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ANALYTICAL REPORT

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

Laboratory Job ID: 240-135081-1
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 10:39:03 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

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
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Qualifiers

GC/MS VOA

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: 240-135081-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 240-135081-1

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 8/15/2020 10:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.4º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-135081-1), MW-194S_081320 (240-135081-2), MW-195S_081320 (240-135081-3) and MW-196_081320 (240-135081-4) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/26/2020 and 08/27/2020.

Samples MW-195S_081320 (240-135081-3)[100X] and MW-196_081320 (240-135081-4)[25X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) for analytical batch 448779 exceeded control criteria for 1,1-Dichloroethene. The samples associated with this CCV were non-detect for the affected analyte. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed and the affected compound was detected; therefore the data has been reported. No further corrective action was required: TRIP BLANK (240-135081-1) and MW-194S_081320 (240-135081-2).

1,1-Dichloroethene and Vinyl chloride failed the recovery criteria low for the MS of sample 240-134884-3 in batch 240-448779.

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

Job ID: 240-135081-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-194S_081320 (240-135081-2), MW-195S_081320 (240-135081-3) and MW-196_081320 (240-135081-4) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 08/25/2020.

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: 240-135081-1

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: 240-135081-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-135081-1	TRIP BLANK	Water	08/13/20 00:00	08/15/20 10:30	
240-135081-2	MW-194S_081320	Water	08/13/20 10:37	08/15/20 10:30	
240-135081-3	MW-195S_081320	Water	08/13/20 12:00	08/15/20 10:30	
240-135081-4	MW-196_081320	Water	08/13/20 14:00	08/15/20 10:30	

Detection Summary

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

Job ID: 240-135081-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-135081-1

No Detections.

Client Sample ID: MW-194S_081320 — Lab Sample ID: 240-135081-2

No Detections.

Client Sample ID: MW-195S_081320 — Lab Sample ID: 240-135081-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	110		100	38	ug/L	100		8260B	Total/NA
trans-1,2-Dichloroethene	170		100	43	ug/L	100		8260B	Total/NA
Trichloroethene	3900		100	36	ug/L	100		8260B	Total/NA

Client Sample ID: MW-196_081320 — Lab Sample ID: 240-135081-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	320		25	9.6	ug/L	25		8260B	Total/NA
trans-1,2-Dichloroethene	94		25	11	ug/L	25		8260B	Total/NA
Trichloroethene	490		25	9.0	ug/L	25		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: 240-135081-1

Client Sample ID: TRIP BLANK
Date Collected: 08/13/20 00:00
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-1
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 21:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/26/20 21:06	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/26/20 21:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/26/20 21:06	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/26/20 21:06	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/26/20 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 130*		*08/26/20 21:06*	*1*
4-Bromofluorobenzene (Surr)	*84*		*47 - 134*		*08/26/20 21:06*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/26/20 21:06*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 129*		*08/26/20 21:06*	*1*

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

Job ID: 240-135081-1

Client Sample ID: MW-194S_081320
Date Collected: 08/13/20 10:37
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/25/20 16:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*08/25/20 16:42*	*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			08/26/20 21:28	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/26/20 21:28	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/26/20 21:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/26/20 21:28	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/26/20 21:28	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/26/20 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*		*08/26/20 21:28*	*1*
4-Bromofluorobenzene (Surr)	*85*		*47 - 134*		*08/26/20 21:28*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/26/20 21:28*	*1*
Dibromofluoromethane (Surr)	*88*		*78 - 129*		*08/26/20 21:28*	*1*

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

Job ID: 240-135081-1

Client Sample ID: MW-195S_081320
Date Collected: 08/13/20 12:00
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/25/20 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 133*		*08/25/20 17:07*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	100	U	100	46	ug/L			08/27/20 14:37	100
cis-1,2-Dichloroethene	**110**		100	38	ug/L			08/27/20 14:37	100
Tetrachloroethene	100	U	100	33	ug/L			08/27/20 14:37	100
trans-1,2-Dichloroethene	**170**		100	43	ug/L			08/27/20 14:37	100
Trichloroethene	**3900**		100	36	ug/L			08/27/20 14:37	100
Vinyl chloride	100	U	100	50	ug/L			08/27/20 14:37	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 130*		*08/27/20 14:37*	*100*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/27/20 14:37*	*100*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/27/20 14:37*	*100*
Dibromofluoromethane (Surr)	*99*		*78 - 129*		*08/27/20 14:37*	*100*

