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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-135184-1
Client Project/Site: Ford LTP On-Site

For:
ARCADIS U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Attn: Kristoffer Hinskey

Authorized for release by:
8/29/2020 10:32:54 AM
Opal Johnson, Project Manager II
(330)966-9279
Opal.Johnson@Eurofinset.com

Designee for

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

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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.
¤	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

Job ID: 240-135184-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 240-135184-1

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.

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

RECEIPT

The samples were received on 8/19/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-135184-1), MW-210S_081520 (240-135184-2), MW-34_081520 (240-135184-3), MW-15-61D_081520 (240-135184-4) and MW-213S_081520 (240-135184-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/24/2020, 08/25/2020 and 08/26/2020.

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-210S_081520 (240-135184-2), MW-34_081520 (240-135184-3), MW-15-61D_081520 (240-135184-4) and MW-213S_081520 (240-135184-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/26/2020.

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: 240-135184-1

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: 240-135184-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-135184-1	TRIP BLANK	Water	08/15/20 00:00	08/19/20 09:30	
240-135184-2	MW-210S_081520	Water	08/15/20 09:01	08/19/20 09:30	
240-135184-3	MW-34_081520	Water	08/15/20 09:50	08/19/20 09:30	
240-135184-4	MW-15-61D_081520	Water	08/15/20 11:43	08/19/20 09:30	
240-135184-5	MW-213S_081520	Water	08/15/20 13:11	08/19/20 09:30	

Detection Summary

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

Job ID: 240-135184-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-135184-1

No Detections.

Client Sample ID: MW-210S_081520 — Lab Sample ID: 240-135184-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	14		1.0	0.38	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	1.5		1.0	0.43	ug/L	1		8260B	Total/NA
Vinyl chloride	12		1.0	0.50	ug/L	1		8260B	Total/NA

Client Sample ID: MW-34_081520 — Lab Sample ID: 240-135184-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.2		2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	0.62	J	1.0	0.38	ug/L	1		8260B	Total/NA
Vinyl chloride	1.4		1.0	0.50	ug/L	1		8260B	Total/NA

Client Sample ID: MW-15-61D_081520 — Lab Sample ID: 240-135184-4

No Detections.

Client Sample ID: MW-213S_081520 — Lab Sample ID: 240-135184-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.2		1.0	0.38	ug/L	1		8260B	Total/NA
Vinyl chloride	0.81	J	1.0	0.50	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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

Job ID: 240-135184-1

Client Sample ID: TRIP BLANK
Date Collected: 08/15/20 00:00
Date Received: 08/19/20 09:30

Lab Sample ID: 240-135184-1
Matrix: Water

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			08/26/20 21:12	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/26/20 21:12	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/26/20 21:12	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/26/20 21:12	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/26/20 21:12	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/26/20 21:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*75 - 130*		*08/26/20 21:12*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/26/20 21:12*	*1*
Toluene-d8 (Surr)	*104*		*69 - 122*		*08/26/20 21:12*	*1*
Dibromofluoromethane (Surr)	*114*		*78 - 129*		*08/26/20 21:12*	*1*

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

Job ID: 240-135184-1

Client Sample ID: MW-210S_081520
Date Collected: 08/15/20 09:01
Date Received: 08/19/20 09:30

Lab Sample ID: 240-135184-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**1.2**	**J**	2.0	0.86	ug/L			08/26/20 11:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 133*		*08/26/20 11:05*	*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			08/24/20 23:47	1
cis-1,2-Dichloroethene	**14**		1.0	0.38	ug/L			08/24/20 23:47	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 23:47	1
trans-1,2-Dichloroethene	**1.5**		1.0	0.43	ug/L			08/24/20 23:47	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 23:47	1
Vinyl chloride	**12**		1.0	0.50	ug/L			08/24/20 23:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 130*		*08/24/20 23:47*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/24/20 23:47*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/24/20 23:47*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 129*		*08/24/20 23:47*	*1*

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

Job ID: 240-135184-1

Client Sample ID: MW-34_081520
Date Collected: 08/15/20 09:50
Date Received: 08/19/20 09:30

Lab Sample ID: 240-135184-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**6.2**		2.0	0.86	ug/L			08/26/20 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*08/26/20 11:31*	*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			08/25/20 00:09	1
cis-1,2-Dichloroethene	**0.62**	**J**	1.0	0.38	ug/L			08/25/20 00:09	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/25/20 00:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/25/20 00:09	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/25/20 00:09	1
Vinyl chloride	**1.4**		1.0	0.50	ug/L			08/25/20 00:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*75 - 130*		*08/25/20 00:09*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/25/20 00:09*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/25/20 00:09*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 129*		*08/25/20 00:09*	*1*

