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ANALYTICAL REPORT

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

Laboratory Job ID: 240-160323-1
Client Project/Site: Ford LTP - Off-Site

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

Attn: Kristoffer Hinskey

Authorized for release by:
11/30/2021 2:46:41 PM

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Definitions/Glossary

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

Job ID: 240-160323-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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: 240-160323-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-160323-1

Comments
No additional comments.

Receipt
The samples were received on 11/18/2021 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 0.3º C.

GC/MS VOA
Method 8260B: The laboratory control sample (LCS) for analytical batch 240-514748 recovered outside control limits for the following analyte: Trichloroethene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported: TRIP BLANK_180 (240-160323-1), MW-72_111621 (240-160323-2), MW-72S_111621 (240-160323-3), DUP-08 (240-160323-4), MW-74_111621 (240-160323-5), MW-74S_111621 (240-160323-6) and (LCS 240-514748/4).

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 - Off-Site

Job ID: 240-160323-1

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 - Off-Site

Job ID: 240-160323-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-160323-1	TRIP BLANK_180	Water	11/16/21 00:00	11/18/21 08:00
240-160323-2	MW-72_111621	Water	11/16/21 11:05	11/18/21 08:00
240-160323-3	MW-72S_111621	Water	11/16/21 13:03	11/18/21 08:00
240-160323-4	DUP-08	Water	11/16/21 00:00	11/18/21 08:00
240-160323-5	MW-74_111621	Water	11/16/21 16:35	11/18/21 08:00
240-160323-6	MW-74S_111621	Water	11/16/21 15:05	11/18/21 08:00

Detection Summary

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

Job ID: 240-160323-1

Client Sample ID: TRIP BLANK_180 — Lab Sample ID: 240-160323-1

No Detections.

Client Sample ID: MW-72_111621 — Lab Sample ID: 240-160323-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	1.0		1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: MW-72S_111621 — Lab Sample ID: 240-160323-3

No Detections.

Client Sample ID: DUP-08 — Lab Sample ID: 240-160323-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	1.1		1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: MW-74_111621 — Lab Sample ID: 240-160323-5

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	0.71	J	1.0	0.46	ug/L	1		8260B	Total/NA
Vinyl chloride	2.4		1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: MW-74S_111621 — Lab Sample ID: 240-160323-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.1		1.0	0.46	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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

Job ID: 240-160323-1

Client Sample ID: TRIP BLANK_180
Date Collected: 11/16/21 00:00
Date Received: 11/18/21 08:00

Lab Sample ID: 240-160323-1
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	0.49	ug/L			11/27/21 14:58	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/21 14:58	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 14:58	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 14:58	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/27/21 14:58	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/21 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*62 - 137*		*11/27/21 14:58*	*1*
4-Bromofluorobenzene (Surr)	*94*		*56 - 136*		*11/27/21 14:58*	*1*
Toluene-d8 (Surr)	*82*		*78 - 122*		*11/27/21 14:58*	*1*
Dibromofluoromethane (Surr)	*90*		*73 - 120*		*11/27/21 14:58*	*1*

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

Job ID: 240-160323-1

Client Sample ID: MW-72_111621
Date Collected: 11/16/21 11:05
Date Received: 11/18/21 08:00

Lab Sample ID: 240-160323-2
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			11/20/21 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*66 - 120*		*11/20/21 03:03*	*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	0.49	ug/L			11/27/21 15:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/21 15:20	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 15:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 15:20	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/27/21 15:20	1
Vinyl chloride	**1.0**		1.0	0.45	ug/L			11/27/21 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*62 - 137*		*11/27/21 15:20*	*1*
4-Bromofluorobenzene (Surr)	*101*		*56 - 136*		*11/27/21 15:20*	*1*
Toluene-d8 (Surr)	*87*		*78 - 122*		*11/27/21 15:20*	*1*
Dibromofluoromethane (Surr)	*93*		*73 - 120*		*11/27/21 15:20*	*1*

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

Job ID: 240-160323-1

Client Sample ID: MW-72S_111621
Date Collected: 11/16/21 13:03
Date Received: 11/18/21 08:00

Lab Sample ID: 240-160323-3
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			11/20/21 03:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*66 - 120*		*11/20/21 03:28*	*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	0.49	ug/L			11/27/21 15:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/21 15:43	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 15:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 15:43	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/27/21 15:43	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/21 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*62 - 137*		*11/27/21 15:43*	*1*
4-Bromofluorobenzene (Surr)	*102*		*56 - 136*		*11/27/21 15:43*	*1*
Toluene-d8 (Surr)	*88*		*78 - 122*		*11/27/21 15:43*	*1*
Dibromofluoromethane (Surr)	*94*		*73 - 120*		*11/27/21 15:43*	*1*

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

Job ID: 240-160323-1

Client Sample ID: DUP-08
Date Collected: 11/16/21 00:00
Date Received: 11/18/21 08:00

Lab Sample ID: 240-160323-4
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			11/20/21 03:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*66 - 120*		*11/20/21 03:53*	*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	0.49	ug/L			11/27/21 16:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/21 16:06	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 16:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 16:06	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/27/21 16:06	1
Vinyl chloride	**1.1**		1.0	0.45	ug/L			11/27/21 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*62 - 137*		*11/27/21 16:06*	*1*
4-Bromofluorobenzene (Surr)	*97*		*56 - 136*		*11/27/21 16:06*	*1*
Toluene-d8 (Surr)	*84*		*78 - 122*		*11/27/21 16:06*	*1*
Dibromofluoromethane (Surr)	*93*		*73 - 120*		*11/27/21 16:06*	*1*

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

Job ID: 240-160323-1

Client Sample ID: MW-74_111621
Date Collected: 11/16/21 16:35
Date Received: 11/18/21 08:00

Lab Sample ID: 240-160323-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**1.3**	**J**	2.0	0.86	ug/L			11/20/21 04:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*66 - 120*		*11/20/21 04:17*	*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	0.49	ug/L			11/27/21 16:28	1
cis-1,2-Dichloroethene	**0.71**	**J**	1.0	0.46	ug/L			11/27/21 16:28	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 16:28	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 16:28	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/27/21 16:28	1
Vinyl chloride	**2.4**		1.0	0.45	ug/L			11/27/21 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*62 - 137*		*11/27/21 16:28*	*1*
4-Bromofluorobenzene (Surr)	*95*		*56 - 136*		*11/27/21 16:28*	*1*
Toluene-d8 (Surr)	*81*		*78 - 122*		*11/27/21 16:28*	*1*
Dibromofluoromethane (Surr)	*89*		*73 - 120*		*11/27/21 16:28*	*1*

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

Job ID: 240-160323-1

Client Sample ID: MW-74S_111621
Date Collected: 11/16/21 15:05
Date Received: 11/18/21 08:00

Lab Sample ID: 240-160323-6
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			11/20/21 04:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*66 - 120*		*11/20/21 04:42*	*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	0.49	ug/L			11/27/21 16:51	1
cis-1,2-Dichloroethene	**1.1**		1.0	0.46	ug/L			11/27/21 16:51	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 16:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 16:51	1
Trichloroethene	1.0	U *+	1.0	0.44	ug/L			11/27/21 16:51	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/21 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*62 - 137*		*11/27/21 16:51*	*1*
4-Bromofluorobenzene (Surr)	*91*		*56 - 136*		*11/27/21 16:51*	*1*
Toluene-d8 (Surr)	*80*		*78 - 122*		*11/27/21 16:51*	*1*
Dibromofluoromethane (Surr)	*87*		*73 - 120*		*11/27/21 16:51*	*1*

Surrogate Summary

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

Job ID: 240-160323-1

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	(62-137)	(56-136)	(78-122)	(73-120)
240-160323-1	TRIP BLANK_180	81	94	82	90
240-160323-2	MW-72_111621	86	101	87	93
240-160323-3	MW-72S_111621	86	102	88	94
240-160323-4	DUP-08	85	97	84	93
240-160323-5	MW-74_111621	80	95	81	89
240-160323-6	MW-74S_111621	77	91	80	87
240-160325-D-3 MS	Matrix Spike	79	95	80	93
240-160325-F-3 MSD	Matrix Spike Duplicate	85	100	85	98
LCS 240-514748/4	Lab Control Sample	84	102	86	97
MB 240-514748/7	Method Blank	82	95	83	89

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	(66-120)
240-160323-2	MW-72_111621	74
240-160323-3	MW-72S_111621	74
240-160323-4	DUP-08	75
240-160323-5	MW-74_111621	76
240-160323-6	MW-74S_111621	75
240-160325-I-3 MS	Matrix Spike	80
240-160325-M-3 MSD	Matrix Spike Duplicate	75
LCS 240-513930/4	Lab Control Sample	74
MB 240-513930/5	Method Blank	76

Surrogate Legend

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

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

Lab Sample ID: MB 240-514748/7
Matrix: Water
Analysis Batch: 514748

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	0.49	ug/L			11/27/21 13:27	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			11/27/21 13:27	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 13:27	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			11/27/21 13:27	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			11/27/21 13:27	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			11/27/21 13:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*62 - 137*		*11/27/21 13:27*	*1*
4-Bromofluorobenzene (Surr)	*95*		*56 - 136*		*11/27/21 13:27*	*1*
Toluene-d8 (Surr)	*83*		*78 - 122*		*11/27/21 13:27*	*1*
Dibromofluoromethane (Surr)	*89*		*73 - 120*		*11/27/21 13:27*	*1*

Lab Sample ID: LCS 240-514748/4
Matrix: Water
Analysis Batch: 514748

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	18.1		ug/L		90	63 - 134
cis-1,2-Dichloroethene	20.0	21.3		ug/L		106	77 - 123
Tetrachloroethene	20.0	22.5		ug/L		112	76 - 123
trans-1,2-Dichloroethene	20.0	19.9		ug/L		100	75 - 124
Trichloroethene	20.0	26.6	*+	ug/L		133	70 - 122
Vinyl chloride	20.0	18.0		ug/L		90	60 - 144

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 137*
4-Bromofluorobenzene (Surr)	*102*		*56 - 136*
Toluene-d8 (Surr)	*86*		*78 - 122*
Dibromofluoromethane (Surr)	*97*		*73 - 120*

Lab Sample ID: 240-160325-D-3 MS
Matrix: Water
Analysis Batch: 514748

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	1.0	U	20.0	16.2		ug/L		81	56 - 135
cis-1,2-Dichloroethene	1.0	U F2	20.0	18.3		ug/L		92	66 - 128
Tetrachloroethene	1.0	U	20.0	19.2		ug/L		96	62 - 131
trans-1,2-Dichloroethene	1.0	U F2	20.0	17.5		ug/L		88	56 - 136
Trichloroethene	1.0	U F2 F1 * +	20.0	23.5		ug/L		118	61 - 124
Vinyl chloride	1.0	U	20.0	14.0		ug/L		70	43 - 157

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*79*		*62 - 137*
4-Bromofluorobenzene (Surr)	*95*		*56 - 136*
Toluene-d8 (Surr)	*80*		*78 - 122*

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

Lab Sample ID: 240-160325-D-3 MS
Matrix: Water
Analysis Batch: 514748

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	*93*		*73 - 120*

Lab Sample ID: 240-160325-F-3 MSD
Matrix: Water
Analysis Batch: 514748

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	1.0	U	20.0	19.4		ug/L		97	56 - 135	18	26
cis-1,2-Dichloroethene	1.0	U F2	20.0	21.9	F2	ug/L		110	66 - 128	18	14
Tetrachloroethene	1.0	U	20.0	23.1		ug/L		116	62 - 131	19	20
trans-1,2-Dichloroethene	1.0	U F2	20.0	21.4	F2	ug/L		107	56 - 136	20	15
Trichloroethene	1.0	U F2 F1 * +	20.0	27.9	F1 F2	ug/L		140	61 - 124	17	15
Vinyl chloride	1.0	U	20.0	17.5		ug/L		88	43 - 157	22	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*85*		*62 - 137*
4-Bromofluorobenzene (Surr)	*100*		*56 - 136*
Toluene-d8 (Surr)	*85*		*78 - 122*
Dibromofluoromethane (Surr)	*98*		*73 - 120*

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

Lab Sample ID: MB 240-513930/5
Matrix: Water
Analysis Batch: 513930

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			11/19/21 18:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*76*		*66 - 120*		*11/19/21 18:46*	*1*

Lab Sample ID: LCS 240-513930/4
Matrix: Water
Analysis Batch: 513930

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	10.0	10.6		ug/L		106	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*74*		*66 - 120*

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

Lab Sample ID: 240-160325-I-3 MS
Matrix: Water
Analysis Batch: 513930

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	1.4	J F1	10.0	11.4		ug/L		101	51 - 153		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*80*		*66 - 120*

Lab Sample ID: 240-160325-M-3 MSD
Matrix: Water
Analysis Batch: 513930

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	1.4	J F1	10.0	11.0		ug/L		96	51 - 153	4	16

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*75*		*66 - 120*

QC Association Summary

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

Job ID: 240-160323-1

GC/MS VOA

Analysis Batch: 513930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160323-2	MW-72_111621	Total/NA	Water	8260B SIM	
240-160323-3	MW-72S_111621	Total/NA	Water	8260B SIM	
240-160323-4	DUP-08	Total/NA	Water	8260B SIM	
240-160323-5	MW-74_111621	Total/NA	Water	8260B SIM	
240-160323-6	MW-74S_111621	Total/NA	Water	8260B SIM	
MB 240-513930/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-513930/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-160325-I-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-160325-M-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 514748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-160323-1	TRIP BLANK_180	Total/NA	Water	8260B	
240-160323-2	MW-72_111621	Total/NA	Water	8260B	
240-160323-3	MW-72S_111621	Total/NA	Water	8260B	
240-160323-4	DUP-08	Total/NA	Water	8260B	
240-160323-5	MW-74_111621	Total/NA	Water	8260B	
240-160323-6	MW-74S_111621	Total/NA	Water	8260B	
MB 240-514748/7	Method Blank	Total/NA	Water	8260B	
LCS 240-514748/4	Lab Control Sample	Total/NA	Water	8260B	
240-160325-D-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-160325-F-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-160323-1

Client Sample ID: TRIP BLANK_180
Lab Sample ID: 240-160323-1
Date Collected: 11/16/21 00:00
Matrix: Water
Date Received: 11/18/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514748	11/27/21 14:58	HMB	TAL CAN

Client Sample ID: MW-72_111621
Lab Sample ID: 240-160323-2
Date Collected: 11/16/21 11:05
Matrix: Water
Date Received: 11/18/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514748	11/27/21 15:20	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	513930	11/20/21 03:03	CS	TAL CAN

Client Sample ID: MW-72S_111621
Lab Sample ID: 240-160323-3
Date Collected: 11/16/21 13:03
Matrix: Water
Date Received: 11/18/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514748	11/27/21 15:43	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	513930	11/20/21 03:28	CS	TAL CAN

Client Sample ID: DUP-08
Lab Sample ID: 240-160323-4
Date Collected: 11/16/21 00:00
Matrix: Water
Date Received: 11/18/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514748	11/27/21 16:06	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	513930	11/20/21 03:53	CS	TAL CAN

Client Sample ID: MW-74_111621
Lab Sample ID: 240-160323-5
Date Collected: 11/16/21 16:35
Matrix: Water
Date Received: 11/18/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514748	11/27/21 16:28	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	513930	11/20/21 04:17	CS	TAL CAN

Client Sample ID: MW-74S_111621
Lab Sample ID: 240-160323-6
Date Collected: 11/16/21 15:05
Matrix: Water
Date Received: 11/18/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	514748	11/27/21 16:51	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	513930	11/20/21 04:42	CS	TAL CAN

Laboratory References:
TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

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

Job ID: 240-160323-1

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	06-30-22
Georgia	State	4062	02-23-22
Illinois	NELAP	200004	07-31-22
Iowa	State	421	06-01-23
Kansas	NELAP	E-10336	04-30-22
Kentucky (UST)	State	112225	02-23-22
Kentucky (WW)	State	KY98016	12-31-21
Minnesota	NELAP	OH00048	12-31-21
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-22
New York	NELAP	10975	03-31-22
Ohio VAP	State	CL0024	12-21-23
Oregon	NELAP	4062	02-23-22
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-18-10	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-22
West Virginia DEP	State	210	12-31-21

MICHIGAN
190

Chain of Custody Record

TestAmerica

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

Regulatory program: DW NPDES RCRA Other

TestAmerica Laboratories, Inc.

Client Contact	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
Company Name: Arcadis				
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396	1 of 1 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: SH Sakhuja, Trey Hinkle / COURIER: CHRISTINA WERNER	TAT if different from below: 10 day; 3 weeks, 2 weeks, 1 week, 2 days, 1 day		Walk-in client
Project Name: Ford LTP Off-Site	Method of Shipment/Carrier:			Lab sampling
Project Number: 30080642.402.04	Shipping/Tracking No:			Job/SDG No:
PO # 30080642.402.04				

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_180	—	—		X						1					N	G	X	X	X	X	X	X	X	1 Trip Blank
MW-72_111621	11/16/21	11:05		6						6					N	G	X	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-72S_111621	11/16/21	13:03		6						6					N	G	X	X	X	X	X	X	X	
DUP-08	11/16/21	—		6						6					N	G	X	X	X	X	X	X	X	
MW-74_111621	11/16/21	16:35		6						6					N	G	X	X	X	X	X	X	X	
MW-74S_111621	11/16/21	15:05		6						6					N	G	X	X	X	X	X	X	X	

240-160323 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 #E203631
Level IV Reporting requested.

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
SH	Arcadis	11/16/21 17:50	Non cold storage	Arcadis	11/16/21 17:50
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	ARCADIS	11/17/21 1029		ETA	11/17/21
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
	ETA	11/17/21		TA	11-18-21 0804

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 160373**
Canton Facility

Client Arcadis Site Name

Cooler unpacked by: Brandon

Cooler Received on 11-18-21 Opened on 11-18-21

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

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

TestAmerica Cooler # NA 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-14 (CF +0.1 °C) Observed Cooler Temp. 0.2 °C Corrected Cooler Temp. 0.3 °C
   IR GUN #IR-15 (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# HC157842
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 # ____	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:

No SIM on TB per corrected COC

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: ____