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### Environment Testing America

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### **ANALYTICAL REPORT**

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

#### Laboratory Job ID: 240-139970-1

Client Project/Site: Ford LTP - Off Site

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

Attn: Kristoffer Hinskey

Mole Del your

Authorized for release by: 11/25/2020 8:58:06 AM

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

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

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#### 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)						
B							

2 =	
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: 240-139970-1

#### Laboratory: Eurofins TestAmerica, Canton

Narrative

#### **CASE NARRATIVE**

#### Client: ARCADIS U.S., Inc.

#### Project: Ford LTP - Off Site

#### Report Number: 240-139970-1

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 11/11/2020 9:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.8° C and 2.9° C.

#### VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples TRIP BLANK (240-139970-1) and MW-151S\_110920 (240-139970-2) 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-151S\_110920 (240-139970-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 11/17/2020.

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

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

Lab Sample ID Client Sample ID Matrix Collected Received Ass	Sample ID Matrix Collected Received	D Matrix Collected Received A
240-139970-1 TRIP BLANK Water 11/09/20 00:00 11/11/20 09:15	LANK Water 11/09/20 00:00 11/11/20 09:15	Water 11/09/20 00:00 11/11/20 09:15
240-139970-2 MW-151S_110920 Water 11/09/20 09:30 11/11/20 09:15	1S_110920 Water 11/09/20 09:30 11/11/20 09:15	20 Water 11/09/20 09:30 11/11/20 09:15

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#### **Detection Summary**

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

#### Client Sample ID: TRIP BLANK

#### No Detections.

# Client Sample ID: MW-151S\_110920Lab Sample ID: 240-139970-2AnalyteResultQualifierRLMDLUnitDil FacDMethodPrep TypeVinyl chloride2.21.00.20ug/L1D8260BTotal/NA

#### Lab Sample ID: 240-139970-1

Job ID: 240-139970-1

nyl chloride	2.2	1.0	0.20 ug/L	1 8260B	Total/NA

#### **Client Sample ID: TRIP BLANK** Date Collected: 11/09/20 00:00 Date Received: 11/11/20 09:15

#### Lab Sample ID: 240-139970-1 Matrix: Water

5 6

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 18:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 18:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 18:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 18:26	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			11/20/20 18:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 18:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			75 - 130					11/20/20 18:26	1
4-Bromofluorobenzene (Surr)	101		47 - 134					11/20/20 18:26	1
Toluene-d8 (Surr)	99		69 - 122					11/20/20 18:26	1
Dibromofluoromethane (Surr)	93		78 - 129					11/20/20 18:26	1

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#### Client Sample ID: MW-151S\_110920 Date Collected: 11/09/20 09:30 Date Received: 11/11/20 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			11/17/20 22:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	129		70 - 133					11/17/20 22:37	1
Analyte 1,1-Dichloroethene	<u></u>	Qualifier		0.19	Unit ug/L	<u>D</u>	Prepared	Analyzed 11/20/20 18:51	Dil Fac
Method: 8260B - Volatile C	Organic Compo	unds (GC/	MS)						
cis-1,2-Dichloroethene	1.0		1.0		ug/L			11/20/20 18:51	
									1
Tetrachloroethene	1.0		1.0		ug/L			11/20/20 18:51	1 1
		U		0.15	0				1 1 1
Tetrachloroethene	1.0	U U	1.0	0.15	ug/L ug/L			11/20/20 18:51	1 1 1 1
Tetrachloroethene trans-1,2-Dichloroethene	1.0 1.0	U U U	1.0 1.0	0.15 0.19 0.10	ug/L ug/L			11/20/20 18:51 11/20/20 18:51	1 1 1 1 1

Surrogate	%Recovery	Qualifier	Limits	Prepared Analyz	zed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	114		75 - 130	11/20/20	18:51	1	
4-Bromofluorobenzene (Surr)	102		47 - 134	11/20/20	18:51	1	
Toluene-d8 (Surr)	99		69 - 122	11/20/20	18:51	1	
Dibromofluoromethane (Surr)	96		78 - 129	11/20/20	18:51	1	

Job ID: 240-139970-1

#### Lab Sample ID: 240-139970-2 Matrix: Water

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#### **Surrogate Summary**

Lab Sample ID

240-139970-1

240-139970-2

Matrix: Water

LCS 240-462021/5

MB 240-462021/8

Surrogate Legend

TOL = Toluene-d8 (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr) BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

240-139968-B-7 MS

240-139968-B-7 MSD

#### Method: 8260B - Volatile Organic Compounds (GC/MS) **Matrix: Water**

Matrix Spike

Prep Type: Total/NA Percent Surrogate Recovery (Acceptance Limits) DCA BFB DBFM TOL 5 (75-130) (78-129) **Client Sample ID** (47-134) (69-122) 80 97 106 101 Matrix Spike Duplicate 82 99 108 101 TRIP BLANK 114 101 99 93 MW-151S 110920 114 102 99 96 Lab Control Sample 98 107 103 83 Method Blank 110 100 97 90 9 Method: 8260B SIM - Volatile Organic Compounds (GC/MS) Prep Type: Total/NA 

			Percent Surrogate Recovery (Acceptance Limits)	
		DCA		
Lab Sample ID	Client Sample ID	(70-133)		
240-139957-C-2 MS	Matrix Spike	122		
240-139957-C-2 MSD	Matrix Spike Duplicate	121		
240-139970-2	MW-151S_110920	129		
LCS 240-461393/3	Lab Control Sample	109		
MB 240-461393/5	Method Blank	116		
Surrogate Legend				

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

11/25/2020

Job ID: 240-139970-1

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

### Lab Sample ID: MB 240-462021/8

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

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Matrix: Water Analysis Batch: 462021

	MB MB							
Analyte Res	ult Qualifi	fier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0 U	1.0	0.19	ug/L			11/20/20 11:50	1
cis-1,2-Dichloroethene	1.0 U	1.0	0.16	ug/L			11/20/20 11:50	1
Tetrachloroethene	1.0 U	1.0	0.15	ug/L			11/20/20 11:50	1
trans-1,2-Dichloroethene	1.0 U	1.0	0.19	ug/L			11/20/20 11:50	1
Trichloroethene	1.0 U	1.0	0.10	ug/L			11/20/20 11:50	1
Vinyl chloride	1.0 U	1.0	0.20	ug/L			11/20/20 11:50	1

	MB	МВ				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 130		11/20/20 11:50	1
4-Bromofluorobenzene (Surr)	100		47 - 134		11/20/20 11:50	1
Toluene-d8 (Surr)	97		69 - 122		11/20/20 11:50	1
Dibromofluoromethane (Surr)	90		78 - 129		11/20/20 11:50	1

#### Lab Sample ID: LCS 240-462021/5 Matrix: Water Analysis Batch: 462021

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.0	18.6		ug/L		93	73 - 129	
cis-1,2-Dichloroethene	20.0	18.8		ug/L		94	75 - 124	
Tetrachloroethene	20.0	17.7		ug/L		88	70 - 125	
trans-1,2-Dichloroethene	20.0	18.6		ug/L		93	74 - 130	
Trichloroethene	20.0	15.8		ug/L		79	71_121	
Vinyl chloride	20.0	22.0		ug/L		110	61 - 134	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 130
4-Bromofluorobenzene (Surr)	107		47 - 134
Toluene-d8 (Surr)	103		69 - 122
Dibromofluoromethane (Surr)	83		78 - 129

#### Lab Sample ID: 240-139968-B-7 MS **Matrix: Water** Analysis Batch: 462021

	Samala	Samala	Spike	Me	MS				%Rec.
	•	Sample	Spike						
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
1,1-Dichloroethene	10	U	200	174		ug/L		87	64 - 132
cis-1,2-Dichloroethene	1.6	J	200	183		ug/L		92	68 - 121
Tetrachloroethene	10	U	200	159		ug/L		79	52 - 129
trans-1,2-Dichloroethene	10	U	200	177		ug/L		89	69 - 126
Trichloroethene	10	U	200	148		ug/L		74	56 - 124
Vinyl chloride	30		200	213		ug/L		91	49 - 136
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		75 - 130						
4-Bromofluorobenzene (Surr)	106		47 - 134						
Toluene-d8 (Surr)	101		69 - 122						

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

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

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#### **QC Sample Results**

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

Matrix: Water Analysis Batch: 462021	968-B-7 MS							C	ient Sa	mple ID: M Prep Typ		
<b>Surrogate</b> Dibromofluoromethane (Surr)	MS <del>%Recovery</del> 80	MS Qualifi	er	Limits								
-				70-720								
Lab Sample ID: 240-1399 Matrix: Water	68-B-7 MSD						Client S	amp	le ID: N	latrix Spike Prep Typ		
Analysis Batch: 462021	Sample			Spike	-	MSD		_		%Rec.		RPI
Analyte	Result		er	Added		Qualifier	Unit	_ <u>D</u>	%Rec	Limits	RPD	Limi
1,1-Dichloroethene	10			200	191		ug/L		96	64 - 132	10	3
cis-1,2-Dichloroethene	1.6			200	201		ug/L		101	68 - 121	10	3
Tetrachloroethene	10			200	176		ug/L		88	52 - 129	10	35
trans-1,2-Dichloroethene	10			200	198		ug/L		99	69 - 126	11	35
Trichloroethene	10	U		200	165		ug/L		82	56 - 124	11	35
Vinyl chloride	30			200	223		ug/L		97	49 - 136	5	35
	MSD	MSD										
Surrogate	%Recovery	Qualifi	ier	Limits								
1,2-Dichloroethane-d4 (Surr)	99			75 - 130								
4-Bromofluorobenzene (Surr)	108			47 - 134								
Toluene-d8 (Surr)	101			69 - 122								
Dibromofluoromethane (Surr)	82			78 - 129								
Aethod: 8260B SIM - V Lab Sample ID: MB 240-4 Matrix: Water		ganic	Com	pound	s (GC/M	S)		Clie	ent Sam	nple ID: Me Prep Typ		
Lab Sample ID: MB 240-4				pound	s (GC/M	S)		Clie	ent Sam	nple ID: Me Prep Typ		
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393	461393/5	MB M	в	pound		-	D			Prep Typ	e: Tot	tal/NA
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte	461393/5	MB M	в	pound	RL	MDL Unit	D		ent Sarr repared	Prep Typ Analyze	e: Tot	tal/NA Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water	461393/5	MB Mi esult Qu 2.0 U	B ualifier	pound	RL	-	D			Prep Typ	e: Tot	tal/NA Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane	461393/5 Re	MB Mi esult Qu 2.0 U MB M	B ualifier B		<b>RL</b> 2.0	MDL Unit	<u>D</u>	P	repared	Prep Typ Analyze 11/17/20 13	<b>e: Tot</b> d 3:36	tal/NA Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane Surrogate	461393/5 Re	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	Limi	RL 2.0	MDL Unit	<u>D</u>	P		Prep Typ <u>Analyze</u> 11/17/20 13 <u>Analyze</u>	e: Tot d 3:36 -	Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane	461393/5 Re	MB Mi esult Qu 2.0 U MB M	B ualifier B		RL 2.0	MDL Unit	D	P	repared	Prep Typ Analyze 11/17/20 13	e: Tot d 3:36 -	Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane Surrogate	461393/5 Re %Record	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	Limi	RL 2.0	MDL Unit	=	P	repared repared	Prep Typ <u>Analyze</u> 11/17/20 13 <u>Analyze</u>	e: Tot d 3:36 - d 3:36 - rol Sa	Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane Surrogate 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240-	461393/5 Re %Record	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	Limi	<b>RL</b> 2.0 <b>its</b> 133	MDL Unit 0.86 ug/L	=	P	repared repared	Analyze           11/17/20 1:           Analyze           11/17/20 1:           Lab Cont           Prep Typ	e: Tot d 3:36 - d 3:36 - rol Sa	Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water	461393/5 Re %Record	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	Limi	<b>RL</b> 2.0 <b>its</b> 133	MDL Unit	=	P	repared repared	Prep Typ Analyze 11/17/20 13 Analyze 11/17/20 13 Lab Cont	e: Tot d 3:36 - d 3:36 - rol Sa	Dil Fac Dil Fac Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water	461393/5 Re %Record	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	  	RL 2.0 133 LCS	MDL Unit 0.86 ug/L	=	P	repared repared	Analyze           11/17/20 1:           Analyze           11/17/20 1:           Lab Cont           Prep Typ	e: Tot d 3:36 - d 3:36 - rol Sa	tal/NA Dil Fac 1 <i>Dil Fac</i> 1 ample
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393	461393/5 Re %Record	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	<i>Limi</i> 70	RL 2.0 133 LCS	MDL Unit 0.86 ug/L LCS Qualifier	Clien	_P _P t Sai	repared repared mple ID	Prep Typ Analyze 11/17/20 1: Analyze 11/17/20 1: Characterize Characterize Net Cont Prep Typ %Rec.	e: Tot d 3:36 - d 3:36 - rol Sa	tal/NA Dil Fac 1 <i>Dil Fac</i> 1 ample
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte	461393/5 	MB Mi esult Qu 2.0 U MB Mi very Qu	B ualifier B	   Spike 	RL           2.0           its           133           LCS           Result	MDL Unit 0.86 ug/L LCS Qualifier	Clien	_P _P t Sai	repared repared mple ID	Analyze           11/17/20 1:           Analyze           11/17/20 1:           Analyze           11/17/20 1:           Example           11/17/20 1:           Example           Nep           %Rec.           Limits	e: Tot d 3:36 - d 3:36 - rol Sa	tal/NA Dil Fac 1 <i>Dil Fac</i> 1 ample
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte	461393/5 	MB MI 2.0 U MB Mi very Qi 116	B ualifier <i>B</i> ualifier	   Spike 	RL           2.0           its           133           LCS           Result	MDL Unit 0.86 ug/L LCS Qualifier	Clien	_P _P t Sai	repared repared mple ID	Analyze           11/17/20 1:           Analyze           11/17/20 1:           Analyze           11/17/20 1:           Example           11/17/20 1:           Example           Nept           %Rec.           Limits	e: Tot d 3:36 - d 3:36 - rol Sa	Dil Fac Dil Fac Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane	461393/5 	MB MI 2.0 U MB Mi very Qi 116	B ualifier <i>B</i> ualifier		RL           2.0           its           133           LCS           Result	MDL Unit 0.86 ug/L LCS Qualifier	Clien	_P _P t Sai	repared repared mple ID	Analyze           11/17/20 1:           Analyze           11/17/20 1:           Analyze           11/17/20 1:           Example           11/17/20 1:           Example           Nept           %Rec.           Limits	e: Tot d 3:36 - d 3:36 - rol Sa	Dil Fac Dil Fac Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1399	461393/5 Recon -461393/3  LCS %Recovery 109	MB MI 2.0 U MB Mi very Qi 116	B ualifier <i>B</i> ualifier	Limi 70 - Spike Added 10.0	RL           2.0           its           133           LCS           Result	MDL Unit 0.86 ug/L LCS Qualifier	Clien	P 	repared repared mple ID <u>%Rec</u> 110	Analyze           11/17/20 13           Analyze           11/17/20 13           Lab Cont           Prep Typ           %Rec.           Limits           80 - 135	e: Tot <u>d</u> 3:36 	Dil Fac
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1399 Matrix: Water	461393/5 Recon -461393/3  LCS %Recovery 109	MB MI 2.0 U MB Mi very Qi 116	B ualifier <i>B</i> ualifier	Limi 70 - Spike Added 10.0	RL           2.0           its           133           LCS           Result	MDL Unit 0.86 ug/L LCS Qualifier	Clien	P 	repared repared mple ID <u>%Rec</u> 110	Analyze           11/17/20 13           Analyze           11/17/20 13           Lab Cont           Prep Typ           %Rec.           Limits           80 - 135	e: Tot <u>d</u> 3:36 	tal/NA Dil Fac 1 Dil Fac 1 ample tal/NA
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1399	461393/5 	MB Mi esult Qu 2.0 U MB Mi very Qu 116	B ualifier <i>ualifier</i>		RL           2.0           its           133           LCS           Result           11.0	MDL Unit 0.86 ug/L LCS Qualifier	Clien	P 	repared repared mple ID <u>%Rec</u> 110	Analyze           11/17/20 13           Analyze           11/17/20 13           Analyze           11/17/20 13           Example Control           Y: Lab Control           Prep Typ           %Rec.           Limits           80 - 135           mple ID: M           Prep Typ	e: Tot <u>d</u> 3:36 	tal/NA Dil Fac 1 Dil Fac 1 ample tal/NA
Lab Sample ID: MB 240-4 Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: LCS 240- Matrix: Water Analysis Batch: 461393 Analyte 1,4-Dioxane <i>Surrogate</i> 1,2-Dichloroethane-d4 (Surr) Lab Sample ID: 240-1399 Matrix: Water	461393/5 Recor -461393/3 LCS 	MB Mi esult Qu 2.0 U MB Mi very Qu 116	B ualifier <i>B</i> <i>ualifier</i>	Limi 70 - Spike Added 10.0	RL           2.0           its           133           LCS           Result           11.0	MDL Unit 0.86 ug/L LCS Qualifier	Clien	P 	repared repared mple ID <u>%Rec</u> 110	Analyze           11/17/20 13           Analyze           11/17/20 13           Lab Cont           Prep Typ           %Rec.           Limits           80 - 135	e: Tot <u>d</u> 3:36 	tal/NA Dil Fac 1 Dil Fac 1 ample tal/NA

Eurofins TestAmerica, Canton

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

	MS	MS										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	122		70 - 133									
_ Lab Sample ID: 240-1399	57-C-2 MSD					Client	Samn		latrix Spil	ke Dun	licate	
Matrix: Water						onent	oump		Prep Ty			
Analysis Batch: 461393												
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	-
1,4-Dioxane	2.0	U	10.0	12.0		ug/L		120	46 - 170	0	26	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
1,2-Dichloroethane-d4 (Surr)	121		70 - 133									

#### **QC** Association Summary

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

#### **GC/MS VOA**

#### Analysis Batch: 461393

Lab Sample ID 240-139970-2	Client Sample ID MW-151S_110920	Prep Type Total/NA	Matrix Water	Method 8260B SIM	Prep Batch
MB 240-461393/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-461393/3	Lab Control Sample	Total/NA	Water	8260B SIM	
240-139957-C-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-139957-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	
Analysis Batch: 4620	)21				

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-139970-1	TRIP BLANK	Total/NA	Water	8260B	
240-139970-2	MW-151S_110920	Total/NA	Water	8260B	
MB 240-462021/8	Method Blank	Total/NA	Water	8260B	
LCS 240-462021/5	Lab Control Sample	Total/NA	Water	8260B	
240-139968-B-7 MS	Matrix Spike	Total/NA	Water	8260B	
240-139968-B-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

#### Eurofins TestAmerica, Canton

Job ID: 240-139970-1

**Matrix: Water** 

Lab Sample ID: 240-139970-2

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

Batch

Туре

Analysis

P BLANK					Lab Sa	mple ID:	240-139970-1
):00							Matrix: Water
:15							
Batch		Dilution	Batch	Prepared			
Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
8260B			462021	11/20/20 18:26	HMB	TAL CAN	

#### Client Sample ID: MW-151S\_110920 Date Collected: 11/09/20 09:30 Date Received: 11/11/20 09:15

Γ	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	462021	11/20/20 18:51	HMB	TAL CAN
Total/NA	Analysis	8260B SIM		1	461393	11/17/20 22:37	SAM	TAL CAN

