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ANALYTICAL REPORT

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Tel: (330)497-9396

Laboratory Job ID: 240-163303-1
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:
3/18/2022 10:02:07 AM

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Table of Contents

Definitions/Glossary

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

Job ID: 240-163303-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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: 240-163303-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-163303-1

Comments
No additional comments.

Receipt
The samples were received on 3/4/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.6º C, 2.2º C and 2.8º C.

GC/MS VOA
Method 8260B: The continuing calibration verification (CCV) associated with batch 519495 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK_115 (240-163303-1), MW-224S_030222 (240-163303-2), MW-24_030222 (240-163303-3), MW-07_030222 (240-163303-4) and MW-36_030222 (240-163303-5).

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

VOA Prep
No additional 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: 240-163303-1

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 Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

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

Job ID: 240-163303-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-163303-1	TRIP BLANK_115	Water	03/02/22 00:00	03/04/22 08:00
240-163303-2	MW-224S_030222	Water	03/02/22 10:00	03/04/22 08:00
240-163303-3	MW-24_030222	Water	03/02/22 14:30	03/04/22 08:00
240-163303-4	MW-07_030222	Water	03/02/22 11:10	03/04/22 08:00
240-163303-5	MW-36_030222	Water	03/02/22 12:50	03/04/22 08:00

Detection Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-163303-1
Project/Site: Ford LTP - On Site

Client Sample ID: TRIP BLANK_115 — Lab Sample ID: 240-163303-1

No Detections.

Client Sample ID: MW-224S_030222 — Lab Sample ID: 240-163303-2

No Detections.

Client Sample ID: MW-24_030222 — Lab Sample ID: 240-163303-3

No Detections.

Client Sample ID: MW-07_030222 — Lab Sample ID: 240-163303-4

No Detections.

Client Sample ID: MW-36_030222 — Lab Sample ID: 240-163303-5

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 240-163303-1

Client Sample ID: TRIP BLANK_115

Date Collected: 03/02/22 00:00
Date Received: 03/04/22 08:00

Lab Sample ID: 240-163303-1

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			03/09/22 13:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/09/22 13:09	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 13:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/09/22 13:09	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 13:09	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/09/22 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*62 - 137*		*03/09/22 13:09*	*1*
4-Bromofluorobenzene (Surr)	*109*		*56 - 136*		*03/09/22 13:09*	*1*
Toluene-d8 (Surr)	*79*		*78 - 122*		*03/09/22 13:09*	*1*
Dibromofluoromethane (Surr)	*94*		*73 - 120*		*03/09/22 13:09*	*1*

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

Job ID: 240-163303-1

Client Sample ID: MW-224S_030222
Date Collected: 03/02/22 10:00
Date Received: 03/04/22 08:00

Lab Sample ID: 240-163303-2
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			03/07/22 22:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*66 - 120*		*03/07/22 22:29*	*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			03/09/22 13:33	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/09/22 13:33	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 13:33	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/09/22 13:33	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 13:33	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/09/22 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*71*		*62 - 137*		*03/09/22 13:33*	*1*
4-Bromofluorobenzene (Surr)	*107*		*56 - 136*		*03/09/22 13:33*	*1*
Toluene-d8 (Surr)	*78*		*78 - 122*		*03/09/22 13:33*	*1*
Dibromofluoromethane (Surr)	*90*		*73 - 120*		*03/09/22 13:33*	*1*

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

Job ID: 240-163303-1

Client Sample ID: MW-24_030222

Date Collected: 03/02/22 14:30
Date Received: 03/04/22 08:00

Lab Sample ID: 240-163303-3

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			03/07/22 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*66 - 120*		*03/07/22 22:54*	*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			03/09/22 13:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/09/22 13:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 13:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/09/22 13:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 13:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/09/22 13:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*72*		*62 - 137*		*03/09/22 13:57*	*1*
4-Bromofluorobenzene (Surr)	*106*		*56 - 136*		*03/09/22 13:57*	*1*
Toluene-d8 (Surr)	*81*		*78 - 122*		*03/09/22 13:57*	*1*
Dibromofluoromethane (Surr)	*93*		*73 - 120*		*03/09/22 13:57*	*1*

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

Job ID: 240-163303-1

Client Sample ID: MW-07_030222
Date Collected: 03/02/22 11:10
Date Received: 03/04/22 08:00

Lab Sample ID: 240-163303-4
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			03/07/22 23:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*78*		*66 - 120*		*03/07/22 23:18*	*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			03/09/22 14:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/09/22 14:21	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 14:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/09/22 14:21	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 14:21	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/09/22 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*62 - 137*		*03/09/22 14:21*	*1*
4-Bromofluorobenzene (Surr)	*110*		*56 - 136*		*03/09/22 14:21*	*1*
Toluene-d8 (Surr)	*79*		*78 - 122*		*03/09/22 14:21*	*1*
Dibromofluoromethane (Surr)	*97*		*73 - 120*		*03/09/22 14:21*	*1*

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

Job ID: 240-163303-1

Client Sample ID: MW-36_030222

Date Collected: 03/02/22 12:50
Date Received: 03/04/22 08:00

Lab Sample ID: 240-163303-5

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			03/07/22 23:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*66 - 120*		*03/07/22 23:55*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/09/22 14:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/09/22 14:46	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 14:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/09/22 14:46	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 14:46	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/09/22 14:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*81*		*62 - 137*		*03/09/22 14:46*	*1*
4-Bromofluorobenzene (Surr)	*107*		*56 - 136*		*03/09/22 14:46*	*1*
Toluene-d8 (Surr)	*79*		*78 - 122*		*03/09/22 14:46*	*1*
Dibromofluoromethane (Surr)	*102*		*73 - 120*		*03/09/22 14:46*	*1*

Surrogate Summary

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

Job ID: 240-163303-1

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)
240-163303-1	TRIP BLANK_115	79	109	79	94
240-163303-2	MW-224S_030222	71	107	78	90
240-163303-3	MW-24_030222	72	106	81	93
240-163303-4	MW-07_030222	79	110	79	97
240-163303-5	MW-36_030222	81	107	79	102
240-163303-5 MS	MW-36-MS_030222	79	114	79	92
240-163303-5 MSD	MW-36-MSD_030222	81	115	81	96
LCS 240-519495/5	Lab Control Sample	73	119	86	92
MB 240-519495/8	Method Blank	75	109	79	93

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)
240-163303-2	MW-224S_030222	78
240-163303-3	MW-24_030222	76
240-163303-4	MW-07_030222	78
240-163303-5	MW-36_030222	76
240-163303-5 MS	MW-36-MS_030222	76
240-163303-5 MSD	MW-36-MSD_030222	75
240-163304-G-4 MS	Matrix Spike	77
240-163304-M-4 MSD	Matrix Spike Duplicate	81
LCS 240-519340/4	Lab Control Sample	74
LCS 240-519341/4	Lab Control Sample	80
MB 240-519340/5	Method Blank	77
MB 240-519341/5	Method Blank	80

Surrogate Legend

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

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

Lab Sample ID: MB 240-519495/8
Matrix: Water
Analysis Batch: 519495

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			03/09/22 12:20	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/09/22 12:20	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 12:20	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/09/22 12:20	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/09/22 12:20	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/09/22 12:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*62 - 137*		*03/09/22 12:20*	*1*
4-Bromofluorobenzene (Surr)	*109*		*56 - 136*		*03/09/22 12:20*	*1*
Toluene-d8 (Surr)	*79*		*78 - 122*		*03/09/22 12:20*	*1*
Dibromofluoromethane (Surr)	*93*		*73 - 120*		*03/09/22 12:20*	*1*

Lab Sample ID: LCS 240-519495/5
Matrix: Water
Analysis Batch: 519495

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	24.0		ug/L		120	63 - 134
cis-1,2-Dichloroethene	20.0	22.4		ug/L		112	77 - 123
Tetrachloroethene	20.0	18.7		ug/L		94	76 - 123
trans-1,2-Dichloroethene	20.0	23.8		ug/L		119	75 - 124
Trichloroethene	20.0	23.2		ug/L		116	70 - 122
Vinyl chloride	20.0	25.6		ug/L		128	60 - 144

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*73*		*62 - 137*
4-Bromofluorobenzene (Surr)	*119*		*56 - 136*
Toluene-d8 (Surr)	*86*		*78 - 122*
Dibromofluoromethane (Surr)	*92*		*73 - 120*

Lab Sample ID: 240-163303-5 MS
Matrix: Water
Analysis Batch: 519495

Client Sample ID: MW-36-MS_030222
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	22.7		ug/L		114	56 - 135
cis-1,2-Dichloroethene	1.0	U	20.0	22.3		ug/L		111	66 - 128
Tetrachloroethene	1.0	U	20.0	17.4		ug/L		87	62 - 131
trans-1,2-Dichloroethene	1.0	U	20.0	23.5		ug/L		117	56 - 136
Trichloroethene	1.0	U	20.0	22.5		ug/L		112	61 - 124
Vinyl chloride	1.0	U	20.0	25.9		ug/L		129	43 - 157

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*79*		*62 - 137*
4-Bromofluorobenzene (Surr)	*114*		*56 - 136*
Toluene-d8 (Surr)	*79*		*78 - 122*

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

Lab Sample ID: 240-163303-5 MS
Matrix: Water
Analysis Batch: 519495

Client Sample ID: MW-36-MS_030222
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	92		73 - 120

Lab Sample ID: 240-163303-5 MSD
Matrix: Water
Analysis Batch: 519495

Client Sample ID: MW-36-MSD_030222
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	22.7		ug/L		113	56 - 135	0	26
cis-1,2-Dichloroethene	1.0	U	20.0	21.6		ug/L		108	66 - 128	3	14
Tetrachloroethene	1.0	U	20.0	17.1		ug/L		86	62 - 131	2	20
trans-1,2-Dichloroethene	1.0	U	20.0	22.8		ug/L		114	56 - 136	3	15
Trichloroethene	1.0	U	20.0	22.2		ug/L		111	61 - 124	1	15
Vinyl chloride	1.0	U	20.0	25.0		ug/L		125	43 - 157	3	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		62 - 137
4-Bromofluorobenzene (Surr)	115		56 - 136
Toluene-d8 (Surr)	81		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120

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

Lab Sample ID: MB 240-519340/5
Matrix: Water
Analysis Batch: 519340

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			03/07/22 18:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	77		66 - 120		03/07/22 18:22	1

Lab Sample ID: LCS 240-519340/4
Matrix: Water
Analysis Batch: 519340

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	10.9		ug/L		109	80 - 122

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

Lab Sample ID: 240-163303-5 MS
Matrix: Water
Analysis Batch: 519340

Client Sample ID: MW-36-MS_030222
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	11.2		ug/L		112	51 - 153

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

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*76*		*66 - 120*

Lab Sample ID: 240-163303-5 MSD — **Client Sample ID: MW-36-MSD_030222**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 519340

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	11.3		ug/L		113	51 - 153	1	16

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

Lab Sample ID: MB 240-519341/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 519341

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			03/07/22 18:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*80*		*66 - 120*		*03/07/22 18:28*	*1*

Lab Sample ID: LCS 240-519341/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 519341

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			10.0	9.77		ug/L		98	80 - 122		

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

Lab Sample ID: 240-163304-G-4 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 519341

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	2.0	U	10.0	10.4		ug/L		104	51 - 153		

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*77*		*66 - 120*

Lab Sample ID: 240-163304-M-4 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 519341

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	10.3		ug/L		103	51 - 153	1	16

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

Lab Sample ID: 240-163304-M-4 MSD
Matrix: Water
Analysis Batch: 519341

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

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*81*		*66 - 120*

QC Association Summary

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

Job ID: 240-163303-1

GC/MS VOA

Analysis Batch: 519340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163303-5	MW-36_030222	Total/NA	Water	8260B SIM	
MB 240-519340/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-519340/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-163303-5 MS	MW-36-MS_030222	Total/NA	Water	8260B SIM	
240-163303-5 MSD	MW-36-MSD_030222	Total/NA	Water	8260B SIM	

Analysis Batch: 519341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163303-2	MW-224S_030222	Total/NA	Water	8260B SIM	
240-163303-3	MW-24_030222	Total/NA	Water	8260B SIM	
240-163303-4	MW-07_030222	Total/NA	Water	8260B SIM	
MB 240-519341/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-519341/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-163304-G-4 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-163304-M-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 519495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-163303-1	TRIP BLANK_115	Total/NA	Water	8260B	
240-163303-2	MW-224S_030222	Total/NA	Water	8260B	
240-163303-3	MW-24_030222	Total/NA	Water	8260B	
240-163303-4	MW-07_030222	Total/NA	Water	8260B	
240-163303-5	MW-36_030222	Total/NA	Water	8260B	
MB 240-519495/8	Method Blank	Total/NA	Water	8260B	
LCS 240-519495/5	Lab Control Sample	Total/NA	Water	8260B	
240-163303-5 MS	MW-36-MS_030222	Total/NA	Water	8260B	
240-163303-5 MSD	MW-36-MSD_030222	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-163303-1

Client Sample ID: TRIP BLANK_115
Lab Sample ID: 240-163303-1
Date Collected: 03/02/22 00:00
Matrix: Water
Date Received: 03/04/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519495	03/09/22 13:09	LEE	TAL CAN

Client Sample ID: MW-224S_030222
Lab Sample ID: 240-163303-2
Date Collected: 03/02/22 10:00
Matrix: Water
Date Received: 03/04/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519495	03/09/22 13:33	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	519341	03/07/22 22:29	CS	TAL CAN

Client Sample ID: MW-24_030222
Lab Sample ID: 240-163303-3
Date Collected: 03/02/22 14:30
Matrix: Water
Date Received: 03/04/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519495	03/09/22 13:57	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	519341	03/07/22 22:54	CS	TAL CAN

Client Sample ID: MW-07_030222
Lab Sample ID: 240-163303-4
Date Collected: 03/02/22 11:10
Matrix: Water
Date Received: 03/04/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519495	03/09/22 14:21	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	519341	03/07/22 23:18	CS	TAL CAN

Client Sample ID: MW-36_030222
Lab Sample ID: 240-163303-5
Date Collected: 03/02/22 12:50
Matrix: Water
Date Received: 03/04/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	519495	03/09/22 14:46	LEE	TAL CAN
Total/NA	Analysis	8260B SIM		1	519340	03/07/22 23:55	CS	TAL CAN

Laboratory References:
TAL CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

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

Job ID: 240-163303-1

Laboratory: Eurofins 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	12-31-22
Minnesota	NELAP	039-999-348	12-31-22
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	11-06-22
New York	NELAP	10975	03-31-22
Ohio	State	8303	02-23-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-22
Texas	NELAP	T104704517-21-14	08-31-22
Virginia	NELAP	11570	09-14-22
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

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

Client Contact				
Company Name Arcadis				TestAmerica Laboratories, Inc.
Address 28550 Cabot Drive Suite 500	Client Project Manager Kris Hinskey	Site Contact Julia McClafferty	Lab Contact Mike DelMonico	COC No
City/State/Zip Novi, MI, 48377	Telephone 248-994-2240	Telephone 734-644-5131	Telephone 330-497-9396	of COCs
Phone 248-994-2240	Email kristoffer hinskey@arcadis.com	Analysis Turnaround Time	Analyses	For lab use only
Project Name Ford LTP On-Site	Sampler Name Dominic Harmon	TAT if different from below: 10 day; 3 weeks; ✓ 2 weeks; 1 week; 2 days; 1 day		Walk-in client
Project Number 30080642.401 03	Method of Shipment/Carrier			Lab sampling
PO # 30080642.401 03	Shipping/Tracking No			Job/SDG No

Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other	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_115	—	—		1						1					N	6	X	X	X	X	X	X		1 Trip Blank
MW-2245_030222	3/2/22	1000		6						6					N	6	X	X	X	X	X	X	X	3 VOAs for 8260B 3 VOAs for 8260B SIM
MW-24_030222	3/2/22	1130		6						6					N	6	X	X	X	X	X	X	X	
MW-07_030222	3/2/22	1110		6						6					N	6	X	X	X	X	X	X	X	
MW-36_030222	3/2/22	~~1200~~ 1250		6						6					N	6	X	X	X	X	X	X	X	
MW-36-MS_030222	3/2/22	1250		6						6					N	6	X	X	X	X	X	X	X	Run MS/MSP
MW-36-MSD_030222	3/2/22	1250		6						6					N	6	X	X	X	X	X	X	X	Run MS/MSP

240-163303 Chain of Custody

Possible Hazard Identification: ✓ Non-Hazard; Flammable; Skin Irritant; Poison B; Unknown

Sample Disposal (A fee may be assessed if samples...): Return to Client; ✓ Disposal By Lab

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	3/2/22 1525	Novi cold storage	Arcadis	3/2/22 1535
[signature]	Arcadis	3/3/22 1115	[signature]	EEV	3 3 22 1316
[signature]	EETA	3 3 22 1354	Received in Laboratory by [signature]	EE TNC	3 4 22 800

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 163303**
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Adam Grant

Cooler Received on 3-4-22 Opened on 3-4-22

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

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

TestAmerica Cooler # T4 ~~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 **-0.2** °C) Observed Cooler Temp _____°C Corrected Cooler Temp _____°C
   IR GUN #IR-15 (CF **-0.7**°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 ea	(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)?	(Yes)	No
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 # 010420 16	(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 _____

WI-NC-099

Login # : ______________

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	**IR-14** IR-15	3.0	2.8	**Wet Ice** Blue Ice Dry Ice Water None
TA Client Box Other	**IR-14** IR-15	1.8	1.6	**Wet Ice** Blue Ice Dry Ice Water None
TA Client Box Other	**IR-14** IR-15	2.4	2.2	**Wet Ice** Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-14 IR-15			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

WI NC-099 Cooler Receipt Form Page 2 – Multiple Coolers