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

Job ID: 240-135184-1

Client Sample ID: MW-15-61D_081520
Date Collected: 08/15/20 11:43
Date Received: 08/19/20 09:30

Lab Sample ID: 240-135184-4
Matrix: Water

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			08/26/20 11:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*08/26/20 11:55*	*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			08/25/20 00:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/25/20 00:30	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/25/20 00:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/25/20 00:30	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/25/20 00:30	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/25/20 00:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*08/25/20 00:30*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/25/20 00:30*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/25/20 00:30*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 129*		*08/25/20 00:30*	*1*

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

Job ID: 240-135184-1

Client Sample ID: MW-213S_081520
Date Collected: 08/15/20 13:11
Date Received: 08/19/20 09:30

Lab Sample ID: 240-135184-5
Matrix: Water

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			08/26/20 12:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 133*		*08/26/20 12:20*	*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			08/25/20 00:52	1
cis-1,2-Dichloroethene	**1.2**		1.0	0.38	ug/L			08/25/20 00:52	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/25/20 00:52	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/25/20 00:52	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/25/20 00:52	1
Vinyl chloride	**0.81**	**J**	1.0	0.50	ug/L			08/25/20 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*75 - 130*		*08/25/20 00:52*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/25/20 00:52*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/25/20 00:52*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 129*		*08/25/20 00:52*	*1*

Surrogate Summary

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

Job ID: 240-135184-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(75-130)	(47-134)	(69-122)	(78-129)
240-135184-1	TRIP BLANK	114	96	104	114
240-135184-2	MW-210S_081520	109	77	95	96
240-135184-3	MW-34_081520	112	77	98	97
240-135184-4	MW-15-61D_081520	110	77	96	97
240-135184-5	MW-213S_081520	111	78	97	97
240-135187-E-2 MSD	Matrix Spike Duplicate	102	94	101	91
240-135187-H-2 MS	Matrix Spike	101	94	102	97
240-135193-H-3 MS	Matrix Spike	96	107	110	98
240-135193-K-3 MSD	Matrix Spike Duplicate	96	105	110	98
LCS 240-448467/4	Lab Control Sample	95	97	104	88
LCS 240-448872/5	Lab Control Sample	96	106	110	98
MB 240-448467/7	Method Blank	107	82	98	93
MB 240-448872/8	Method Blank	104	88	101	103

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)
		DCA
Lab Sample ID	Client Sample ID	(70-133)
240-135184-2	MW-210S_081520	90
240-135184-3	MW-34_081520	86
240-135184-4	MW-15-61D_081520	86
240-135184-5	MW-213S_081520	93
240-135187-B-2 MS	Matrix Spike	83
240-135187-B-2 MSD	Matrix Spike Duplicate	88
LCS 240-448707/5	Lab Control Sample	85
MB 240-448707/6	Method Blank	84

Surrogate Legend

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

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

Lab Sample ID: MB 240-448467/7
Matrix: Water
Analysis Batch: 448467

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			08/24/20 23:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/24/20 23:03	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/24/20 23:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/24/20 23:03	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/24/20 23:03	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/24/20 23:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/24/20 23:03*	*1*
4-Bromofluorobenzene (Surr)	*82*		*47 - 134*		*08/24/20 23:03*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/24/20 23:03*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/24/20 23:03*	*1*

Lab Sample ID: LCS 240-448467/4
Matrix: Water
Analysis Batch: 448467

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	9.16		ug/L		92	73 - 129
cis-1,2-Dichloroethene	10.0	9.49		ug/L		95	75 - 124
Tetrachloroethene	10.0	9.33		ug/L		93	70 - 125
trans-1,2-Dichloroethene	10.0	8.89		ug/L		89	74 - 130
Trichloroethene	10.0	8.66		ug/L		87	71 - 121
Vinyl chloride	10.0	8.77		ug/L		88	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 130*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*
Toluene-d8 (Surr)	*104*		*69 - 122*
Dibromofluoromethane (Surr)	*88*		*78 - 129*

Lab Sample ID: 240-135187-E-2 MSD
Matrix: Water
Analysis Batch: 448467

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	8.68		ug/L		87	64 - 132	30	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.14		ug/L		91	68 - 121	1	35
Tetrachloroethene	1.0	U	10.0	8.20		ug/L		82	52 - 129	4	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.32		ug/L		83	69 - 126	7	35
Trichloroethene	1.0	U	10.0	7.70		ug/L		77	56 - 124	0	35
Vinyl chloride	1.0	U	10.0	8.78		ug/L		88	49 - 136	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*
Toluene-d8 (Surr)	*101*		*69 - 122*

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

Lab Sample ID: 240-135187-E-2 MSD
Matrix: Water
Analysis Batch: 448467

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	91		78 - 129

Lab Sample ID: 240-135187-H-2 MS
Matrix: Water
Analysis Batch: 448467

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	6.45		ug/L		64	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.24		ug/L		92	68 - 121
Tetrachloroethene	1.0	U	10.0	7.89		ug/L		79	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	8.88		ug/L		89	69 - 126
Trichloroethene	1.0	U	10.0	7.69		ug/L		77	56 - 124
Vinyl chloride	1.0	U	10.0	8.99		ug/L		90	49 - 136

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		75 - 130
4-Bromofluorobenzene (Surr)	94		47 - 134
Toluene-d8 (Surr)	102		69 - 122
Dibromofluoromethane (Surr)	97		78 - 129

Lab Sample ID: MB 240-448872/8
Matrix: Water
Analysis Batch: 448872

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			08/26/20 18:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/26/20 18:36	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/26/20 18:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/26/20 18:36	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/26/20 18:36	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/26/20 18:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 130		08/26/20 18:36	1
4-Bromofluorobenzene (Surr)	88		47 - 134		08/26/20 18:36	1
Toluene-d8 (Surr)	101		69 - 122		08/26/20 18:36	1
Dibromofluoromethane (Surr)	103		78 - 129		08/26/20 18:36	1

Lab Sample ID: LCS 240-448872/5
Matrix: Water
Analysis Batch: 448872

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	20.0	19.3		ug/L		97	73 - 129
cis-1,2-Dichloroethene	20.0	19.7		ug/L		99	75 - 124
Tetrachloroethene	20.0	16.9		ug/L		84	70 - 125
trans-1,2-Dichloroethene	20.0	20.8		ug/L		104	74 - 130
Trichloroethene	20.0	17.8		ug/L		89	71 - 121

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

Lab Sample ID: LCS 240-448872/5
Matrix: Water
Analysis Batch: 448872

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Vinyl chloride			20.0	19.8		ug/L		99	61 - 134		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*
4-Bromofluorobenzene (Surr)	*106*		*47 - 134*
Toluene-d8 (Surr)	*110*		*69 - 122*
Dibromofluoromethane (Surr)	*98*		*78 - 129*

Lab Sample ID: 240-135193-H-3 MS
Matrix: Water
Analysis Batch: 448872

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	20.0	20.5		ug/L		103	64 - 132		
cis-1,2-Dichloroethene	0.38	J	20.0	20.2		ug/L		99	68 - 121		
Tetrachloroethene	1.0	U	20.0	18.3		ug/L		91	52 - 129		
trans-1,2-Dichloroethene	1.0	U	20.0	21.4		ug/L		107	69 - 126		
Trichloroethene	1.0	U	20.0	18.4		ug/L		92	56 - 124		
Vinyl chloride	1.0	U	20.0	20.6		ug/L		103	49 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*
4-Bromofluorobenzene (Surr)	*107*		*47 - 134*
Toluene-d8 (Surr)	*110*		*69 - 122*
Dibromofluoromethane (Surr)	*98*		*78 - 129*

Lab Sample ID: 240-135193-K-3 MSD
Matrix: Water
Analysis Batch: 448872

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	20.0	20.9		ug/L		105	64 - 132	2	35
cis-1,2-Dichloroethene	0.38	J	20.0	20.5		ug/L		101	68 - 121	2	35
Tetrachloroethene	1.0	U	20.0	18.1		ug/L		91	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	20.0	21.4		ug/L		107	69 - 126	0	35
Trichloroethene	1.0	U	20.0	18.4		ug/L		92	56 - 124	0	35
Vinyl chloride	1.0	U	20.0	20.6		ug/L		103	49 - 136	0	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*
4-Bromofluorobenzene (Surr)	*105*		*47 - 134*
Toluene-d8 (Surr)	*110*		*69 - 122*
Dibromofluoromethane (Surr)	*98*		*78 - 129*

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

Lab Sample ID: MB 240-448707/6
Matrix: Water
Analysis Batch: 448707

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			08/26/20 06:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 133*		*08/26/20 06:59*	*1*

Lab Sample ID: LCS 240-448707/5
Matrix: Water
Analysis Batch: 448707

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)	*85*		*70 - 133*

Lab Sample ID: 240-135187-B-2 MS
Matrix: Water
Analysis Batch: 448707

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	9.96		ug/L		100	46 - 170		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*83*		*70 - 133*

Lab Sample ID: 240-135187-B-2 MSD
Matrix: Water
Analysis Batch: 448707

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	9.71		ug/L		97	46 - 170	3	26

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 133*

QC Association Summary

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

Job ID: 240-135184-1

GC/MS VOA

Analysis Batch: 448467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135184-2	MW-210S_081520	Total/NA	Water	8260B	
240-135184-3	MW-34_081520	Total/NA	Water	8260B	
240-135184-4	MW-15-61D_081520	Total/NA	Water	8260B	
240-135184-5	MW-213S_081520	Total/NA	Water	8260B	
MB 240-448467/7	Method Blank	Total/NA	Water	8260B	
LCS 240-448467/4	Lab Control Sample	Total/NA	Water	8260B	
240-135187-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
240-135187-H-2 MS	Matrix Spike	Total/NA	Water	8260B	

Analysis Batch: 448707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135184-2	MW-210S_081520	Total/NA	Water	8260B SIM	
240-135184-3	MW-34_081520	Total/NA	Water	8260B SIM	
240-135184-4	MW-15-61D_081520	Total/NA	Water	8260B SIM	
240-135184-5	MW-213S_081520	Total/NA	Water	8260B SIM	
MB 240-448707/6	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-448707/5	Lab Control Sample	Total/NA	Water	8260B SIM	
240-135187-B-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-135187-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 448872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135184-1	TRIP BLANK	Total/NA	Water	8260B	
MB 240-448872/8	Method Blank	Total/NA	Water	8260B	
LCS 240-448872/5	Lab Control Sample	Total/NA	Water	8260B	
240-135193-H-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-135193-K-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-135184-1

Client Sample ID: TRIP BLANK
Lab Sample ID: 240-135184-1
Date Collected: 08/15/20 00:00
Matrix: Water
Date Received: 08/19/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448872	08/26/20 21:12	TJL1	TAL CAN

Client Sample ID: MW-210S_081520
Lab Sample ID: 240-135184-2
Date Collected: 08/15/20 09:01
Matrix: Water
Date Received: 08/19/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448467	08/24/20 23:47	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	448707	08/26/20 11:05	TJL2	TAL CAN

Client Sample ID: MW-34_081520
Lab Sample ID: 240-135184-3
Date Collected: 08/15/20 09:50
Matrix: Water
Date Received: 08/19/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448467	08/25/20 00:09	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	448707	08/26/20 11:31	TJL2	TAL CAN

Client Sample ID: MW-15-61D_081520
Lab Sample ID: 240-135184-4
Date Collected: 08/15/20 11:43
Matrix: Water
Date Received: 08/19/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448467	08/25/20 00:30	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	448707	08/26/20 11:55	TJL2	TAL CAN

Client Sample ID: MW-213S_081520
Lab Sample ID: 240-135184-5
Date Collected: 08/15/20 13:11
Matrix: Water
Date Received: 08/19/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448467	08/25/20 00:52	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	448707	08/26/20 12:20	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: 240-135184-1

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.

MICHIGAN
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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
Company Name: Arcadis				
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396	↓ of ↓ COCs
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time	Analyses	For lab use only
Phone: 248-994-2240	Sampler Name: Julia McClafferty	TAT if different from below: ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day (10 day)		Walk-in client
Project Name: Ford LTP On-Site	Method of Shipment/Carrier:			Lab sampling
Project Number: 30050315.401.03	Shipping/Tracking No:			Job/SDG No:
PO # 30050315.401.03				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK																								1 trip blank
MW-21OS_081520	8/15/20	0901		X						6					N	G	X	X	X	X	X	X	X	3VOAs for 8260B 3VOAs for 8260B SIM
MW-34_081520	8/15/20	0950		X						6					N	G	X	X	X	X	X	X	X	
MW-15-61D_081520	8/15/20	1143		X						6					N	G	X	X	X	X	X	X	X	
MW-23S_081520	8/15/20	1311		X						6					N	G	X	X	X	X	X	X	X	

240-135184 Chain of Custody

Possible Hazard Identification: ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return to Client ☑ Disposal By Lab ☐ Archive For ☐ Months

Special Instructions/QC Requirements & Comments:

Submit all results through Cadena at jtomalia@cadenaco.com. Cadena #E203728
Level IV Reporting requested.

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Julia McClafferty	Arcadis	8/15/20 1415	Novi Cold Storage	Arcadis	8/15/20 1415
Julia McClafferty	Arcadis	8/18/20 1015	Jeri Hall	ETA	8/18/20 1220
Jeri Hall	ETA	8/18/20 1226	Tammy Rose	ETA	8-19-20 930

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 135182**
Canton Facility

Client Arcadis Site Name

Cooler Received on 8-19-20 Opened on 8-19-20

Cooler unpacked by: Tammy Page

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

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

TestAmerica Cooler # TA Foam Box (Client Cooler) Box Other

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 2.3 °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 #	(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: