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ANALYTICAL REPORT

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

Laboratory Job ID: 240-144510-1
Client Project/Site: Ford LTP - On Site
Revision: 1

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

Attn: Kristoffer Hinskey

Authorized for release by:
3/26/2021 9:10:10 AM

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

Table of Contents

Definitions/Glossary

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

Job ID: 240-144510-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
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: 240-144510-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-144510-1

Comments
No additional comments.

Revision
The report being provided is a revision of the original report sent on 2/25/2021. The report (revision 1) is being revised due to: Samples mislabeled during unpacking - revised to correct data..

Receipt
The samples were received on 2/13/2021 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.6º C.

GC/MS VOA
Method 8260B: The following sample was analyzed outside of analytical holding time due to mis-labeled vial: TRIP BLANK (240-144510-1).

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

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

Method Summary

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

Job ID: 240-144510-1

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: 240-144510-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-144510-1	TRIP BLANK	Water	02/11/21 00:00	02/13/21 08:00	
240-144510-2	MW-50_021121	Water	02/11/21 12:40	02/13/21 08:00	
240-144510-3	MW-62_021121	Water	02/11/21 13:55	02/13/21 08:00	
240-144510-5	MW-63_021121	Water	02/11/21 15:10	02/13/21 08:00	

Detection Summary

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

Job ID: 240-144510-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-144510-1

No Detections.

Client Sample ID: MW-50_021121 — Lab Sample ID: 240-144510-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.3	J	2.0	0.86	ug/L	1		8260B SIM	Total/NA
cis-1,2-Dichloroethene	17		10	1.6	ug/L	10		8260B	Total/NA
Vinyl chloride	160		10	2.0	ug/L	10		8260B	Total/NA

Client Sample ID: MW-62_021121 — Lab Sample ID: 240-144510-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.0		2.0	0.86	ug/L	1		8260B SIM	Total/NA
Vinyl chloride	0.44	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: MW-63_021121 — Lab Sample ID: 240-144510-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.48	J	1.0	0.16	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

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

Job ID: 240-144510-1

Client Sample ID: TRIP BLANK

Date Collected: 02/11/21 00:00
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-1

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 H	1.0	0.19	ug/L			03/15/21 18:35	1
cis-1,2-Dichloroethene	1.0	U H	1.0	0.16	ug/L			03/15/21 18:35	1
Tetrachloroethene	1.0	U H	1.0	0.15	ug/L			03/15/21 18:35	1
trans-1,2-Dichloroethene	1.0	U H	1.0	0.19	ug/L			03/15/21 18:35	1
Trichloroethene	1.0	U H	1.0	0.10	ug/L			03/15/21 18:35	1
Vinyl chloride	1.0	U H	1.0	0.20	ug/L			03/15/21 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*75 - 130*		*03/15/21 18:35*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*03/15/21 18:35*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*03/15/21 18:35*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*03/15/21 18:35*	*1*

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

Job ID: 240-144510-1

Client Sample ID: MW-50_021121
Date Collected: 02/11/21 12:40
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**1.3**	**J**	2.0	0.86	ug/L			02/19/21 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*70 - 133*		*02/19/21 14:31*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	10	U	10	1.9	ug/L			02/23/21 12:39	10
cis-1,2-Dichloroethene	**17**		10	1.6	ug/L			02/23/21 12:39	10
Tetrachloroethene	10	U	10	1.5	ug/L			02/23/21 12:39	10
trans-1,2-Dichloroethene	10	U	10	1.9	ug/L			02/23/21 12:39	10
Trichloroethene	10	U	10	1.0	ug/L			02/23/21 12:39	10
Vinyl chloride	**160**		10	2.0	ug/L			02/23/21 12:39	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*		*02/23/21 12:39*	*10*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*		*02/23/21 12:39*	*10*
Toluene-d8 (Surr)	*102*		*69 - 122*		*02/23/21 12:39*	*10*
Dibromofluoromethane (Surr)	*102*		*78 - 129*		*02/23/21 12:39*	*10*

