

ANALYTICAL REPORT

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Laboratory Job ID: 240-134689-1
Client Project/Site: Ford LTP On-Site

For:
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Attn: Kristoffer Hinskey



Authorized for release by:
8/21/2020 10:51:32 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: 240-134689-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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.
X	Surrogate recovery exceeds control limits

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: 240-134689-1

Job ID: 240-134689-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 240-134689-1

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 8/8/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.3° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-134689-1), MW-48_080620 (240-134689-2), MW-63_080620 (240-134689-3), MW-50_080620 (240-134689-4) and MW-62_080620 (240-134689-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2020 and 08/19/2020.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for MB 240-447614/6. Refer to the QC report for details.

Sample MW-50_080620 (240-134689-4)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) associated with batch 447614 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-134689-1), MW-63_080620 (240-134689-3) and MW-62_080620 (240-134689-5).

Surrogate recovery for the method blank was outside the upper control limit: (MB 240-447614/6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Case Narrative

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

Job ID: 240-134689-1

Job ID: 240-134689-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

No MS/MSD in batch 447614 due to MSD exceeding 12 hour tune time window: TRIP BLANK (240-134689-1), MW-63_080620 (240-134689-3) and MW-62_080620 (240-134689-5).

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-48_080620 (240-134689-2), MW-63_080620 (240-134689-3), MW-50_080620 (240-134689-4) and MW-62_080620 (240-134689-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/14/2020.

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: 240-134689-1

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 On-Site

Job ID: 240-134689-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134689-1	TRIP BLANK	Water	08/06/20 00:00	08/10/20 10:00	
240-134689-2	MW-48_080620	Water	08/06/20 15:55	08/10/20 10:00	
240-134689-3	MW-63_080620	Water	08/06/20 14:15	08/10/20 10:00	
240-134689-4	MW-50_080620	Water	08/06/20 12:00	08/10/20 10:00	
240-134689-5	MW-62_080620	Water	08/06/20 09:45	08/10/20 10:00	

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

Detection Summary

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

Job ID: 240-134689-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134689-1

No Detections.

Client Sample ID: MW-48_080620

Lab Sample ID: 240-134689-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	9.6		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	2.8		1.0	0.50	ug/L	1		8260B	Total/NA

Client Sample ID: MW-63_080620

Lab Sample ID: 240-134689-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.92	J	1.0	0.38	ug/L	1		8260B	Total/NA

Client Sample ID: MW-50_080620

Lab Sample ID: 240-134689-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.5		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	18		10	3.8	ug/L	10		8260B	Total/NA
Vinyl chloride	240		10	5.0	ug/L	10		8260B	Total/NA

Client Sample ID: MW-62_080620

Lab Sample ID: 240-134689-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.8		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.98	J	1.0	0.50	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: 240-134689-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134689-1

Date Collected: 08/06/20 00:00

Matrix: Water

Date Received: 08/10/20 10:00

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	0.46	ug/L			08/18/20 18:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 18:39	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 18:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 18:39	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 18:39	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 18:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		75 - 130		08/18/20 18:39	1
4-Bromofluorobenzene (Surr)	93		47 - 134		08/18/20 18:39	1
Toluene-d8 (Surr)	96		69 - 122		08/18/20 18:39	1
Dibromofluoromethane (Surr)	112		78 - 129		08/18/20 18:39	1

Client Sample Results

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

Job ID: 240-134689-1

Client Sample ID: MW-48_080620

Lab Sample ID: 240-134689-2

Date Collected: 08/06/20 15:55

Matrix: Water

Date Received: 08/10/20 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	9.6		2.0	0.86	ug/L			08/14/20 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133		08/14/20 17:03	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	0.46	ug/L			08/19/20 15:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/19/20 15:48	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/19/20 15:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/19/20 15:48	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/19/20 15:48	1
Vinyl chloride	2.8		1.0	0.50	ug/L			08/19/20 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		75 - 130		08/19/20 15:48	1
4-Bromofluorobenzene (Surr)	96		47 - 134		08/19/20 15:48	1
Toluene-d8 (Surr)	100		69 - 122		08/19/20 15:48	1
Dibromofluoromethane (Surr)	107		78 - 129		08/19/20 15:48	1

Client Sample Results

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

Job ID: 240-134689-1

Client Sample ID: MW-63_080620

Lab Sample ID: 240-134689-3

Date Collected: 08/06/20 14:15

Matrix: Water

Date Received: 08/10/20 10:00

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			08/14/20 17:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 133		08/14/20 17:28	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	0.46	ug/L			08/18/20 19:24	1
cis-1,2-Dichloroethene	0.92	J	1.0	0.38	ug/L			08/18/20 19:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 19:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 19:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 19:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 19:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		75 - 130		08/18/20 19:24	1
4-Bromofluorobenzene (Surr)	93		47 - 134		08/18/20 19:24	1
Toluene-d8 (Surr)	98		69 - 122		08/18/20 19:24	1
Dibromofluoromethane (Surr)	117		78 - 129		08/18/20 19:24	1

Client Sample Results

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

Job ID: 240-134689-1

Client Sample ID: MW-50_080620

Lab Sample ID: 240-134689-4

Date Collected: 08/06/20 12:00

Matrix: Water

Date Received: 08/10/20 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.5		2.0	0.86	ug/L			08/14/20 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 133		08/14/20 17:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	10	U	10	4.6	ug/L			08/19/20 16:10	10
cis-1,2-Dichloroethene	18		10	3.8	ug/L			08/19/20 16:10	10
Tetrachloroethene	10	U	10	3.3	ug/L			08/19/20 16:10	10
trans-1,2-Dichloroethene	10	U	10	4.3	ug/L			08/19/20 16:10	10
Trichloroethene	10	U	10	3.6	ug/L			08/19/20 16:10	10
Vinyl chloride	240		10	5.0	ug/L			08/19/20 16:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		75 - 130		08/19/20 16:10	10
4-Bromofluorobenzene (Surr)	93		47 - 134		08/19/20 16:10	10
Toluene-d8 (Surr)	98		69 - 122		08/19/20 16:10	10
Dibromofluoromethane (Surr)	111		78 - 129		08/19/20 16:10	10

Client Sample Results

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

Job ID: 240-134689-1

Client Sample ID: MW-62_080620

Lab Sample ID: 240-134689-5

Date Collected: 08/06/20 09:45

Matrix: Water

Date Received: 08/10/20 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.8		2.0	0.86	ug/L			08/14/20 18:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133		08/14/20 18:17	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	0.46	ug/L			08/18/20 19:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 19:46	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 19:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 19:46	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 19:46	1
Vinyl chloride	0.98	J	1.0	0.50	ug/L			08/18/20 19:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 130		08/18/20 19:46	1
4-Bromofluorobenzene (Surr)	92		47 - 134		08/18/20 19:46	1
Toluene-d8 (Surr)	93		69 - 122		08/18/20 19:46	1
Dibromofluoromethane (Surr)	108		78 - 129		08/18/20 19:46	1

Surrogate Summary

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

Job ID: 240-134689-1

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)
240-134680-B-3 MS	Matrix Spike	87	100	100	111
240-134680-B-3 MSD	Matrix Spike Duplicate	85	94	97	111
240-134689-1	TRIP BLANK	95	93	96	112
240-134689-2	MW-48_080620	86	96	100	107
240-134689-3	MW-63_080620	96	93	98	117
240-134689-4	MW-50_080620	86	93	98	111
240-134689-5	MW-62_080620	92	92	93	108
LCS 240-447614/4	Lab Control Sample	94	97	98	118
LCS 240-447775/4	Lab Control Sample	87	95	98	113
MB 240-447614/6	Method Blank	115	115	121	135 X
MB 240-447775/6	Method Blank	86	92	97	109

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)
240-134654-A-2 MS	Matrix Spike	88
240-134654-A-2 MSD	Matrix Spike Duplicate	83
240-134689-2	MW-48_080620	87
240-134689-3	MW-63_080620	88
240-134689-4	MW-50_080620	86
240-134689-5	MW-62_080620	87
LCS 240-447208/4	Lab Control Sample	87
MB 240-447208/5	Method Blank	88

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-134689-1

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

Lab Sample ID: MB 240-447614/6
Matrix: Water
Analysis Batch: 447614

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	0.46	ug/L			08/18/20 12:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 12:39	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 12:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 12:39	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 12:39	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 12:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		75 - 130		08/18/20 12:39	1
4-Bromofluorobenzene (Surr)	115		47 - 134		08/18/20 12:39	1
Toluene-d8 (Surr)	121		69 - 122		08/18/20 12:39	1
Dibromofluoromethane (Surr)	135	X	78 - 129		08/18/20 12:39	1

Lab Sample ID: LCS 240-447614/4
Matrix: Water
Analysis Batch: 447614

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	11.4		ug/L		114	73 - 129
cis-1,2-Dichloroethene	10.0	11.5		ug/L		115	75 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
trans-1,2-Dichloroethene	10.0	11.6		ug/L		116	74 - 130
Trichloroethene	10.0	10.5		ug/L		105	71 - 121
Vinyl chloride	10.0	12.2		ug/L		122	61 - 134

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	118		78 - 129

Lab Sample ID: MB 240-447775/6
Matrix: Water
Analysis Batch: 447775

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	0.46	ug/L			08/19/20 10:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/19/20 10:57	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/19/20 10:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/19/20 10:57	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/19/20 10:57	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/19/20 10:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		75 - 130		08/19/20 10:57	1
4-Bromofluorobenzene (Surr)	92		47 - 134		08/19/20 10:57	1
Toluene-d8 (Surr)	97		69 - 122		08/19/20 10:57	1

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-134689-1

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

Lab Sample ID: MB 240-447775/6
Matrix: Water
Analysis Batch: 447775

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	109		78 - 129		08/19/20 10:57	1

Lab Sample ID: LCS 240-447775/4
Matrix: Water
Analysis Batch: 447775

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	11.3		ug/L		113	73 - 129	
cis-1,2-Dichloroethene	10.0	11.8		ug/L		118	75 - 124	
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 125	
trans-1,2-Dichloroethene	10.0	11.7		ug/L		117	74 - 130	
Trichloroethene	10.0	10.0		ug/L		100	71 - 121	
Vinyl chloride	10.0	10.3		ug/L		103	61 - 134	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	87		75 - 130
4-Bromofluorobenzene (Surr)	95		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	113		78 - 129

Lab Sample ID: 240-134680-B-3 MS
Matrix: Water
Analysis Batch: 447775

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	250	U F2	2500	1790		ug/L		72	64 - 132	
cis-1,2-Dichloroethene	7800	F1	2500	9240	F1	ug/L		56	68 - 121	
Tetrachloroethene	250	U	2500	1680		ug/L		67	52 - 129	
trans-1,2-Dichloroethene	670		2500	2640		ug/L		79	69 - 126	
Trichloroethene	2000		2500	3690		ug/L		67	56 - 124	
Vinyl chloride	1200		2500	2610		ug/L		56	49 - 136	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	87		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	100		69 - 122
Dibromofluoromethane (Surr)	111		78 - 129

Lab Sample ID: 240-134680-B-3 MSD
Matrix: Water
Analysis Batch: 447775

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	250	U F2	2500	2630	F2	ug/L		105	64 - 132	38	35	
cis-1,2-Dichloroethene	7800	F1	2500	9950		ug/L		84	68 - 121	7	35	
Tetrachloroethene	250	U	2500	2370		ug/L		95	52 - 129	34	35	
trans-1,2-Dichloroethene	670		2500	3260		ug/L		103	69 - 126	21	35	
Trichloroethene	2000		2500	4290		ug/L		91	56 - 124	15	35	

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-134689-1

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

Lab Sample ID: 240-134680-B-3 MSD
Matrix: Water
Analysis Batch: 447775

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
Vinyl chloride	1200		2500	3680		ug/L		98	49 - 136	34	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	85		75 - 130								
4-Bromofluorobenzene (Surr)	94		47 - 134								
Toluene-d8 (Surr)	97		69 - 122								
Dibromofluoromethane (Surr)	111		78 - 129								

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

Lab Sample ID: MB 240-447208/5
Matrix: Water
Analysis Batch: 447208

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			08/14/20 12:26	1
Surrogate	MB %Recovery	MB Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	88		70 - 133						
							Prepared	Analyzed	Dil Fac
								08/14/20 12:26	1

Lab Sample ID: LCS 240-447208/4
Matrix: Water
Analysis Batch: 447208

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L		106	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	87		70 - 133				

Lab Sample ID: 240-134654-A-2 MS
Matrix: Water
Analysis Batch: 447208

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.0	U	10.0	10.3		ug/L		103	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	88		70 - 133						

Lab Sample ID: 240-134654-A-2 MSD
Matrix: Water
Analysis Batch: 447208

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.1		ug/L		101	46 - 170	3	26

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-134689-1

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

Lab Sample ID: 240-134654-A-2 MSD
Matrix: Water
Analysis Batch: 447208

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

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
1,2-Dichloroethane-d4 (Surr)	83		70 - 133

- 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: 240-134689-1

GC/MS VOA

Analysis Batch: 447208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134689-2	MW-48_080620	Total/NA	Water	8260B SIM	
240-134689-3	MW-63_080620	Total/NA	Water	8260B SIM	
240-134689-4	MW-50_080620	Total/NA	Water	8260B SIM	
240-134689-5	MW-62_080620	Total/NA	Water	8260B SIM	
MB 240-447208/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-447208/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134654-A-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134654-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 447614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134689-1	TRIP BLANK	Total/NA	Water	8260B	
240-134689-3	MW-63_080620	Total/NA	Water	8260B	
240-134689-5	MW-62_080620	Total/NA	Water	8260B	
MB 240-447614/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447614/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 447775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134689-2	MW-48_080620	Total/NA	Water	8260B	
240-134689-4	MW-50_080620	Total/NA	Water	8260B	
MB 240-447775/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447775/4	Lab Control Sample	Total/NA	Water	8260B	
240-134680-B-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-134680-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-134689-1

Client Sample ID: TRIP BLANK

Date Collected: 08/06/20 00:00

Date Received: 08/10/20 10:00

Lab Sample ID: 240-134689-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 18:39	LEE	TAL CAN

Client Sample ID: MW-48_080620

Date Collected: 08/06/20 15:55

Date Received: 08/10/20 10:00

Lab Sample ID: 240-134689-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447775	08/19/20 15:48	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	447208	08/14/20 17:03	SAM	TAL CAN

Client Sample ID: MW-63_080620

Date Collected: 08/06/20 14:15

Date Received: 08/10/20 10:00

Lab Sample ID: 240-134689-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 19:24	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	447208	08/14/20 17:28	SAM	TAL CAN

Client Sample ID: MW-50_080620

Date Collected: 08/06/20 12:00

Date Received: 08/10/20 10:00

Lab Sample ID: 240-134689-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	447775	08/19/20 16:10	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	447208	08/14/20 17:53	SAM	TAL CAN

Client Sample ID: MW-62_080620

Date Collected: 08/06/20 09:45

Date Received: 08/10/20 10:00

Lab Sample ID: 240-134689-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	447614	08/18/20 19:46	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	447208	08/14/20 18:17	SAM	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: 240-134689-1

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	07-31-20 *
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	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* 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

Client Contact
Company Name: Arcadis
Address: 24550 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

Regulatory program: DW NPDES RCRA Other

Client Project Manager: Kris Hinskey
Telephone: 248-994-2240
Email: kristoffer.hinskey@arcadis.com

Sampler Name: **Patrick Labadie**
Method of Shipment/Carrier:
Shipping/Tracking No:

Site Contact: Julia McClafferty
Telephone: 734-644-5131
Lab Contract: Mike DeMontico
Telephone: 330-497-9396

Analyses

1,1-DCE 8260B

6is-1,2-DCE 8260B

Trans-1,2-DCE 8260B

PCE 8260B

TCE 8260B

Vinyl Chloride 8260B

1,4-Dioxane 8260B SIM

Sample Date	Sample Time	Matrix	Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	Other:	Filtered Sample (Y/N)	Composite C/Crab-G	1,1-DCE 8260B	6is-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
8-6-20	~		X														X	X	X	X	X	X	X
8-6-20	15:55		X					X							NG	X	X	X	X	X	X	X	X
8-6-20	14:15		X					X							NG	X	X	X	X	X	X	X	X
8-6-20	12:00		X					X							NG	X	X	X	X	X	X	X	X
8-6-20	9:45		X					X							NG	X	X	X	X	X	X	X	X



Possible Hazard Identification
 Non-Hazard Flammable Corrosive Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:

Relinquished by: Patrick Labadie
Relinquished by: Amber Brunwick
Relinquished by: JM pc

Company: Arcadis
Company: ARCADIS
Company: ETA

Date Time: 8-6-20/17:00
Date Time: 8/12/20
Date Time: 8/11/20

Received by: VVI (old storage)
Received by: [Signature]
Received by: [Signature]

Company: Arcadis
Company: ETA
Company: ETA



Eurofins TestAmerica Canton Sample Receipt Form/Narrative

Login # : 154689

Canton Facility

Client Arcadis Site Name
Cooler Received on 8-8-20 Opened on 8-8-20
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:

Adam Panay

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # 74 Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 4.3 °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 be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 2041701E Yes No
16. 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

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. 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)

19. 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: