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ANALYTICAL REPORT

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

Laboratory Job ID: 240-131199-1
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:
6/16/2020 2:54:17 PM

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Definitions/Glossary

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

Job ID: 240-131199-1

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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Job ID: 240-131199-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP On-Site

Report Number: 240-131199-1

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 6/3/2020 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-131199-1), MW-42_053020 (240-131199-2), MW-211S_053020 (240-131199-3), MW-35_053020 (240-131199-4) and MW-212S_053020 (240-131199-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/09/2020.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Samples MW-42_053020 (240-131199-2), MW-211S_053020 (240-131199-3), MW-35_053020 (240-131199-4) and MW-212S_053020 (240-131199-5) were analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The samples were analyzed on 06/10/2020.

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: 240-131199-1

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: 240-131199-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-131199-1	TRIP BLANK	Water	05/30/20 00:00	06/03/20 10:00	
240-131199-2	MW-42_053020	Water	05/30/20 10:04	06/03/20 10:00	
240-131199-3	MW-211S_053020	Water	05/30/20 11:16	06/03/20 10:00	
240-131199-4	MW-35_053020	Water	05/30/20 12:36	06/03/20 10:00	
240-131199-5	MW-212S_053020	Water	05/30/20 13:51	06/03/20 10:00	

Detection Summary

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

Job ID: 240-131199-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-131199-1

No Detections.

Client Sample ID: MW-42_053020 — Lab Sample ID: 240-131199-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.9		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.93	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-211S_053020 — Lab Sample ID: 240-131199-3

No Detections.

Client Sample ID: MW-35_053020 — Lab Sample ID: 240-131199-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.3		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	9.1		1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-212S_053020 — Lab Sample ID: 240-131199-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.6		1.0	0.16	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.19	J	1.0	0.19	ug/L	1		8260B	Total/NA
Trichloroethene	0.14	J	1.0	0.10	ug/L	1		8260B	Total/NA
Vinyl chloride	0.53	J	1.0	0.20	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: 240-131199-1

Client Sample ID: TRIP BLANK
Date Collected: 05/30/20 00:00
Date Received: 06/03/20 10:00

Lab Sample ID: 240-131199-1
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	0.19	ug/L			06/09/20 20:16	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 20:16	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 20:16	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 20:16	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 20:16	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/09/20 20:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 130*		*06/09/20 20:16*	*1*
4-Bromofluorobenzene (Surr)	*103*		*47 - 134*		*06/09/20 20:16*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*06/09/20 20:16*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*06/09/20 20:16*	*1*

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

Job ID: 240-131199-1

Client Sample ID: MW-42_053020
Date Collected: 05/30/20 10:04
Date Received: 06/03/20 10:00

Lab Sample ID: 240-131199-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**2.9**		2.0	0.86	ug/L			06/10/20 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 133*		*06/10/20 13:12*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 20:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 20:40	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 20:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 20:40	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 20:40	1
Vinyl chloride	**0.93**	**J**	1.0	0.20	ug/L			06/09/20 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*06/09/20 20:40*	*1*
4-Bromofluorobenzene (Surr)	*102*		*47 - 134*		*06/09/20 20:40*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*06/09/20 20:40*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*06/09/20 20:40*	*1*

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

Job ID: 240-131199-1

Client Sample ID: MW-211S_053020
Date Collected: 05/30/20 11:16
Date Received: 06/03/20 10:00

Lab Sample ID: 240-131199-3
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			06/10/20 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 133*		*06/10/20 14:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 21:04	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 21:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 21:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 21:04	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 21:04	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/09/20 21:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*06/09/20 21:04*	*1*
4-Bromofluorobenzene (Surr)	*106*		*47 - 134*		*06/09/20 21:04*	*1*
Toluene-d8 (Surr)	*102*		*69 - 122*		*06/09/20 21:04*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*06/09/20 21:04*	*1*

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

Job ID: 240-131199-1

Client Sample ID: MW-35_053020
Date Collected: 05/30/20 12:36
Date Received: 06/03/20 10:00

Lab Sample ID: 240-131199-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.3		2.0	0.86	ug/L			06/10/20 14:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 133*		*06/10/20 14:57*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 21:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 21:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 21:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 21:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 21:29	1
Vinyl chloride	9.1		1.0	0.20	ug/L			06/09/20 21:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*06/09/20 21:29*	*1*
4-Bromofluorobenzene (Surr)	*105*		*47 - 134*		*06/09/20 21:29*	*1*
Toluene-d8 (Surr)	*101*		*69 - 122*		*06/09/20 21:29*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 129*		*06/09/20 21:29*	*1*

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

Job ID: 240-131199-1

Client Sample ID: MW-212S_053020
Date Collected: 05/30/20 13:51
Date Received: 06/03/20 10:00

Lab Sample ID: 240-131199-5
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			06/10/20 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 133*		*06/10/20 15:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 21:53	1
cis-1,2-Dichloroethene	**1.6**		1.0	0.16	ug/L			06/09/20 21:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 21:53	1
trans-1,2-Dichloroethene	**0.19**	**J**	1.0	0.19	ug/L			06/09/20 21:53	1
Trichloroethene	**0.14**	**J**	1.0	0.10	ug/L			06/09/20 21:53	1
Vinyl chloride	**0.53**	**J**	1.0	0.20	ug/L			06/09/20 21:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*75 - 130*		*06/09/20 21:53*	*1*
4-Bromofluorobenzene (Surr)	*105*		*47 - 134*		*06/09/20 21:53*	*1*
Toluene-d8 (Surr)	*101*		*69 - 122*		*06/09/20 21:53*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*06/09/20 21:53*	*1*

Surrogate Summary

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

Job ID: 240-131199-1

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)
240-131199-1	TRIP BLANK	109	103	99	92
240-131199-2	MW-42_053020	110	102	99	93
240-131199-2 MS	MW-42-MS_053020	103	104	100	86
240-131199-2 MSD	MW-42-MSD_053020	103	106	103	82
240-131199-3	MW-211S_053020	110	106	102	93
240-131199-4	MW-35_053020	110	105	101	95
240-131199-5	MW-212S_053020	113	105	101	93
LCS 240-437530/5	Lab Control Sample	106	109	104	89
MB 240-437530/8	Method Blank	111	105	101	92

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)
240-131199-2	MW-42_053020	95
240-131199-2 MS	MW-42-MS_053020	107
240-131199-2 MSD	MW-42-MSD_053020	102
240-131199-3	MW-211S_053020	99
240-131199-4	MW-35_053020	102
240-131199-5	MW-212S_053020	98
LCS 240-437619/4	Lab Control Sample	97
MB 240-437619/5	Method Blank	94

Surrogate Legend

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

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

Lab Sample ID: MB 240-437530/8
Matrix: Water
Analysis Batch: 437530

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 15:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			06/09/20 15:01	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			06/09/20 15:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			06/09/20 15:01	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			06/09/20 15:01	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			06/09/20 15:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*75 - 130*		*06/09/20 15:01*	*1*
4-Bromofluorobenzene (Surr)	*105*		*47 - 134*		*06/09/20 15:01*	*1*
Toluene-d8 (Surr)	*101*		*69 - 122*		*06/09/20 15:01*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*06/09/20 15:01*	*1*

Lab Sample ID: LCS 240-437530/5
Matrix: Water
Analysis Batch: 437530

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	21.2		ug/L		106	73 - 129
cis-1,2-Dichloroethene	20.0	20.6		ug/L		103	75 - 124
Tetrachloroethene	20.0	21.0		ug/L		105	70 - 125
trans-1,2-Dichloroethene	20.0	20.2		ug/L		101	74 - 130
Trichloroethene	20.0	18.5		ug/L		92	71 - 121
Vinyl chloride	20.0	22.1		ug/L		110	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*
4-Bromofluorobenzene (Surr)	*109*		*47 - 134*
Toluene-d8 (Surr)	*104*		*69 - 122*
Dibromofluoromethane (Surr)	*89*		*78 - 129*

Lab Sample ID: 240-131199-2 MS
Matrix: Water
Analysis Batch: 437530

Client Sample ID: MW-42-MS_053020
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	18.7		ug/L		94	64 - 132
cis-1,2-Dichloroethene	1.0	U	20.0	18.5		ug/L		93	68 - 121
Tetrachloroethene	1.0	U	20.0	17.7		ug/L		89	52 - 129
trans-1,2-Dichloroethene	1.0	U	20.0	18.0		ug/L		90	69 - 126
Trichloroethene	1.0	U	20.0	16.5		ug/L		83	56 - 124
Vinyl chloride	0.93	J	20.0	19.8		ug/L		94	49 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*
4-Bromofluorobenzene (Surr)	*104*		*47 - 134*
Toluene-d8 (Surr)	*100*		*69 - 122*

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

Lab Sample ID: 240-131199-2 MS
Matrix: Water
Analysis Batch: 437530

Client Sample ID: MW-42-MS_053020
Prep Type: Total/NA

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

Lab Sample ID: 240-131199-2 MSD
Matrix: Water
Analysis Batch: 437530

Client Sample ID: MW-42-MSD_053020
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	20.3		ug/L		102	64 - 132	8	35
cis-1,2-Dichloroethene	1.0	U	20.0	20.3		ug/L		101	68 - 121	9	35
Tetrachloroethene	1.0	U	20.0	21.2		ug/L		106	52 - 129	18	35
trans-1,2-Dichloroethene	1.0	U	20.0	19.9		ug/L		100	69 - 126	10	35
Trichloroethene	1.0	U	20.0	18.9		ug/L		94	56 - 124	13	35
Vinyl chloride	0.93	J	20.0	20.5		ug/L		98	49 - 136	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*
4-Bromofluorobenzene (Surr)	*106*		*47 - 134*
Toluene-d8 (Surr)	*103*		*69 - 122*
Dibromofluoromethane (Surr)	*82*		*78 - 129*

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

Lab Sample ID: MB 240-437619/5
Matrix: Water
Analysis Batch: 437619

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			06/10/20 06:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 133*		*06/10/20 06:16*	*1*

Lab Sample ID: LCS 240-437619/4
Matrix: Water
Analysis Batch: 437619

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	10.5		ug/L		105	80 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 133*

Lab Sample ID: 240-131199-2 MS
Matrix: Water
Analysis Batch: 437619

Client Sample ID: MW-42-MS_053020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	2.9		10.0	10.9		ug/L		80	46 - 170

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

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 133*

Lab Sample ID: 240-131199-2 MSD
Matrix: Water
Analysis Batch: 437619

Client Sample ID: MW-42-MSD_053020
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	2.9		10.0	11.2		ug/L		84	46 - 170	3	26

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 133*

QC Association Summary

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

Job ID: 240-131199-1

GC/MS VOA

Analysis Batch: 437530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-131199-1	TRIP BLANK	Total/NA	Water	8260B	
240-131199-2	MW-42_053020	Total/NA	Water	8260B	
240-131199-3	MW-211S_053020	Total/NA	Water	8260B	
240-131199-4	MW-35_053020	Total/NA	Water	8260B	
240-131199-5	MW-212S_053020	Total/NA	Water	8260B	
MB 240-437530/8	Method Blank	Total/NA	Water	8260B	
LCS 240-437530/5	Lab Control Sample	Total/NA	Water	8260B	
240-131199-2 MS	MW-42-MS_053020	Total/NA	Water	8260B	
240-131199-2 MSD	MW-42-MSD_053020	Total/NA	Water	8260B	

Analysis Batch: 437619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-131199-2	MW-42_053020	Total/NA	Water	8260B SIM	
240-131199-3	MW-211S_053020	Total/NA	Water	8260B SIM	
240-131199-4	MW-35_053020	Total/NA	Water	8260B SIM	
240-131199-5	MW-212S_053020	Total/NA	Water	8260B SIM	
MB 240-437619/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-437619/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-131199-2 MS	MW-42-MS_053020	Total/NA	Water	8260B SIM	
240-131199-2 MSD	MW-42-MSD_053020	Total/NA	Water	8260B SIM	

Lab Chronicle

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

Job ID: 240-131199-1

Client Sample ID: TRIP BLANK
Lab Sample ID: 240-131199-1
Date Collected: 05/30/20 00:00
Matrix: Water
Date Received: 06/03/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437530	06/09/20 20:16	HMB	TAL CAN

Client Sample ID: MW-42_053020
Lab Sample ID: 240-131199-2
Date Collected: 05/30/20 10:04
Matrix: Water
Date Received: 06/03/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437530	06/09/20 20:40	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	437619	06/10/20 13:12	TJL2	TAL CAN

Client Sample ID: MW-211S_053020
Lab Sample ID: 240-131199-3
Date Collected: 05/30/20 11:16
Matrix: Water
Date Received: 06/03/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437530	06/09/20 21:04	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	437619	06/10/20 14:30	TJL2	TAL CAN

Client Sample ID: MW-35_053020
Lab Sample ID: 240-131199-4
Date Collected: 05/30/20 12:36
Matrix: Water
Date Received: 06/03/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437530	06/09/20 21:29	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	437619	06/10/20 14:57	TJL2	TAL CAN

Client Sample ID: MW-212S_053020
Lab Sample ID: 240-131199-5
Date Collected: 05/30/20 13:51
Matrix: Water
Date Received: 06/03/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	437530	06/09/20 21:53	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	437619	06/10/20 15:22	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: 240-131199-1

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	06-30-20
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	06-30-20
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

MICHIGAN 190

3.7/3.9 2.1/2.8

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

TestAmerica Laboratories, Inc.

Client Contact	Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other			
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
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: Gary Schafer	TAT if different from below: ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day; 10 day		Walk-in client: Lab sampling:
Project Name: Ford LTP On-Site	Method of Shipment/Carrier:			Job/SDG No:
Project Number: 30050315.401.03	Shipping/Tracking No:			
PO # 30050315.401.03				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	Zn(Ac)/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	5/30/20														N		X	X	X	X	X	X	X	1 TRIP BLANK 3 VOAs for 8260B 3 VOAs for 8260BSIM
MW-42_053020		10:04		X						6					N	G	X	X	X	X	X	X	X	
MW-42-MS_053020		10:04		X						6					N	G	X	X	X	X	X	X	X	
MW-42-MSD_053020		10:04		X						6					N	G	X	X	X	X	X	X	X	
MW-2115_053020		11:16		X						6					N	G	X	X	X	X	X	X	X	
MW-35_053020		12:36		X						6					N	G	X	X	X	X	X	X	X	
MW-2125_053020		13:51		X						6					N	G	X	X	X	X	X	X	X	

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

Sample Disposal: ☐ Return ... (th) Months

Special Instructions/QC Requirements & Comments:

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

240-131199 Chain of Custody

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Gary Schafer	Arcadis	5/30/20 1430	RACHEL BIELAK	ARCADIS	5/30/20 1430
RACHEL BIELAK	ARCADIS	5/30/20 1605	NOVI COLD STORAGE	ARCADIS	5/30/20 1605
	Arcadis	6/1/20 0955	Received in Laboratory by:	ETAMI	6/1/20 9:58

Relinquished by Adam Gamett ETAMI 6/1/20 9:59 Adam Gamett ETA 6-2-20 1000

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 31199

Client Arcadis Site Name

Cooler Received on 6-2-20 Opened on 6-2-20

Cooler unpacked by: Adam Gentry

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

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

TestAmerica Cooler # ~~7.4~~ ~~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. 3.2 °C Corrected Cooler Temp. 3.9 °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °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? AG 6-20-20 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# HC902937
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: AMM

Did not receive second cooler of 2 set. Did not receive any samples.

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:

WI-NC-099