

ANALYTICAL REPORT

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Laboratory Job ID: 240-135520-1
Client Project/Site: Ford LTP Off-Site

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



Authorized for release by:
9/9/2020 2:15:38 PM

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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: 240-135520-1

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 Off-Site

Job ID: 240-135520-1

Job ID: 240-135520-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP Off-Site

Report Number: 240-135520-1

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 8/25/2020 9:30 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 1.1° C and 1.6° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-135520-1), MW-43_082220 (240-135520-2), MW-52_082220 (240-135520-3) and MW-120_082220 (240-135520-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/03/2020 and 09/04/2020.

Samples MW-43_082220 (240-135520-2)[5X] and MW-52_082220 (240-135520-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW-43_082220 (240-135520-2) and MW-52_082220 (240-135520-3). Elevated reporting limits (RLs) are provided.

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-43_082220 (240-135520-2), MW-52_082220 (240-135520-3) and MW-120_082220 (240-135520-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/31/2020.

Case Narrative

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

Job ID: 240-135520-1

Job ID: 240-135520-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

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

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Method Summary

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

Job ID: 240-135520-1

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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Sample Summary

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

Job ID: 240-135520-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-135520-1	TRIP BLANK	Water	08/22/20 00:00	08/25/20 09:30	
240-135520-2	MW-43_082220	Water	08/22/20 10:01	08/25/20 09:30	
240-135520-3	MW-52_082220	Water	08/22/20 11:56	08/25/20 09:30	
240-135520-4	MW-120_082220	Water	08/22/20 13:16	08/25/20 09:30	

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- 12
- 13
- 14

Detection Summary

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

Job ID: 240-135520-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-135520-1

No Detections.

Client Sample ID: MW-43_082220

Lab Sample ID: 240-135520-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.5		2.0	0.86	ug/L	1		8260B SIM	Total/NA

Client Sample ID: MW-52_082220

Lab Sample ID: 240-135520-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.4	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	3.0	J	5.0	2.5	ug/L	5		8260B	Total/NA

Client Sample ID: MW-120_082220

Lab Sample ID: 240-135520-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	4.5		1.0	0.36	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: 240-135520-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-135520-1

Date Collected: 08/22/20 00:00

Matrix: Water

Date Received: 08/25/20 09:30

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			09/03/20 19:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			09/03/20 19:09	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			09/03/20 19:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			09/03/20 19:09	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			09/03/20 19:09	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			09/03/20 19:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		09/03/20 19:09	1
4-Bromofluorobenzene (Surr)	99		47 - 134		09/03/20 19:09	1
Toluene-d8 (Surr)	92		69 - 122		09/03/20 19:09	1
Dibromofluoromethane (Surr)	83		78 - 129		09/03/20 19:09	1

Client Sample Results

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

Job ID: 240-135520-1

Client Sample ID: MW-43_082220

Lab Sample ID: 240-135520-2

Date Collected: 08/22/20 10:01

Matrix: Water

Date Received: 08/25/20 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.5		2.0	0.86	ug/L			08/31/20 17:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		70 - 133		08/31/20 17:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			09/03/20 21:13	5
cis-1,2-Dichloroethene	5.0	U	5.0	1.9	ug/L			09/03/20 21:13	5
Tetrachloroethene	5.0	U	5.0	1.6	ug/L			09/03/20 21:13	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			09/03/20 21:13	5
Trichloroethene	5.0	U	5.0	1.8	ug/L			09/03/20 21:13	5
Vinyl chloride	5.0	U	5.0	2.5	ug/L			09/03/20 21:13	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130		09/03/20 21:13	5
4-Bromofluorobenzene (Surr)	95		47 - 134		09/03/20 21:13	5
Toluene-d8 (Surr)	89		69 - 122		09/03/20 21:13	5
Dibromofluoromethane (Surr)	84		78 - 129		09/03/20 21:13	5

Client Sample Results

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

Job ID: 240-135520-1

Client Sample ID: MW-52_082220

Lab Sample ID: 240-135520-3

Date Collected: 08/22/20 11:56

Matrix: Water

Date Received: 08/25/20 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.4	J	2.0	0.86	ug/L			08/31/20 18:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 133					08/31/20 18:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			09/04/20 01:09	5
cis-1,2-Dichloroethene	5.0	U	5.0	1.9	ug/L			09/04/20 01:09	5
Tetrachloroethene	5.0	U	5.0	1.6	ug/L			09/04/20 01:09	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			09/04/20 01:09	5
Trichloroethene	5.0	U	5.0	1.8	ug/L			09/04/20 01:09	5
Vinyl chloride	3.0	J	5.0	2.5	ug/L			09/04/20 01:09	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		75 - 130					09/04/20 01:09	5
4-Bromofluorobenzene (Surr)	70		47 - 134					09/04/20 01:09	5
Toluene-d8 (Surr)	91		69 - 122					09/04/20 01:09	5
Dibromofluoromethane (Surr)	103		78 - 129					09/04/20 01:09	5

Client Sample Results

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

Job ID: 240-135520-1

Client Sample ID: MW-120_082220

Lab Sample ID: 240-135520-4

Date Collected: 08/22/20 13:16

Matrix: Water

Date Received: 08/25/20 09:30

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			08/31/20 19:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		70 - 133					08/31/20 19:34	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			09/03/20 19:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			09/03/20 19:34	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			09/03/20 19:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			09/03/20 19:34	1
Trichloroethene	4.5		1.0	0.36	ug/L			09/03/20 19:34	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			09/03/20 19:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 130					09/03/20 19:34	1
4-Bromofluorobenzene (Surr)	94		47 - 134					09/03/20 19:34	1
Toluene-d8 (Surr)	90		69 - 122					09/03/20 19:34	1
Dibromofluoromethane (Surr)	82		78 - 129					09/03/20 19:34	1

Surrogate Summary

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

Job ID: 240-135520-1

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 (75-130)	BFB (47-134)	TOL (69-122)	DBFM (78-129)
240-135520-1	TRIP BLANK	91	99	92	83
240-135520-2	MW-43_082220	91	95	89	84
240-135520-2 MS	MW-43-MS_082220	92	96	88	86
240-135520-2 MSD	MW-43-MSD_082220	91	94	87	89
240-135520-3	MW-52_082220	107	70	91	103
240-135520-3 MS	MW-52-MS_082220	89	89	99	91
240-135520-3 MSD	MW-52-MSD_082220	87	88	96	89
240-135520-4	MW-120_082220	91	94	90	82
LCS 240-449880/4	Lab Control Sample	91	100	90	85
LCS 240-449935/4	Lab Control Sample	85	94	99	90
MB 240-449880/7	Method Blank	88	97	92	82
MB 240-449935/7	Method Blank	101	73	93	98

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 (70-133)
240-135520-2	MW-43_082220	89
240-135520-2 MS	MW-43-MS_082220	90
240-135520-2 MSD	MW-43-MSD_082220	88
240-135520-3	MW-52_082220	87
240-135520-3 MS	MW-52-MS_082220	91
240-135520-3 MSD	MW-52-MSD_082220	88
240-135520-4	MW-120_082220	92
LCS 240-449401/4	Lab Control Sample	92
MB 240-449401/5	Method Blank	86

Surrogate Legend

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

QC Sample Results

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

Job ID: 240-135520-1

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

Lab Sample ID: MB 240-449880/7
Matrix: Water
Analysis Batch: 449880

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	0.46	ug/L			09/03/20 13:47	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			09/03/20 13:47	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			09/03/20 13:47	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			09/03/20 13:47	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			09/03/20 13:47	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			09/03/20 13:47	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	88		75 - 130		09/03/20 13:47	1
4-Bromofluorobenzene (Surr)	97		47 - 134		09/03/20 13:47	1
Toluene-d8 (Surr)	92		69 - 122		09/03/20 13:47	1
Dibromofluoromethane (Surr)	82		78 - 129		09/03/20 13:47	1

Lab Sample ID: LCS 240-449880/4
Matrix: Water
Analysis Batch: 449880

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	10.6		ug/L		106	73 - 129
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	75 - 124
Tetrachloroethene	10.0	10.6		ug/L		106	70 - 125
trans-1,2-Dichloroethene	10.0	10.2		ug/L		102	74 - 130
Trichloroethene	10.0	10.7		ug/L		107	71 - 121
Vinyl chloride	10.0	11.4		ug/L		114	61 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	91		75 - 130
4-Bromofluorobenzene (Surr)	100		47 - 134
Toluene-d8 (Surr)	90		69 - 122
Dibromofluoromethane (Surr)	85		78 - 129

Lab Sample ID: 240-135520-2 MS
Matrix: Water
Analysis Batch: 449880

Client Sample ID: MW-43-MS_082220
Prep Type: Total/NA

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
1,1-Dichloroethene	5.0	U	50.0	47.7		ug/L		95	64 - 132
cis-1,2-Dichloroethene	5.0	U	50.0	49.1		ug/L		98	68 - 121
Tetrachloroethene	5.0	U	50.0	42.7		ug/L		85	52 - 129
trans-1,2-Dichloroethene	5.0	U	50.0	44.6		ug/L		89	69 - 126
Trichloroethene	5.0	U	50.0	44.4		ug/L		89	56 - 124
Vinyl chloride	5.0	U	50.0	58.5		ug/L		117	49 - 136

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	92		75 - 130
4-Bromofluorobenzene (Surr)	96		47 - 134
Toluene-d8 (Surr)	88		69 - 122

QC Sample Results

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

Job ID: 240-135520-1

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

Lab Sample ID: 240-135520-2 MS
Matrix: Water
Analysis Batch: 449880

Client Sample ID: MW-43-MS_082220
Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	86		78 - 129

Lab Sample ID: 240-135520-2 MSD
Matrix: Water
Analysis Batch: 449880

Client Sample ID: MW-43-MSD_082220
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
1,1-Dichloroethene	5.0	U	50.0	50.0		ug/L		100	64 - 132	5	35
cis-1,2-Dichloroethene	5.0	U	50.0	51.5		ug/L		103	68 - 121	5	35
Tetrachloroethene	5.0	U	50.0	46.0		ug/L		92	52 - 129	8	35
trans-1,2-Dichloroethene	5.0	U	50.0	48.0		ug/L		96	69 - 126	7	35
Trichloroethene	5.0	U	50.0	46.9		ug/L		94	56 - 124	5	35
Vinyl chloride	5.0	U	50.0	57.5		ug/L		115	49 - 136	2	35

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	91		75 - 130
<i>4-Bromofluorobenzene (Surr)</i>	94		47 - 134
<i>Toluene-d8 (Surr)</i>	87		69 - 122
<i>Dibromofluoromethane (Surr)</i>	89		78 - 129

Lab Sample ID: MB 240-449935/7
Matrix: Water
Analysis Batch: 449935

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			09/03/20 17:11	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			09/03/20 17:11	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			09/03/20 17:11	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			09/03/20 17:11	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			09/03/20 17:11	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			09/03/20 17:11	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		75 - 130		09/03/20 17:11	1
<i>4-Bromofluorobenzene (Surr)</i>	73		47 - 134		09/03/20 17:11	1
<i>Toluene-d8 (Surr)</i>	93		69 - 122		09/03/20 17:11	1
<i>Dibromofluoromethane (Surr)</i>	98		78 - 129		09/03/20 17:11	1

Lab Sample ID: LCS 240-449935/4
Matrix: Water
Analysis Batch: 449935

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
1,1-Dichloroethene	10.0	9.85		ug/L		99	73 - 129
cis-1,2-Dichloroethene	10.0	9.90		ug/L		99	75 - 124
Tetrachloroethene	10.0	11.0		ug/L		110	70 - 125
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	74 - 130
Trichloroethene	10.0	9.12		ug/L		91	71 - 121

Eurofins TestAmerica, Canton

QC Sample Results

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

Job ID: 240-135520-1

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

Lab Sample ID: LCS 240-449935/4
Matrix: Water
Analysis Batch: 449935

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	9.83		ug/L		98	61 - 134
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	85		75 - 130				
4-Bromofluorobenzene (Surr)	94		47 - 134				
Toluene-d8 (Surr)	99		69 - 122				
Dibromofluoromethane (Surr)	90		78 - 129				

Lab Sample ID: 240-135520-3 MS
Matrix: Water
Analysis Batch: 449935

Client Sample ID: MW-52-MS_082220
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	5.0	U	50.0	47.5		ug/L		95	64 - 132
cis-1,2-Dichloroethene	5.0	U	50.0	47.9		ug/L		96	68 - 121
Tetrachloroethene	5.0	U	50.0	48.7		ug/L		97	52 - 129
trans-1,2-Dichloroethene	5.0	U	50.0	51.5		ug/L		103	69 - 126
Trichloroethene	5.0	U	50.0	42.0		ug/L		84	56 - 124
Vinyl chloride	3.0	J	50.0	49.5		ug/L		93	49 - 136
Surrogate									
	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	89		75 - 130						
4-Bromofluorobenzene (Surr)	89		47 - 134						
Toluene-d8 (Surr)	99		69 - 122						
Dibromofluoromethane (Surr)	91		78 - 129						

Lab Sample ID: 240-135520-3 MSD
Matrix: Water
Analysis Batch: 449935

Client Sample ID: MW-52-MSD_082220
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	5.0	U	50.0	46.5		ug/L		93	64 - 132	2	35
cis-1,2-Dichloroethene	5.0	U	50.0	47.6		ug/L		95	68 - 121	1	35
Tetrachloroethene	5.0	U	50.0	48.4		ug/L		97	52 - 129	1	35
trans-1,2-Dichloroethene	5.0	U	50.0	49.2		ug/L		98	69 - 126	4	35
Trichloroethene	5.0	U	50.0	41.4		ug/L		83	56 - 124	1	35
Vinyl chloride	3.0	J	50.0	51.3		ug/L		96	49 - 136	4	35
Surrogate											
	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	87		75 - 130								
4-Bromofluorobenzene (Surr)	88		47 - 134								
Toluene-d8 (Surr)	96		69 - 122								
Dibromofluoromethane (Surr)	89		78 - 129								

QC Sample Results

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

Job ID: 240-135520-1

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

Lab Sample ID: MB 240-449401/5
Matrix: Water
Analysis Batch: 449401

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			08/31/20 12:55	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		70 - 133					08/31/20 12:55	1

Lab Sample ID: LCS 240-449401/4
Matrix: Water
Analysis Batch: 449401

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	11.4		ug/L		114	80 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	92		70 - 133				

Lab Sample ID: 240-135520-2 MS
Matrix: Water
Analysis Batch: 449401

Client Sample ID: MW-43-MS_082220
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	4.5		10.0	15.2		ug/L		107	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	90		70 - 133						

Lab Sample ID: 240-135520-2 MSD
Matrix: Water
Analysis Batch: 449401

Client Sample ID: MW-43-MSD_082220
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	4.5		10.0	15.3		ug/L		107	46 - 170	1	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	88		70 - 133								

Lab Sample ID: 240-135520-3 MS
Matrix: Water
Analysis Batch: 449401

Client Sample ID: MW-52-MS_082220
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.4	J	10.0	12.3		ug/L		108	46 - 170
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	91		70 - 133						

QC Sample Results

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

Job ID: 240-135520-1

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

Lab Sample ID: 240-135520-3 MSD

Matrix: Water

Analysis Batch: 449401

Client Sample ID: MW-52-MSD_082220

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	1.4	J	10.0	11.6		ug/L		101	46 - 170	6	26
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	88		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 Off-Site

Job ID: 240-135520-1

GC/MS VOA

Analysis Batch: 449401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135520-2	MW-43_082220	Total/NA	Water	8260B SIM	
240-135520-3	MW-52_082220	Total/NA	Water	8260B SIM	
240-135520-4	MW-120_082220	Total/NA	Water	8260B SIM	
MB 240-449401/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-449401/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-135520-2 MS	MW-43-MS_082220	Total/NA	Water	8260B SIM	
240-135520-2 MSD	MW-43-MSD_082220	Total/NA	Water	8260B SIM	
240-135520-3 MS	MW-52-MS_082220	Total/NA	Water	8260B SIM	
240-135520-3 MSD	MW-52-MSD_082220	Total/NA	Water	8260B SIM	

Analysis Batch: 449880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135520-1	TRIP BLANK	Total/NA	Water	8260B	
240-135520-2	MW-43_082220	Total/NA	Water	8260B	
240-135520-4	MW-120_082220	Total/NA	Water	8260B	
MB 240-449880/7	Method Blank	Total/NA	Water	8260B	
LCS 240-449880/4	Lab Control Sample	Total/NA	Water	8260B	
240-135520-2 MS	MW-43-MS_082220	Total/NA	Water	8260B	
240-135520-2 MSD	MW-43-MSD_082220	Total/NA	Water	8260B	

Analysis Batch: 449935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135520-3	MW-52_082220	Total/NA	Water	8260B	
MB 240-449935/7	Method Blank	Total/NA	Water	8260B	
LCS 240-449935/4	Lab Control Sample	Total/NA	Water	8260B	
240-135520-3 MS	MW-52-MS_082220	Total/NA	Water	8260B	
240-135520-3 MSD	MW-52-MSD_082220	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-135520-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-135520-1

Date Collected: 08/22/20 00:00

Matrix: Water

Date Received: 08/25/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	449880	09/03/20 19:09	LRW	TAL CAN

Client Sample ID: MW-43_082220

Lab Sample ID: 240-135520-2

Date Collected: 08/22/20 10:01

Matrix: Water

Date Received: 08/25/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	449880	09/03/20 21:13	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	449401	08/31/20 17:04	SAM	TAL CAN

Client Sample ID: MW-52_082220

Lab Sample ID: 240-135520-3

Date Collected: 08/22/20 11:56

Matrix: Water

Date Received: 08/25/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	449935	09/04/20 01:09	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	449401	08/31/20 18:19	SAM	TAL CAN

Client Sample ID: MW-120_082220

Lab Sample ID: 240-135520-4

Date Collected: 08/22/20 13:16

Matrix: Water

Date Received: 08/25/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	449880	09/03/20 19:34	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	449401	08/31/20 19:34	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 Off-Site

Job ID: 240-135520-1

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	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
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		Regulatory program:		Site Contact: Julia McChafferty		Lab Contact: Mike DelMonico		Analyses		Sample Specific Notes / Special Instructions:		
Company Name: Arcadis	Address: 28550 Cabot Drive, Suite 500	<input type="checkbox"/> DW	<input type="checkbox"/> NPDES	<input type="checkbox"/> RCRA	<input type="checkbox"/> Other	Telephone: 734-644-5131	Telephone: 330-497-9396	1 of /	COCs	For lab use only		
City/State/Zip: Novi, MI, 48377	Phone: 248-994-2240	Client Project Manager: Kris Hinskey				Email: kris@hinskey.com		TAT (if different from below)		Walk-in client		
Project Name: Ford LTP off-site <u>on-site</u> <u>KL3 082420</u>	Sampler Name: <u>Gery Schatz</u>	Matrix		Containers & Preservatives		Analysis Turnaround Time		10 day	Lab sampling			
Project Number: 30050315-401-01 <u>RCB 082420</u>	Method of Shipment/Carrier:	Aqueous	Sediment	Solid	Other:	ZnAc	HCl	HNO3	H2SO4	Job/SDG No:		
PO # 30050315-402-04 <u>RCB 082420</u>	Shipping/Tracking No:	Sample Date	Sample Time	Sample Disposal (A fee may be assessed)	Return to Client	1,4-DCE 8260B	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM
TRIP BLANK		8/22/20				X	X	X	X	X	X	X
MW-43-MS-082220		8/22/20	10:01			X	X	X	X	X	X	X
MW-43-MS-082220		8/22/20	10:01			X	X	X	X	X	X	X
MW-43-MSD-082220		8/22/20	10:01			X	X	X	X	X	X	X
MW-52-082220		8/22/20	11:56			X	X	X	X	X	X	X
MW-52-MS-082220		8/22/20	11:56			X	X	X	X	X	X	X
MW-52-MSD-082220		8/22/20	11:56			X	X	X	X	X	X	X
MW-120-082220		8/22/20	13:16			X	X	X	X	X	X	X



240-135520 Chain of Custody

Relinquished by: <u>Rachel Breck</u>	Company: <u>ARCADIS</u>	Date/Time: <u>8/22/20 1420</u>	Received by: <u>Novi Cold Storage</u>	Company: <u>ARCADIS</u>	Date/Time: <u>8/24/20 1410</u>
Relinquished by: <u>Rachel Breck</u>	Company: <u>ARCADIS</u>	Date/Time: <u>8/24/20 1410</u>	Received by: <u>Novi Cold Storage</u>	Company: <u>ARCADIS</u>	Date/Time: <u>8/24/20 1410</u>
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Possible Hazard Identification
 Non-Hazard Flammable Irritant Poison B Unknown
 Special Instructions/QC Requirements & Comments:
 Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203631
 Level IV Reporting requested.



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Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 135520

Client Arcadis Site Name _____
 Cooler Received on 8-25-20 Opened on 8-25-20
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Cooler unpacked by:
Jenny Rayer

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-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. 0.2 °C Corrected Cooler Temp. 1.1 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 -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 (LL Hg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
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? Yes No NA Larger than this.
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ 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: _____