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

Job ID: 240-144510-1

Client Sample ID: MW-62_021121
Date Collected: 02/11/21 13:55
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-3
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**		2.0	0.86	ug/L			02/19/21 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*02/19/21 14:05*	*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	0.19	ug/L			02/22/21 16:49	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/22/21 16:49	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/22/21 16:49	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/22/21 16:49	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/22/21 16:49	1
Vinyl chloride	**0.44**	**J**	1.0	0.20	ug/L			02/22/21 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*02/22/21 16:49*	*1*
4-Bromofluorobenzene (Surr)	*83*		*47 - 134*		*02/22/21 16:49*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*02/22/21 16:49*	*1*
Dibromofluoromethane (Surr)	*100*		*78 - 129*		*02/22/21 16:49*	*1*

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

Job ID: 240-144510-1

Client Sample ID: MW-63_021121
Date Collected: 02/11/21 15:10
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-5
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			02/19/21 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*70 - 133*		*02/19/21 13:40*	*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			02/22/21 16:04	1
cis-1,2-Dichloroethene	**0.48**	**J**	1.0	0.16	ug/L			02/22/21 16:04	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/22/21 16:04	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/22/21 16:04	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/22/21 16:04	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/22/21 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 130*		*02/22/21 16:04*	*1*
4-Bromofluorobenzene (Surr)	*84*		*47 - 134*		*02/22/21 16:04*	*1*
Toluene-d8 (Surr)	*93*		*69 - 122*		*02/22/21 16:04*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*02/22/21 16:04*	*1*

Surrogate Summary

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

Job ID: 240-144510-1

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)
190-25454-E-1 MS	Matrix Spike	79	97	95	83
190-25454-F-1 MSD	Matrix Spike Duplicate	84	95	95	86
240-144439-B-4 MS	Matrix Spike	97	97	104	100
240-144439-B-4 MSD	Matrix Spike Duplicate	96	93	100	99
240-144510-1	TRIP BLANK	81	96	98	87
240-144510-2	MW-50_021121	101	93	102	102
240-144510-3	MW-62_021121	97	83	98	100
240-144510-5	MW-63_021121	93	84	93	93
240-144576-D-2 MS	Matrix Spike	97	96	103	97
240-144576-E-2 MSD	Matrix Spike Duplicate	95	93	98	97
LCS 240-473889/4	Lab Control Sample	92	90	97	96
LCS 240-474092/4	Lab Control Sample	101	103	105	109
LCS 240-476776/4	Lab Control Sample	78	94	97	83
MB 240-473889/6	Method Blank	101	92	102	99
MB 240-474092/6	Method Blank	98	87	101	98
MB 240-476776/7	Method Blank	80	91	98	81

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)
240-144510-2	MW-50_021121	82
240-144510-3	MW-62_021121	86
240-144510-5	MW-63_021121	86
240-144515-J-3 MS	Matrix Spike	82
240-144515-J-3 MSD	Matrix Spike Duplicate	80
LCS 240-473720/4	Lab Control Sample	82
MB 240-473720/5	Method Blank	81

Surrogate Legend

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

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

Lab Sample ID: MB 240-473889/6
Matrix: Water
Analysis Batch: 473889

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			02/22/21 09:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/22/21 09:46	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/22/21 09:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/22/21 09:46	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/22/21 09:46	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/22/21 09:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*		*02/22/21 09:46*	*1*
4-Bromofluorobenzene (Surr)	*92*		*47 - 134*		*02/22/21 09:46*	*1*
Toluene-d8 (Surr)	*102*		*69 - 122*		*02/22/21 09:46*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 129*		*02/22/21 09:46*	*1*

Lab Sample ID: LCS 240-473889/4
Matrix: Water
Analysis Batch: 473889

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	10.4		ug/L		104	73 - 129
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	75 - 124
Tetrachloroethene	10.0	11.0		ug/L		110	70 - 125
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	74 - 130
Trichloroethene	10.0	10.1		ug/L		101	71 - 121
Vinyl chloride	10.0	9.49		ug/L		95	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 130*
4-Bromofluorobenzene (Surr)	*90*		*47 - 134*
Toluene-d8 (Surr)	*97*		*69 - 122*
Dibromofluoromethane (Surr)	*96*		*78 - 129*

Lab Sample ID: 240-144439-B-4 MS
Matrix: Water
Analysis Batch: 473889

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	2000	U	20000	16800		ug/L		84	64 - 132
cis-1,2-Dichloroethene	46000		20000	61300		ug/L		78	68 - 121
Tetrachloroethene	2000	U	20000	16300		ug/L		82	52 - 129
trans-1,2-Dichloroethene	1700	J	20000	20200		ug/L		93	69 - 126
Trichloroethene	12000		20000	28600		ug/L		84	56 - 124
Vinyl chloride	2000	U	20000	18700		ug/L		93	49 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*
Toluene-d8 (Surr)	*104*		*69 - 122*

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

Lab Sample ID: 240-144439-B-4 MS
Matrix: Water
Analysis Batch: 473889

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

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*78 - 129*

Lab Sample ID: 240-144439-B-4 MSD
Matrix: Water
Analysis Batch: 473889

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	2000	U	20000	18800		ug/L		94	64 - 132	11	35
cis-1,2-Dichloroethene	46000		20000	63400		ug/L		89	68 - 121	3	35
Tetrachloroethene	2000	U	20000	19400		ug/L		97	52 - 129	17	35
trans-1,2-Dichloroethene	1700	J	20000	20200		ug/L		93	69 - 126	0	35
Trichloroethene	12000		20000	30600		ug/L		94	56 - 124	7	35
Vinyl chloride	2000	U	20000	19900		ug/L		99	49 - 136	6	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*
Toluene-d8 (Surr)	*100*		*69 - 122*
Dibromofluoromethane (Surr)	*99*		*78 - 129*

Lab Sample ID: MB 240-474092/6
Matrix: Water
Analysis Batch: 474092

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			02/23/21 11:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			02/23/21 11:10	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			02/23/21 11:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			02/23/21 11:10	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			02/23/21 11:10	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			02/23/21 11:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*02/23/21 11:10*	*1*
4-Bromofluorobenzene (Surr)	*87*		*47 - 134*		*02/23/21 11:10*	*1*
Toluene-d8 (Surr)	*101*		*69 - 122*		*02/23/21 11:10*	*1*
Dibromofluoromethane (Surr)	*98*		*78 - 129*		*02/23/21 11:10*	*1*

Lab Sample ID: LCS 240-474092/4
Matrix: Water
Analysis Batch: 474092

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	10.9		ug/L		109	73 - 129
cis-1,2-Dichloroethene	10.0	10.8		ug/L		108	75 - 124
Tetrachloroethene	10.0	11.7		ug/L		117	70 - 125
trans-1,2-Dichloroethene	10.0	10.6		ug/L		106	74 - 130
Trichloroethene	10.0	10.4		ug/L		104	71 - 121

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

Lab Sample ID: LCS 240-474092/4
Matrix: Water
Analysis Batch: 474092

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	11.4		ug/L		114	61 - 134		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*
4-Bromofluorobenzene (Surr)	*103*		*47 - 134*
Toluene-d8 (Surr)	*105*		*69 - 122*
Dibromofluoromethane (Surr)	*109*		*78 - 129*

Lab Sample ID: 240-144576-D-2 MS
Matrix: Water
Analysis Batch: 474092

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	9.00		ug/L		90	64 - 132		
cis-1,2-Dichloroethene	1.0	U	10.0	9.45		ug/L		95	68 - 121		
Tetrachloroethene	1.0	U	10.0	8.55		ug/L		85	52 - 129		
trans-1,2-Dichloroethene	1.0	U	10.0	9.17		ug/L		92	69 - 126		
Trichloroethene	1.0	U	10.0	9.03		ug/L		90	56 - 124		
Vinyl chloride	1.0	U	10.0	9.58		ug/L		96	49 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*
Toluene-d8 (Surr)	*103*		*69 - 122*
Dibromofluoromethane (Surr)	*97*		*78 - 129*

Lab Sample ID: 240-144576-E-2 MSD
Matrix: Water
Analysis Batch: 474092

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	9.58		ug/L		96	64 - 132	6	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.91		ug/L		99	68 - 121	5	35
Tetrachloroethene	1.0	U	10.0	10.1		ug/L		101	52 - 129	17	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.82		ug/L		98	69 - 126	7	35
Trichloroethene	1.0	U	10.0	10.2		ug/L		102	56 - 124	12	35
Vinyl chloride	1.0	U	10.0	10.5		ug/L		105	49 - 136	9	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 130*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*
Toluene-d8 (Surr)	*98*		*69 - 122*
Dibromofluoromethane (Surr)	*97*		*78 - 129*

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

Lab Sample ID: MB 240-476776/7
Matrix: Water
Analysis Batch: 476776

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			03/15/21 15:40	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			03/15/21 15:40	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			03/15/21 15:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			03/15/21 15:40	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			03/15/21 15:40	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			03/15/21 15:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*75 - 130*		*03/15/21 15:40*	*1*
4-Bromofluorobenzene (Surr)	*91*		*47 - 134*		*03/15/21 15:40*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*03/15/21 15:40*	*1*
Dibromofluoromethane (Surr)	*81*		*78 - 129*		*03/15/21 15:40*	*1*

Lab Sample ID: LCS 240-476776/4
Matrix: Water
Analysis Batch: 476776

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	8.48		ug/L		85	73 - 129
cis-1,2-Dichloroethene	10.0	9.17		ug/L		92	75 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
trans-1,2-Dichloroethene	10.0	8.93		ug/L		89	74 - 130
Trichloroethene	10.0	8.97		ug/L		90	71 - 121
Vinyl chloride	10.0	11.1		ug/L		111	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*78*		*75 - 130*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*
Toluene-d8 (Surr)	*97*		*69 - 122*
Dibromofluoromethane (Surr)	*83*		*78 - 129*

Lab Sample ID: 190-25454-E-1 MS
Matrix: Water
Analysis Batch: 476776

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	6.81		ug/L		68	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	7.96		ug/L		80	68 - 121
Tetrachloroethene	1.0	U	10.0	8.88		ug/L		89	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	7.48		ug/L		75	69 - 126
Trichloroethene	1.0	U	10.0	7.78		ug/L		78	56 - 124
Vinyl chloride	1.0	U	10.0	9.92		ug/L		99	49 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*79*		*75 - 130*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*
Toluene-d8 (Surr)	*95*		*69 - 122*

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

Lab Sample ID: 190-25454-E-1 MS
Matrix: Water
Analysis Batch: 476776

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

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*83*		*78 - 129*

Lab Sample ID: 190-25454-F-1 MSD
Matrix: Water
Analysis Batch: 476776

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	6.82		ug/L		68	64 - 132	0	35
cis-1,2-Dichloroethene	1.0	U	10.0	8.09		ug/L		81	68 - 121	2	35
Tetrachloroethene	1.0	U	10.0	8.78		ug/L		88	52 - 129	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	7.87		ug/L		79	69 - 126	5	35
Trichloroethene	1.0	U	10.0	8.10		ug/L		81	56 - 124	4	35
Vinyl chloride	1.0	U	10.0	10.4		ug/L		104	49 - 136	4	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 130*
4-Bromofluorobenzene (Surr)	*95*		*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 240-473720/5
Matrix: Water
Analysis Batch: 473720

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			02/19/21 11:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*70 - 133*		*02/19/21 11:08*	*1*

Lab Sample ID: LCS 240-473720/4
Matrix: Water
Analysis Batch: 473720

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	9.95		ug/L		100	80 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*82*		*70 - 133*

Lab Sample ID: 240-144515-J-3 MS
Matrix: Water
Analysis Batch: 473720

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	11.0		ug/L		110	46 - 170

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

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*82*		*70 - 133*

Lab Sample ID: 240-144515-J-3 MSD
Matrix: Water
Analysis Batch: 473720

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	2.0	U	10.0	10.6		ug/L		106	46 - 170	3	26

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*80*		*70 - 133*

QC Association Summary

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

Job ID: 240-144510-1

GC/MS VOA

Analysis Batch: 473720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-144510-2	MW-50_021121	Total/NA	Water	8260B SIM	
240-144510-3	MW-62_021121	Total/NA	Water	8260B SIM	
240-144510-5	MW-63_021121	Total/NA	Water	8260B SIM	
MB 240-473720/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-473720/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-144515-J-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-144515-J-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 473889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-144510-3	MW-62_021121	Total/NA	Water	8260B	
240-144510-5	MW-63_021121	Total/NA	Water	8260B	
MB 240-473889/6	Method Blank	Total/NA	Water	8260B	
LCS 240-473889/4	Lab Control Sample	Total/NA	Water	8260B	
240-144439-B-4 MS	Matrix Spike	Total/NA	Water	8260B	
240-144439-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 474092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-144510-2	MW-50_021121	Total/NA	Water	8260B	
MB 240-474092/6	Method Blank	Total/NA	Water	8260B	
LCS 240-474092/4	Lab Control Sample	Total/NA	Water	8260B	
240-144576-D-2 MS	Matrix Spike	Total/NA	Water	8260B	
240-144576-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Analysis Batch: 476776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-144510-1	TRIP BLANK	Total/NA	Water	8260B	
MB 240-476776/7	Method Blank	Total/NA	Water	8260B	
LCS 240-476776/4	Lab Control Sample	Total/NA	Water	8260B	
190-25454-E-1 MS	Matrix Spike	Total/NA	Water	8260B	
190-25454-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-144510-1

Client Sample ID: TRIP BLANK
Date Collected: 02/11/21 00:00
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	476776	03/15/21 18:35	LRW	TAL CAN

Client Sample ID: MW-50_021121
Date Collected: 02/11/21 12:40
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	474092	02/23/21 12:39	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	473720	02/19/21 14:31	SAM	TAL CAN

Client Sample ID: MW-62_021121
Date Collected: 02/11/21 13:55
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	473889	02/22/21 16:49	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	473720	02/19/21 14:05	SAM	TAL CAN

Client Sample ID: MW-63_021121
Date Collected: 02/11/21 15:10
Date Received: 02/13/21 08:00

Lab Sample ID: 240-144510-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	473889	02/22/21 16:04	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	473720	02/19/21 13:40	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: 240-144510-1

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	02-23-22
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21 *
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21 *
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
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	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record

TestAmerica MICHIGAN 190
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
Company Name: Arcadis	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396	of COCs
Address: 28550 Cabot Drive, Suite 500	Email: kristoffer.hinskey@arcadis.com	Analysis Turnaround Time		For lab use only
City/State/Zip: Novi, MI, 48377	Sampler Name: CHRISTINA WEAVER	TAT if different from below: 10 day; ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Walk-in client
Phone: 248-994-2240	Method of Shipment/Carrier:			Lab sampling
Project Name: Ford LTP On-Site	Shipping/Tracking No:			Job/SDG No:
Project Number: 30050315.401.03				
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	Analyses: 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	TRIP BLANK
MW-50_021121	2/11/21	1240		6						6					N	G	X	X	X	X	X	X	X	3 VOAS METHOD 8260B
MW-62_021121	2/11/21	1355		6						6					N	G	X	X	X	X	X	X	X	3 VOAS METHOD 8260B SIM
MW-63_021121	2/11/21	15.10		6						6					N	G	X	X	X	X	X	X	X	

240-144510 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:
[signature]	ARCADIS	2/11/21 / 1615	NOVI COLD STORAGE	ARCADIS	2/11/21 / 1615
[signature]	Arcadis	2/12/2021 /	[signature]	ETA	2/12/21 1005
[signature]	ETA	2/12/21 11:01	Received in Laboratory by: [signature]	ETA	2-12-21 800

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 144510**
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Ryan C

Cooler Received on 2-13-21 Opened on 2-13-21

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-11 (CF +0.1 °C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 1.5 °C
   IR GUN #IR-12 (CF +0.2°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 (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11. Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	Yes	(No)
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No (NA) pH Strip Lot# HC907861
14. Were VOAs on the COC?	(Yes)	No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	(No) NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 59072	(Yes)	No
17. 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 _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

_____

_____

_____

_____

19. 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)

20. 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: _____