111420

Lab Sample ID: 240-140389-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.5	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.86	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-211S_111420

Lab Sample ID: 240-140389-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.39	J	1.0	0.10	ug/L	1		8260B	Total/NA

Client Sample ID: MW-35_111420

Lab Sample ID: 240-140389-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.4		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	1.9		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-212S_111420

Lab Sample ID: 240-140389-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.1		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.37	J	1.0	0.19	ug/L	1		8260B	Total/NA
Trichloroethene	0.28	J	1.0	0.10	ug/L	1		8260B	Total/NA
Vinyl chloride	0.81	J	1.0	0.20	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 - On Site

Job ID: 240-140389-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-140389-1

Date Collected: 11/14/20 00:00

Matrix: Water

Date Received: 11/17/20 09:10

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	0.19	ug/L			11/25/20 19:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/25/20 19:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 19:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/25/20 19:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/25/20 19:55	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/25/20 19:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		75 - 130		11/25/20 19:55	1
4-Bromofluorobenzene (Surr)	98		47 - 134		11/25/20 19:55	1
Toluene-d8 (Surr)	112		69 - 122		11/25/20 19:55	1
Dibromofluoromethane (Surr)	96		78 - 129		11/25/20 19:55	1

Client Sample Results

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

Job ID: 240-140389-1

Client Sample ID: MW-42_111420

Lab Sample ID: 240-140389-2

Date Collected: 11/14/20 11:05

Matrix: Water

Date Received: 11/17/20 09:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.5	J	2.0	0.86	ug/L			11/23/20 06:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 133					11/23/20 06:46	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	0.19	ug/L			11/25/20 20:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/25/20 20:20	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 20:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/25/20 20:20	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/25/20 20:20	1
Vinyl chloride	0.86	J	1.0	0.20	ug/L			11/25/20 20:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		75 - 130					11/25/20 20:20	1
4-Bromofluorobenzene (Surr)	98		47 - 134					11/25/20 20:20	1
Toluene-d8 (Surr)	102		69 - 122					11/25/20 20:20	1
Dibromofluoromethane (Surr)	96		78 - 129					11/25/20 20:20	1

Client Sample Results

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

Job ID: 240-140389-1

Client Sample ID: MW-211S_111420

Lab Sample ID: 240-140389-3

Date Collected: 11/14/20 12:57

Matrix: Water

Date Received: 11/17/20 09:10

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			11/23/20 08:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 133		11/23/20 08:02	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	0.19	ug/L			11/25/20 20:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/25/20 20:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 20:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/25/20 20:45	1
Trichloroethene	0.39	J	1.0	0.10	ug/L			11/25/20 20:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/25/20 20:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	126		75 - 130		11/25/20 20:45	1
4-Bromofluorobenzene (Surr)	101		47 - 134		11/25/20 20:45	1
Toluene-d8 (Surr)	105		69 - 122		11/25/20 20:45	1
Dibromofluoromethane (Surr)	100		78 - 129		11/25/20 20:45	1

Client Sample Results

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

Job ID: 240-140389-1

Client Sample ID: MW-35_111420

Lab Sample ID: 240-140389-4

Date Collected: 11/14/20 14:29

Matrix: Water

Date Received: 11/17/20 09:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.4		2.0	0.86	ug/L			11/23/20 08:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133					11/23/20 08:28	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	0.19	ug/L			11/25/20 19:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/25/20 19:24	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 19:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/25/20 19:24	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/25/20 19:24	1
Vinyl chloride	1.9		1.0	0.20	ug/L			11/25/20 19:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 130					11/25/20 19:24	1
4-Bromofluorobenzene (Surr)	69		47 - 134					11/25/20 19:24	1
Toluene-d8 (Surr)	85		69 - 122					11/25/20 19:24	1
Dibromofluoromethane (Surr)	105		78 - 129					11/25/20 19:24	1

Client Sample Results

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

Job ID: 240-140389-1

Client Sample ID: MW-212S_111420

Lab Sample ID: 240-140389-5

Date Collected: 11/14/20 15:33

Matrix: Water

Date Received: 11/17/20 09:10

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			11/23/20 08:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133		11/23/20 08:53	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	0.19	ug/L			11/25/20 19:48	1
cis-1,2-Dichloroethene	3.1		1.0	0.16	ug/L			11/25/20 19:48	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 19:48	1
trans-1,2-Dichloroethene	0.37	J	1.0	0.19	ug/L			11/25/20 19:48	1
Trichloroethene	0.28	J	1.0	0.10	ug/L			11/25/20 19:48	1
Vinyl chloride	0.81	J	1.0	0.20	ug/L			11/25/20 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		75 - 130		11/25/20 19:48	1
4-Bromofluorobenzene (Surr)	67		47 - 134		11/25/20 19:48	1
Toluene-d8 (Surr)	81		69 - 122		11/25/20 19:48	1
Dibromofluoromethane (Surr)	102		78 - 129		11/25/20 19:48	1

Surrogate Summary

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

Job ID: 240-140389-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-140389-1	TRIP BLANK	121	98	112	96
240-140389-2	MW-42_111420	120	98	102	96
240-140389-2 MS	MW-42-MS_111420	107	117	93	84
240-140389-2 MSD	MW-42-MSD_111420	107	105	107	84
240-140389-3	MW-211S_111420	126	101	105	100
240-140389-4	MW-35_111420	96	69	85	105
240-140389-5	MW-212S_111420	93	67	81	102
240-140391-D-4 MS	Matrix Spike	80	90	94	90
240-140391-E-4 MSD	Matrix Spike Duplicate	81	91	90	87
LCS 240-462807/5	Lab Control Sample	107	107	105	86
LCS 240-462822/4	Lab Control Sample	90	98	107	101
MB 240-462807/8	Method Blank	120	99	102	92
MB 240-462822/7	Method Blank	92	71	86	97

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

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA
		(70-133)
240-140389-2	MW-42_111420	88
240-140389-2 MS	MW-42-MS_111420	88
240-140389-2 MSD	MW-42-MSD_111420	87
240-140389-3	MW-211S_111420	86
240-140389-4	MW-35_111420	87
240-140389-5	MW-212S_111420	87
LCS 240-462286/4	Lab Control Sample	84
MB 240-462286/5	Method Blank	85

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-140389-1

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

Lab Sample ID: MB 240-462807/8
Matrix: Water
Analysis Batch: 462807

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	0.19	ug/L			11/25/20 12:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/25/20 12:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 12:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/25/20 12:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/25/20 12:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/25/20 12:30	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	120		75 - 130		11/25/20 12:30	1
4-Bromofluorobenzene (Surr)	99		47 - 134		11/25/20 12:30	1
Toluene-d8 (Surr)	102		69 - 122		11/25/20 12:30	1
Dibromofluoromethane (Surr)	92		78 - 129		11/25/20 12:30	1

Lab Sample ID: LCS 240-462807/5
Matrix: Water
Analysis Batch: 462807

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	20.0	20.5		ug/L		102	73 - 129
cis-1,2-Dichloroethene	20.0	21.0		ug/L		105	75 - 124
Tetrachloroethene	20.0	18.9		ug/L		94	70 - 125
trans-1,2-Dichloroethene	20.0	20.7		ug/L		103	74 - 130
Trichloroethene	20.0	17.6		ug/L		88	71 - 121
Vinyl chloride	20.0	22.9		ug/L		114	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	107		75 - 130
4-Bromofluorobenzene (Surr)	107		47 - 134
Toluene-d8 (Surr)	105		69 - 122
Dibromofluoromethane (Surr)	86		78 - 129

Lab Sample ID: 240-140389-2 MS
Matrix: Water
Analysis Batch: 462807

Client Sample ID: MW-42-MS_111420
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	20.0	19.4		ug/L		97	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	18.9		ug/L		94	68 - 121
Tetrachloroethene	1.0	U	20.0	15.7		ug/L		78	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	18.8		ug/L		94	69 - 126
Trichloroethene	1.0	U	20.0	15.9		ug/L		79	56 - 124
Vinyl chloride	0.86	J	20.0	21.1		ug/L		101	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	107		75 - 130
4-Bromofluorobenzene (Surr)	117		47 - 134
Toluene-d8 (Surr)	93		69 - 122

QC Sample Results

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

Job ID: 240-140389-1

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

Lab Sample ID: 240-140389-2 MS
Matrix: Water
Analysis Batch: 462807

Client Sample ID: MW-42-MS_111420
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	84		78 - 129

Lab Sample ID: 240-140389-2 MSD
Matrix: Water
Analysis Batch: 462807

Client Sample ID: MW-42-MSD_111420
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	20.0	20.2		ug/L		101	64 - 132	4	35
cis-1,2-Dichloroethene	1.0	U	20.0	19.9		ug/L		99	68 - 121	5	35
Tetrachloroethene	1.0	U	20.0	17.5		ug/L		87	52 - 129	11	35
trans-1,2-Dichloroethene	1.0	U	20.0	19.8		ug/L		99	69 - 126	5	35
Trichloroethene	1.0	U	20.0	16.4		ug/L		82	56 - 124	3	35
Vinyl chloride	0.86	J	20.0	23.2		ug/L		112	49 - 136	10	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		75 - 130
4-Bromofluorobenzene (Surr)	105		47 - 134
Toluene-d8 (Surr)	107		69 - 122
Dibromofluoromethane (Surr)	84		78 - 129

Lab Sample ID: MB 240-462822/7
Matrix: Water
Analysis Batch: 462822

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	0.19	ug/L			11/25/20 13:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/25/20 13:50	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/25/20 13:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/25/20 13:50	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/25/20 13:50	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/25/20 13:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		11/25/20 13:50	1
4-Bromofluorobenzene (Surr)	71		47 - 134		11/25/20 13:50	1
Toluene-d8 (Surr)	86		69 - 122		11/25/20 13:50	1
Dibromofluoromethane (Surr)	97		78 - 129		11/25/20 13:50	1

Lab Sample ID: LCS 240-462822/4
Matrix: Water
Analysis Batch: 462822

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	10.7		ug/L		107	73 - 129
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	75 - 124
Tetrachloroethene	10.0	11.1		ug/L		111	70 - 125
trans-1,2-Dichloroethene	10.0	11.1		ug/L		111	74 - 130
Trichloroethene	10.0	9.75		ug/L		97	71 - 121

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-140389-1

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

Lab Sample ID: LCS 240-462822/4
Matrix: Water
Analysis Batch: 462822

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	8.81		ug/L		88	61 - 134
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	90		75 - 130				
4-Bromofluorobenzene (Surr)	98		47 - 134				
Toluene-d8 (Surr)	107		69 - 122				
Dibromofluoromethane (Surr)	101		78 - 129				

Lab Sample ID: 240-140391-D-4 MS
Matrix: Water
Analysis Batch: 462822

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	10.0		ug/L		100	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.73		ug/L		97	68 - 121
Tetrachloroethene	1.0	U	10.0	9.95		ug/L		100	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	10.4		ug/L		104	69 - 126
Trichloroethene	1.0	U	10.0	9.12		ug/L		91	56 - 124
Vinyl chloride	1.0	U	10.0	8.39		ug/L		84	49 - 136
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	80		75 - 130						
4-Bromofluorobenzene (Surr)	90		47 - 134						
Toluene-d8 (Surr)	94		69 - 122						
Dibromofluoromethane (Surr)	90		78 - 129						

Lab Sample ID: 240-140391-E-4 MSD
Matrix: Water
Analysis Batch: 462822

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	10.4		ug/L		104	64 - 132	4	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.85		ug/L		98	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	10.7		ug/L		107	69 - 126	3	35
Trichloroethene	1.0	U	10.0	9.18		ug/L		92	56 - 124	1	35
Vinyl chloride	1.0	U	10.0	8.07		ug/L		81	49 - 136	4	35
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	81		75 - 130								
4-Bromofluorobenzene (Surr)	91		47 - 134								
Toluene-d8 (Surr)	90		69 - 122								
Dibromofluoromethane (Surr)	87		78 - 129								

QC Sample Results

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

Job ID: 240-140389-1

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

Lab Sample ID: MB 240-462286/5
Matrix: Water
Analysis Batch: 462286

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			11/23/20 02:33	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		70 - 133					11/23/20 02:33	1

Lab Sample ID: LCS 240-462286/4
Matrix: Water
Analysis Batch: 462286

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	9.91		ug/L		99	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	84		70 - 133				

Lab Sample ID: 240-140389-2 MS
Matrix: Water
Analysis Batch: 462286

Client Sample ID: MW-42-MS_111420
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.5	J	10.0	12.2		ug/L		107	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	88		70 - 133						

Lab Sample ID: 240-140389-2 MSD
Matrix: Water
Analysis Batch: 462286

Client Sample ID: MW-42-MSD_111420
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	1.5	J	10.0	12.3		ug/L		108	46 - 170	1	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	87		70 - 133								

QC Association Summary

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

Job ID: 240-140389-1

GC/MS VOA

Analysis Batch: 462286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140389-2	MW-42_111420	Total/NA	Water	8260B SIM	
240-140389-3	MW-211S_111420	Total/NA	Water	8260B SIM	
240-140389-4	MW-35_111420	Total/NA	Water	8260B SIM	
240-140389-5	MW-212S_111420	Total/NA	Water	8260B SIM	
MB 240-462286/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-462286/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140389-2 MS	MW-42-MS_111420	Total/NA	Water	8260B SIM	
240-140389-2 MSD	MW-42-MSD_111420	Total/NA	Water	8260B SIM	

Analysis Batch: 462807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140389-1	TRIP BLANK	Total/NA	Water	8260B	
240-140389-2	MW-42_111420	Total/NA	Water	8260B	
240-140389-3	MW-211S_111420	Total/NA	Water	8260B	
MB 240-462807/8	Method Blank	Total/NA	Water	8260B	
LCS 240-462807/5	Lab Control Sample	Total/NA	Water	8260B	
240-140389-2 MS	MW-42-MS_111420	Total/NA	Water	8260B	
240-140389-2 MSD	MW-42-MSD_111420	Total/NA	Water	8260B	

Analysis Batch: 462822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140389-4	MW-35_111420	Total/NA	Water	8260B	
240-140389-5	MW-212S_111420	Total/NA	Water	8260B	
MB 240-462822/7	Method Blank	Total/NA	Water	8260B	
LCS 240-462822/4	Lab Control Sample	Total/NA	Water	8260B	
240-140391-D-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-140391-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-140389-1

Client Sample ID: TRIP BLANK

Date Collected: 11/14/20 00:00

Date Received: 11/17/20 09:10

Lab Sample ID: 240-140389-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462807	11/25/20 19:55	HMB	TAL CAN

Client Sample ID: MW-42_111420

Date Collected: 11/14/20 11:05

Date Received: 11/17/20 09:10

Lab Sample ID: 240-140389-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462807	11/25/20 20:20	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462286	11/23/20 06:46	TJL2	TAL CAN

Client Sample ID: MW-211S_111420

Date Collected: 11/14/20 12:57

Date Received: 11/17/20 09:10

Lab Sample ID: 240-140389-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462807	11/25/20 20:45	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	462286	11/23/20 08:02	TJL2	TAL CAN

Client Sample ID: MW-35_111420

Date Collected: 11/14/20 14:29

Date Received: 11/17/20 09:10

Lab Sample ID: 240-140389-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462822	11/25/20 19:24	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	462286	11/23/20 08:28	TJL2	TAL CAN

Client Sample ID: MW-212S_111420

Date Collected: 11/14/20 15:33

Date Received: 11/17/20 09:10

Lab Sample ID: 240-140389-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462822	11/25/20 19:48	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	462286	11/23/20 08:53	TJL2	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 - On Site

Job ID: 240-140389-1

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	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20



Chain of Custody Record

190

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

Regulatory program: DW NPDES RCRA Other

Client Contact: 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: 30050315.401.03
PO # 30050315.401.03

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kristoffer.hinskey@arcadis.com
Sampler Name: Kara Donahue
Method of Shipment/Carrier: On-site
Shipping/Tracking No:

Site Contact: Julia McClafferty
Telephone: 734-644-5131
Analysis Turnaround Time
TAT if different from below
10 day 3 weeks
1 week 2 weeks
2 days 1 day

Lab Contact: Mike DelMonico
Telephone: 330-497-9396
COC No:

Sample Identification	Sample Date	Sample Time	Matrix						Filtered Sample (Y/N)	Composite C/Grab/G	1,1-DCE 8260B	Cs-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vnvl Chlorde 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes / Special Instructions
			Air	Aqueous	Sediment	Solid	Other:	HS04										
TRIP BLANK																		1 Trip Blank
MW-42-111420	11/14/20	1105																3 VAS for 8260B 3 VAS for 8260B SIM
MW-42-MS-111420	11/14/20	1105																Run MS/MSD
MW-42-MSD-111420	11/14/20	1105																Run MS/MSD
MW-211S-111420	11/14/20	1257																3 VAS for 8260B 3 VAS for 8260B SIM
MW-35-111420	11/14/20	1429																
MW-212S-111420	11/14/20	1533																

Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown

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

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Kara Donahue	Arcadis	11/14/20 1700	NOVI Cold Storage	Arcadis	11/14/20 1700
Julie McClafferty	Arcadis	11/16/20 1140	Received by:	ETA	11-17-20 910
Matthew C. Adams	ETA	11/16/20 1700pm	Received in Laboratory:		

240-140389 Chain of Custody
longer than 1 month) _____ Months



Eurofins TestAmerica Canton Sample Receipt Form/Narrative				Login # : <u>146389</u>	
Canton Facility					
Client <u>Arcadis</u>		Site Name _____		Cooler unpacked by: <u>Yanyan</u>	
Cooler Received on <u>11-17-20</u>		Opened on <u>11-17-20</u>			
FedEx: 1 st <input checked="" type="radio"/> Grd <input type="radio"/> Exp		UPS FAS Clipper		Client Drop Off TestAmerica Courier Other	
Receipt After-hours: Drop-off Date/Time			Storage Location		
TestAmerica Cooler # <u>DA</u>		Foam Box Client Cooler		Box Other _____	
Packing material used: <u>Bubble Wrap</u>		Foam Plastic Bag		None Other _____	
COOLANT: <u>Wet Ice</u>		Blue Ice Dry Ice Water		None	
1. Cooler temperature upon receipt <input type="checkbox"/> See Multiple Cooler Form					
IR GUN# IR-11 (CF <u>+0.9</u> °C)		Observed Cooler Temp. _____ °C		Corrected Cooler Temp. _____ °C	
IR GUN #IR-12 (CF <u>+0.5</u> °C)		Observed Cooler Temp. _____ °C		Corrected Cooler Temp. _____ °C	
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>2</u>		<input checked="" type="radio"/> Yes <input type="radio"/> No		Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC	
-Were the seals on the outside of the cooler(s) signed & dated?		<input checked="" type="radio"/> Yes <input type="radio"/> No NA			
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		<input checked="" type="radio"/> Yes <input type="radio"/> No NA			
-Were tamper/custody seals intact and uncompromised?		<input checked="" type="radio"/> Yes <input type="radio"/> No NA			
3. Shippers' packing slip attached to the cooler(s)?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
4. Did custody papers accompany the sample(s)?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
5. Were the custody papers relinquished & signed in the appropriate place?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
6. Was/were the person(s) who collected the samples clearly identified on the COC?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
7. Did all bottles arrive in good condition (Unbroken)?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
10. Were correct bottle(s) used for the test(s) indicated?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
11. Sufficient quantity received to perform indicated analyses?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
12. Are these work share samples and all listed on the COC?		<input checked="" type="radio"/> Yes <input type="radio"/> 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?		<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> NA		pH Strip Lot# <u>HC907861</u>	
14. Were VOAs on the COC?		<input checked="" type="radio"/> Yes <input type="radio"/> No			
15. Were air bubbles >6 mm in any VOA vials? <input checked="" type="radio"/> Larger than this.		<input checked="" type="radio"/> Yes <input type="radio"/> No NA			
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____		<input checked="" type="radio"/> Yes <input type="radio"/> No			
17. Was a LL Hg or Me Hg trip blank present? _____		<input checked="" type="radio"/> Yes <input type="radio"/> No			
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____					
Concerning _____					
18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES <input type="checkbox"/> 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: _____					