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

Job ID: 240-135081-1

Client Sample ID: MW-196_081320
Date Collected: 08/13/20 14:00
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-4
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			08/25/20 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*08/25/20 17:32*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	25	U	25	12	ug/L			08/27/20 15:00	25
cis-1,2-Dichloroethene	**320**		25	9.6	ug/L			08/27/20 15:00	25
Tetrachloroethene	25	U	25	8.2	ug/L			08/27/20 15:00	25
trans-1,2-Dichloroethene	**94**		25	11	ug/L			08/27/20 15:00	25
Trichloroethene	**490**		25	9.0	ug/L			08/27/20 15:00	25
Vinyl chloride	25	U	25	12	ug/L			08/27/20 15:00	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 130*		*08/27/20 15:00*	*25*
4-Bromofluorobenzene (Surr)	*76*		*47 - 134*		*08/27/20 15:00*	*25*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/27/20 15:00*	*25*
Dibromofluoromethane (Surr)	*100*		*78 - 129*		*08/27/20 15:00*	*25*

Surrogate Summary

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

Job ID: 240-135081-1

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)
240-134884-C-3 MS	Matrix Spike	84	98	101	86
240-134884-C-3 MSD	Matrix Spike Duplicate	85	100	102	87
240-135081-1	TRIP BLANK	94	84	96	90
240-135081-2	MW-194S_081320	96	85	96	88
240-135081-3	MW-195S_081320	109	78	95	99
240-135081-4	MW-196_081320	109	76	92	100
240-135240-D-2 MS	Matrix Spike	91	93	95	90
240-135240-E-2 MSD	Matrix Spike Duplicate	89	94	95	86
LCS 240-448779/4	Lab Control Sample	84	99	100	86
LCS 240-449037/4	Lab Control Sample	97	96	95	92
MB 240-448779/7	Method Blank	90	85	97	83
MB 240-449037/7	Method Blank	108	78	91	97

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)
		DCA
Lab Sample ID	Client Sample ID	(70-133)
240-134918-X-5 MS	Matrix Spike	84
240-134918-X-5 MSD	Matrix Spike Duplicate	85
240-135081-2	MW-194S_081320	86
240-135081-3	MW-195S_081320	89
240-135081-4	MW-196_081320	86
LCS 240-448596/4	Lab Control Sample	86
MB 240-448596/5	Method Blank	84

Surrogate Legend

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

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

Lab Sample ID: MB 240-448779/7
Matrix: Water
Analysis Batch: 448779

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 13:05	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/26/20 13:05	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/26/20 13:05	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/26/20 13:05	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/26/20 13:05	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/26/20 13:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 130*		*08/26/20 13:05*	*1*
4-Bromofluorobenzene (Surr)	*85*		*47 - 134*		*08/26/20 13:05*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/26/20 13:05*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 129*		*08/26/20 13:05*	*1*

Lab Sample ID: LCS 240-448779/4
Matrix: Water
Analysis Batch: 448779

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	8.71		ug/L		87	73 - 129
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	75 - 124
Tetrachloroethene	10.0	11.5		ug/L		115	70 - 125
trans-1,2-Dichloroethene	10.0	9.93		ug/L		99	74 - 130
Trichloroethene	10.0	9.38		ug/L		94	71 - 121
Vinyl chloride	10.0	8.97		ug/L		90	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 130*
4-Bromofluorobenzene (Surr)	*99*		*47 - 134*
Toluene-d8 (Surr)	*100*		*69 - 122*
Dibromofluoromethane (Surr)	*86*		*78 - 129*

Lab Sample ID: 240-134884-C-3 MS
Matrix: Water
Analysis Batch: 448779

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	5.0	U F1	50.0	31.5	F1	ug/L		63	64 - 132
cis-1,2-Dichloroethene	24		50.0	68.5		ug/L		89	68 - 121
Tetrachloroethene	5.0	U	50.0	42.9		ug/L		86	52 - 129
trans-1,2-Dichloroethene	5.0	U	50.0	40.6		ug/L		81	69 - 126
Trichloroethene	5.0	U	50.0	37.3		ug/L		75	56 - 124
Vinyl chloride	73	F1	50.0	93.4	F1	ug/L		40	49 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 130*
4-Bromofluorobenzene (Surr)	*98*		*47 - 134*
Toluene-d8 (Surr)	*101*		*69 - 122*

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

Lab Sample ID: 240-134884-C-3 MS
Matrix: Water
Analysis Batch: 448779

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

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*86*		*78 - 129*

Lab Sample ID: 240-134884-C-3 MSD
Matrix: Water
Analysis Batch: 448779

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	5.0	U F1	50.0	38.3		ug/L		77	64 - 132	19	35
cis-1,2-Dichloroethene	24		50.0	69.2		ug/L		91	68 - 121	1	35
Tetrachloroethene	5.0	U	50.0	51.1		ug/L		102	52 - 129	17	35
trans-1,2-Dichloroethene	5.0	U	50.0	44.7		ug/L		89	69 - 126	10	35
Trichloroethene	5.0	U	50.0	41.3		ug/L		83	56 - 124	10	35
Vinyl chloride	73	F1	50.0	109		ug/L		71	49 - 136	15	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 130*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*
Toluene-d8 (Surr)	*102*		*69 - 122*
Dibromofluoromethane (Surr)	*87*		*78 - 129*

Lab Sample ID: MB 240-449037/7
Matrix: Water
Analysis Batch: 449037

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			08/27/20 14:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/27/20 14:13	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/27/20 14:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/27/20 14:13	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/27/20 14:13	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/27/20 14:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/27/20 14:13*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/27/20 14:13*	*1*
Toluene-d8 (Surr)	*91*		*69 - 122*		*08/27/20 14:13*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 129*		*08/27/20 14:13*	*1*

Lab Sample ID: LCS 240-449037/4
Matrix: Water
Analysis Batch: 449037

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.1		ug/L		101	73 - 129
cis-1,2-Dichloroethene	10.0	9.79		ug/L		98	75 - 124
Tetrachloroethene	10.0	10.5		ug/L		105	70 - 125
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	74 - 130
Trichloroethene	10.0	9.41		ug/L		94	71 - 121

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

Lab Sample ID: LCS 240-449037/4
Matrix: Water
Analysis Batch: 449037

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Vinyl chloride			10.0	8.76		ug/L		88	61 - 134		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*
Toluene-d8 (Surr)	*95*		*69 - 122*
Dibromofluoromethane (Surr)	*92*		*78 - 129*

Lab Sample ID: 240-135240-D-2 MS
Matrix: Water
Analysis Batch: 449037

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	9.73		ug/L		97	64 - 132		
cis-1,2-Dichloroethene	1.0	U	10.0	9.58		ug/L		96	68 - 121		
Tetrachloroethene	1.0	U	10.0	9.73		ug/L		97	52 - 129		
trans-1,2-Dichloroethene	1.0	U	10.0	9.76		ug/L		98	69 - 126		
Trichloroethene	1.0	U	10.0	8.69		ug/L		87	56 - 124		
Vinyl chloride	1.0	U	10.0	9.59		ug/L		96	49 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 130*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*
Toluene-d8 (Surr)	*95*		*69 - 122*
Dibromofluoromethane (Surr)	*90*		*78 - 129*

Lab Sample ID: 240-135240-E-2 MSD
Matrix: Water
Analysis Batch: 449037

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	10.0	9.57		ug/L		96	64 - 132	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.74		ug/L		97	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	9.90		ug/L		99	52 - 129	2	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.57		ug/L		96	69 - 126	2	35
Trichloroethene	1.0	U	10.0	8.97		ug/L		90	56 - 124	3	35
Vinyl chloride	1.0	U	10.0	8.81		ug/L		88	49 - 136	9	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*
Toluene-d8 (Surr)	*95*		*69 - 122*
Dibromofluoromethane (Surr)	*86*		*78 - 129*

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

Lab Sample ID: MB 240-448596/5
Matrix: Water
Analysis Batch: 448596

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			08/25/20 13:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 133*		*08/25/20 13:00*	*1*

Lab Sample ID: LCS 240-448596/4
Matrix: Water
Analysis Batch: 448596

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	10.8		ug/L		108	80 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*

Lab Sample ID: 240-134918-X-5 MS
Matrix: Water
Analysis Batch: 448596

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	9.78		ug/L		98	46 - 170		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 133*

Lab Sample ID: 240-134918-X-5 MSD
Matrix: Water
Analysis Batch: 448596

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	9.56		ug/L		96	46 - 170	2	26

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 133*

QC Association Summary

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

Job ID: 240-135081-1

GC/MS VOA

Analysis Batch: 448596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135081-2	MW-194S_081320	Total/NA	Water	8260B SIM	
240-135081-3	MW-195S_081320	Total/NA	Water	8260B SIM	
240-135081-4	MW-196_081320	Total/NA	Water	8260B SIM	
MB 240-448596/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-448596/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134918-X-5 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134918-X-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 448779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135081-1	TRIP BLANK	Total/NA	Water	8260B	
240-135081-2	MW-194S_081320	Total/NA	Water	8260B	
MB 240-448779/7	Method Blank	Total/NA	Water	8260B	
LCS 240-448779/4	Lab Control Sample	Total/NA	Water	8260B	
240-134884-C-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-134884-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 449037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-135081-3	MW-195S_081320	Total/NA	Water	8260B	
240-135081-4	MW-196_081320	Total/NA	Water	8260B	
MB 240-449037/7	Method Blank	Total/NA	Water	8260B	
LCS 240-449037/4	Lab Control Sample	Total/NA	Water	8260B	
240-135240-D-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-135240-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-135081-1

Client Sample ID: TRIP BLANK
Date Collected: 08/13/20 00:00
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448779	08/26/20 21:06	LEE	TAL CAN

Client Sample ID: MW-194S_081320
Date Collected: 08/13/20 10:37
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	448779	08/26/20 21:28	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	448596	08/25/20 16:42	SAM	TAL CAN

Client Sample ID: MW-195S_081320
Date Collected: 08/13/20 12:00
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	449037	08/27/20 14:37	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448596	08/25/20 17:07	SAM	TAL CAN

Client Sample ID: MW-196_081320
Date Collected: 08/13/20 14:00
Date Received: 08/15/20 10:30

Lab Sample ID: 240-135081-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		25	449037	08/27/20 15:00	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	448596	08/25/20 17:32	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: 240-135081-1

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

35/4.4

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

MICHIGAN 190

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			
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com		
Phone: 248-994-2240	Sampler Name: Amber Brannick		
Project Name: Ford LTP On-Site	Method of Shipment/Carrier:		
Project Number: 30050315.401.03	Shipping/Tracking No:		
PO # 30050315.401.03			

COC No: ____ of ____ COCs

Analysis Turnaround Time

TAT if different from below: ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day

10 day

For lab use only

Walk-in client:

Lab sampling:

Job/SDG No:

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						1					N	G	X	X	X	X	X	X	X	1 Trip Blank
MW-194S_081320	08/13/20	10:37		6						6					N	G	X	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260BSIM
MW-195S_081320	08/13/20	1200		6						6					N	G	X	X	X	X	X	X	X	
MW-196_081320	08/13/20	1400		6						6					N	G	X	X	X	X	X	X	X	

240-135081 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.

	Company	Date/Time		Company	Date/Time
Relinquished by: Amber Brannick	ARCADIS	08/13/20 / 1530	Received by: ARCADIS Cold Storage	ARCADIS	08/13/20 / 1530
Relinquished by: Julie McClafferty	Arcadis	8/14/20 1500	Received by:	EA	8-14-20 1510
Relinquished by:	EA	8-14-20 1510	Received in Laboratory by:	TAC	8-15-20 1030

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 135081
Canton Facility

Client Arcadis Site Name

Cooler Received on 8-15-20 Opened on 8-15-20

Cooler unpacked by:

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

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

TestAmerica Cooler # 1A 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. 3.5 °C Corrected Cooler Temp. 4.4 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 (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 # NA (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: