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ANALYTICAL REPORT

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

Laboratory Job ID: 240-140094-1
Client Project/Site: Ford LTP - Off Site

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

Attn: Kristoffer Hinskey

Authorized for release by:
11/27/2020 9:48:28 AM

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LINKS

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 240-140094-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: 240-140094-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Ford LTP - Off Site

Report Number: 240-140094-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 11/12/2020 9:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.7º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-140094-1) and MW-90S_111020 (240-140094-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2020.

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

VOLATILE ORGANIC COMPOUNDS (GCMS SIM)

Sample MW-90S_111020 (240-140094-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/19/2020.

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

Method Summary

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

Job ID: 240-140094-1

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: 240-140094-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-140094-1	TRIP BLANK	Water	11/10/20 00:00	11/12/20 09:15	
240-140094-2	MW-90S_111020	Water	11/10/20 13:00	11/12/20 09:15	

Detection Summary

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

Job ID: 240-140094-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 240-140094-1

No Detections.

Client Sample ID: MW-90S_111020 — Lab Sample ID: 240-140094-2

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 240-140094-1

Client Sample ID: TRIP BLANK
Date Collected: 11/10/20 00:00
Date Received: 11/12/20 09:15

Lab Sample ID: 240-140094-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 20:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 20:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 20:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 20:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 20:54	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*11/20/20 20:54*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*11/20/20 20:54*	*1*
Toluene-d8 (Surr)	*81*		*69 - 122*		*11/20/20 20:54*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 129*		*11/20/20 20:54*	*1*

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

Job ID: 240-140094-1

Client Sample ID: MW-90S_111020
Date Collected: 11/10/20 13:00
Date Received: 11/12/20 09:15

Lab Sample ID: 240-140094-2
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			11/19/20 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 133*		*11/19/20 17:36*	*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			11/20/20 21:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 21:19	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 21:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 21:19	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 21:19	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 130*		*11/20/20 21:19*	*1*
4-Bromofluorobenzene (Surr)	*106*		*47 - 134*		*11/20/20 21:19*	*1*
Toluene-d8 (Surr)	*79*		*69 - 122*		*11/20/20 21:19*	*1*
Dibromofluoromethane (Surr)	*86*		*78 - 129*		*11/20/20 21:19*	*1*

Surrogate Summary

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

Job ID: 240-140094-1

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(75-130)	(47-134)	(69-122)	(78-129)
240-140094-1	TRIP BLANK	89	100	81	85
240-140094-2	MW-90S_111020	86	106	79	86
240-140111-B-3 MS	Matrix Spike	85	108	78	85
240-140111-E-3 MSD	Matrix Spike Duplicate	87	109	79	88
LCS 240-462075/4	Lab Control Sample	84	109	81	81
MB 240-462075/7	Method Blank	84	107	79	87

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)
240-140094-2	MW-90S_111020	90
240-140111-D-3 MS	Matrix Spike	89
240-140111-D-3 MSD	Matrix Spike Duplicate	91
LCS 240-461808/14	Lab Control Sample	86
MB 240-461808/15	Method Blank	85

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (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	(10-150)
MRL 240-461808/16	Lab Control Sample	85

Surrogate Legend

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

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

Lab Sample ID: MB 240-462075/7
Matrix: Water
Analysis Batch: 462075

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			11/20/20 15:55	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 15:55	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 15:55	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 15:55	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 15:55	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 15:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 130*		*11/20/20 15:55*	*1*
4-Bromofluorobenzene (Surr)	*107*		*47 - 134*		*11/20/20 15:55*	*1*
Toluene-d8 (Surr)	*79*		*69 - 122*		*11/20/20 15:55*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*11/20/20 15:55*	*1*

Lab Sample ID: LCS 240-462075/4
Matrix: Water
Analysis Batch: 462075

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	10.1		ug/L		101	73 - 129
cis-1,2-Dichloroethene	10.0	9.72		ug/L		97	75 - 124
Tetrachloroethene	10.0	9.81		ug/L		98	70 - 125
trans-1,2-Dichloroethene	10.0	9.43		ug/L		94	74 - 130
Trichloroethene	10.0	9.78		ug/L		98	71 - 121
Vinyl chloride	10.0	9.80		ug/L		98	61 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*75 - 130*
4-Bromofluorobenzene (Surr)	*109*		*47 - 134*
Toluene-d8 (Surr)	*81*		*69 - 122*
Dibromofluoromethane (Surr)	*81*		*78 - 129*

Lab Sample ID: 240-140111-B-3 MS
Matrix: Water
Analysis Batch: 462075

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	10.0		ug/L		100	64 - 132
cis-1,2-Dichloroethene	1.0	U	10.0	9.93		ug/L		99	68 - 121
Tetrachloroethene	1.0	U	10.0	8.82		ug/L		88	52 - 129
trans-1,2-Dichloroethene	1.0	U	10.0	9.35		ug/L		94	69 - 126
Trichloroethene	1.0	U	10.0	9.78		ug/L		98	56 - 124
Vinyl chloride	1.0	U	10.0	9.31		ug/L		93	49 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 130*
4-Bromofluorobenzene (Surr)	*108*		*47 - 134*
Toluene-d8 (Surr)	*78*		*69 - 122*

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

Lab Sample ID: 240-140111-B-3 MS
Matrix: Water
Analysis Batch: 462075

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	*85*		*78 - 129*

Lab Sample ID: 240-140111-E-3 MSD
Matrix: Water
Analysis Batch: 462075

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	10.5		ug/L		105	64 - 132	4	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.89		ug/L		99	68 - 121	0	35
Tetrachloroethene	1.0	U	10.0	8.56		ug/L		86	52 - 129	3	35
trans-1,2-Dichloroethene	1.0	U	10.0	9.51		ug/L		95	69 - 126	2	35
Trichloroethene	1.0	U	10.0	9.62		ug/L		96	56 - 124	2	35
Vinyl chloride	1.0	U	10.0	9.65		ug/L		97	49 - 136	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*87*		*75 - 130*
4-Bromofluorobenzene (Surr)	*109*		*47 - 134*
Toluene-d8 (Surr)	*79*		*69 - 122*
Dibromofluoromethane (Surr)	*88*		*78 - 129*

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

Lab Sample ID: MB 240-461808/15
Matrix: Water
Analysis Batch: 461808

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			11/19/20 16:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 133*		*11/19/20 16:21*	*1*

Lab Sample ID: LCS 240-461808/14
Matrix: Water
Analysis Batch: 461808

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	10.7		ug/L		107	80 - 135

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

Lab Sample ID: MRL 240-461808/16
Matrix: Water
Analysis Batch: 461808

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	0.00100	0.00123	J	ng/uL		123	10 - 150

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

Surrogate	MRL %Recovery	MRL Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*85*		*10 - 150*

Lab Sample ID: 240-140111-D-3 MS
Matrix: Water
Analysis Batch: 461808

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	10.5		ug/L		105	46 - 170		

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 133*

Lab Sample ID: 240-140111-D-3 MSD
Matrix: Water
Analysis Batch: 461808

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	10.4		ug/L		104	46 - 170	0	26

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 133*

QC Association Summary

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

Job ID: 240-140094-1

GC/MS VOA

Analysis Batch: 461808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140094-2	MW-90S_111020	Total/NA	Water	8260B SIM	
MB 240-461808/15	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-461808/14	Lab Control Sample	Total/NA	Water	8260B SIM	
MRL 240-461808/16	Lab Control Sample	Total/NA	Water	8260B SIM	
240-140111-D-3 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-140111-D-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 462075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-140094-1	TRIP BLANK	Total/NA	Water	8260B	
240-140094-2	MW-90S_111020	Total/NA	Water	8260B	
MB 240-462075/7	Method Blank	Total/NA	Water	8260B	
LCS 240-462075/4	Lab Control Sample	Total/NA	Water	8260B	
240-140111-B-3 MS	Matrix Spike	Total/NA	Water	8260B	
240-140111-E-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

Lab Chronicle

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

Job ID: 240-140094-1

Client Sample ID: TRIP BLANK
Date Collected: 11/10/20 00:00
Date Received: 11/12/20 09:15

Lab Sample ID: 240-140094-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462075	11/20/20 20:54	LRW	TAL CAN

Client Sample ID: MW-90S_111020
Date Collected: 11/10/20 13:00
Date Received: 11/12/20 09:15

Lab Sample ID: 240-140094-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462075	11/20/20 21:19	LRW	TAL CAN
Total/NA	Analysis	8260B SIM		1	461808	11/19/20 17:36	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 - Off Site

Job ID: 240-140094-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
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	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record

MICHIGAN 190

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com		
Phone: 248-994-2240	Sampler Name: EMMA Witherspoon		
Project Name: Ford LTP Off-Site	Method of Shipment/Carrier:		
Project Number: 30050315.402.04	Shipping/Tracking No:		
PO # 30050315.402.04			

COC No:

of COCs

For lab use only

Walk-in client

Lab sampling

Job/SDG No:

Analysis Turnaround Time

TAT if different from below: 10 day ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day

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	1 Trip blank
MW-90S_111020	11/10/20	1300		6						6					N	G	X	X	X	X	X	X	X	3 voas for 8260B 3 voas for 8260B SIM

240-140094 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:
E Witherspoon	Arcadis	11/10/20 / 1400	Novi cold Storage	Arcadis	11/10/20 / 1400
Julia McClafferty	Arcadis	11/11/20 1150	Gail Carr	ETA	11/11/20 1150
Gail Carr	ETA	11/11/20 1700	Received in Laboratory by: Tammy Doyle	ETA	11-12-20 ~~930~~ TR-11-12 915

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Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 140094**
Canton Facility

Client Arcadis Site Name _____ Cooler unpacked by: Tammy Boyer

Cooler Received on 11-12-20 Opened on 11-12-20

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 +0.9 °C) Observed Cooler Temp. 2.8 °C Corrected Cooler Temp. 3.7 °C
   IR GUN #IR-12 (CF +0.5°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels (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 # _____	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

DATA VERIFICATION REPORT

November 27, 2020

Kris Hinskey
Arcadis Inc
10559 Citation Ave
Suite 100
Brighton, MI 48116

CADENA project ID: E203631
Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater
Project number: 30050315.0301.01 off site
Event Specific Scope of Work References: Sample COC
Laboratory: TestAmerica - North Canton
Laboratory submittal: 140094-1
Sample date: 2020-11-10
Report received by CADENA: 2020-11-27
Initial Data Verification completed by CADENA: 2020-11-27
Number of Samples:2
Sample Matrices:Water
Test Categories:GCMS VOC
Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at http://clms.cadenaco.com/index.cfm.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
B	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

Reportable Results Only

CADENA Project ID: E203631
Laboratory: TestAmerica - North Canton
Laboratory Submittal: 140094-1

		Sample Name:	TRIP BLANK				MW-90S_111020			
		Lab Sample ID:	2401400941				2401400942			
		Sample Date:	11/10/2020				11/10/2020			
Analyte	Cas No.	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier
GC/MS VOC									
OSW-8260B									
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---
OSW-8260BBSim									
1,4-Dioxane	123-91-1					ND	2.0	ug/l	---

ARCADIS Design & Consultancy for natural and built assets

Ford Motor Company – Livonia Transmission Project

DATA REVIEW

Livonia, Michigan

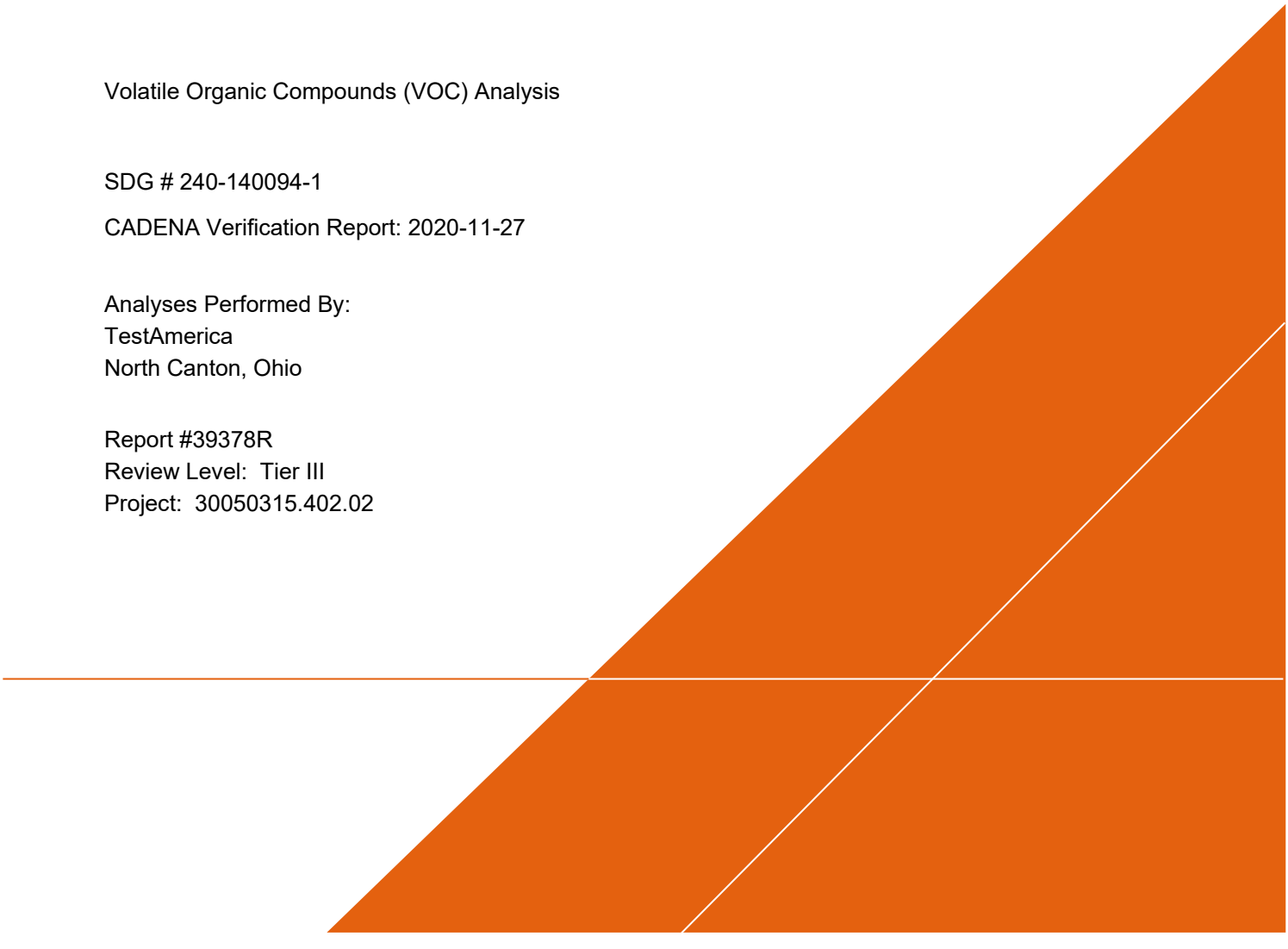
Volatile Organic Compounds (VOC) Analysis

SDG # 240-140094-1

CADENA Verification Report: 2020-11-27

Analyses Performed By:
TestAmerica
North Canton, Ohio

Report #39378R
Review Level: Tier III
Project: 30050315.402.02



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-140094-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) includes a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
					VOC (Full Scan)	VOC (SIM)
TRIP BLANK	240-140094-1	Water	11/10/20		X	
MW-90S_111020	240-140094-2	Water	11/10/20		X	X

DATA REVIEW

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and 8260B SIM. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

  UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

  J+ The result is an estimated quantity, but the result may be biased high.

  J- The result is an estimated quantity, but the result may be biased low.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B/8260B-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260B/8260B-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times/Preservation		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Field Duplicate RPD	X				X
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

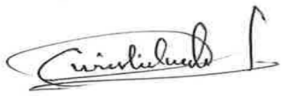
%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Hrishikesh Upadhyaya

SIGNATURE: 

DATE: December 04, 2020

PEER REVIEW: Andrew Korycinski

DATE: December 07, 2020

NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chain of Custody Record

MICHIGAN 190

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico
Address: 28550 Cabot Drive, Suite 500	Telephone: 248-994-2240	Telephone: 734-644-5131	Telephone: 330-497-9396
City/State/Zip: Novi, MI, 48377	Email: kristoffer.hinskey@arcadis.com		
Phone: 248-994-2240	Sampler Name: EMMA Witherspoon		
Project Name: Ford LTP Off-Site	Method of Shipment/Carrier:		
Project Number: 30050315.402.04	Shipping/Tracking No:		
PO # 30050315.402.04			

COC No:

1 of 1 COCs

For lab use only

Walk-in client

Lab sampling

Job/SDG No:

Analysis Turnaround Time

TAT if different from below: 10 day ☐ 3 weeks ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y / N)	Composite=C / Grab=G	1,1-DCE 8260B	cis-1,2-DCE 8260B	Trans-1,2-DCE 8260B	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane 8260B SIM	Sample Specific Notes / Special Instructions:
TRIP BLANK	—	—		1						1					N	G	X	X	X	X	X	X	X	1 Trip blank
MW-90S_111020	11/10/20	1300		6						6					N	G	X	X	X	X	X	X	X	3 voas for 8260B 3 vons for 8260B SIM

240-140094 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:
E Witherspoon	Arcadis	11/10/20 / 1400	Novi cold Storage	Arcadis	11/10/20 / 1400
Julia McClafferty	Arcadis	11/11/20 1150	Gail Carr	ETA	11/11/20 1150
Gail Carr	ETA	11/11/20 1700	Received in Laboratory by: Tammy Doyle	ETA	11-12-20 ~~930~~ 915 TR-11-12-20

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Client Sample ID: TRIP BLANK
Lab Sample ID: 240-140094-1
Date Collected: 11/10/20 00:00
Matrix: Water
Date Received: 11/12/20 09:15

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			11/20/20 20:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 20:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 20:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 20:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 20:54	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*11/20/20 20:54*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*11/20/20 20:54*	*1*
Toluene-d8 (Surr)	*81*		*69 - 122*		*11/20/20 20:54*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 129*		*11/20/20 20:54*	*1*

Client Sample ID: MW-90S_111020
Lab Sample ID: 240-140094-2
Date Collected: 11/10/20 13:00
Matrix: Water
Date Received: 11/12/20 09:15

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			11/19/20 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 133*		*11/19/20 17:36*	*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			11/20/20 21:19	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 21:19	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 21:19	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 21:19	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 21:19	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 130*		*11/20/20 21:19*	*1*
4-Bromofluorobenzene (Surr)	*106*		*47 - 134*		*11/20/20 21:19*	*1*
Toluene-d8 (Surr)	*79*		*69 - 122*		*11/20/20 21:19*	*1*
Dibromofluoromethane (Surr)	*86*		*78 - 129*		*11/20/20 21:19*	*1*