#### Laboratory References:

Prep Type

Total/NA

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

Client: ARCADIS U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-139970-1

#### 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	
lowa	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	

	TestAmerica Laboratory location: Brighton 10448 Citation Drive. Suite 200 / Brighton, MI 48116 / 810-229-2763	48 Citation Drive, Suite 200 / Brighton, MI 48116	N CL	THE LEADER IN BY/VIROBAMENTAL TESTINGS
Client Contact	Regulatory program:	NPDES RCRA	Other WITCHHUAN	
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	It ab Contact: Mike DelMonico	TestAmerica Laboratories, Inc. COC No:
Address: 28550 Cabot Drive, Suite 500	Telenhone: 248-994-2240	Telenhone: 734-644-5131	Telenboue: 330-497-9396	
City/State/Zip: Novi, MI, 48377		and look and the second	a constant a	of COCs
Phone: 248-994-2240	Email: kristoffer.hinskey@arcadis.com	Analysis Lurnaround Lime	Analyses	For lab use only
Project Name: Ford LTP Off-Site Project Number: 30050315.402.04	Sampler Name: EUMWA WHARGOCN Method of Shipmen/Carrier:	TAT difficent from below 7 A difficent from below 7 a vecks 7 diveck 7 diveck 2	3	Walk-in client Lab sampling
PO#30050315,402,04	Shipping/Tracking No:		9 85606 55 8560 35608 08	Job/SDG No:
Sample Identification	Sample Date Sample Time Altr.	Eithered Samp Container: Recruiting Container: Recruiting Zanke Haron Haron Haron Haron Haron Haron Haron	Composite	Sample Specific Notes / Special Instructions:
TRIP BLANK	1	2		1 TRIP BLANK
MW-1515 110000	11/2/2000 63000 60	2	XXXXXXXX	3 vars for 8260B
	240-139970 Chain of Custody			
Possible Hazard Identification         Possible         Four Intract Identification           i         Non-Hazard         Identification         Poison B           i         Non-Hazard         Tammable         Tail         Poison B           Special Instructions/OC Requirements & Comments:         Submit all results through Cadena at Jtomalia@cadenaco.com. Cadena #E203631	Irritant Γ Poison B Γ Unknown shaco.com. Cadena #E203631	Sample Disposal ( A fee may be asses Return to Client © Dispot	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) Return to Client @ Disposal By Lab T Archive For Months	
Retinquished by:	Date/Time:	Received by:	Company,	Date(Tinje; )
Relinquished by: WMA 2-Seal	V Company. Arcachus II/10/20/ Company. Arcadus II/10/20 Company. TA Date Ting.	Cold Laboratory	Socret Company: ECCALS	Date Tink: 1530 Date Tink: 1000 1444 Date Tink: 1-20 9.
"He for control to set the set of second and the former of the second of		D		

11/25/2020

Canton Facility	Canton Sample Recei					139970
lient Hradi-	Ś	Site Name			Cooler ur	packed by:
cooler Received on //		Opened on	11-12-20	5	////	M
FedEx: 1st Grd Exp	UPS FAS Clipper	Client Drop Off	TestAmerica	Courier	Other //	11
Receipt After-hours: Dro			Storage 1	ocation	1	
TestAmerica Cooler #		Client Cooler				
COOLANT: Cooler temperature up IR GUN# IR-11 (CF IR GUN #IR-12 (CF Were tamper/custody -Were the seals on t -Were tamper/custo -Were tamper/custo 3. Shippers' packing slip 4. Did custody papers ac 5. Were the custody paper	+0.9 °C) Observed C +0.5 °C) Observed C seals on the outside of the dy seals on the bottle(s) dy seals intact and unco attached to the cooler(s) company the sample(s)? ers relinquished & signe s) who collected the sam n good condition (Unbro (ID/Date/Time) be reco the COC specify preser used for the test(s) indic	Dry Ice Wat Cooler Temp. Cooler Temp. Cooler Temp. the cooler(s)? If Y (s) signed & dated or bottle kits (LL ompromised? )? d in the appropria nples clearly ident oken)? oncided with the Co cvatives (X/N), # c cated?	ter None See Multip C Correct C Correct Yes Quantity d? .Hg/MeHg)? ate place? tified on the CO OC?	le Cooler For ed Cooler T de Cooler T Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	Temp. Temp. No NA No NA No NA No No No No No No No No No No	°C °C Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC
<ol> <li>Are these work share = If yes, Questions 13-1</li> <li>Were all preserved sat Were VOAs on the C</li> <li>Were air bubbles &gt;6 n</li> <li>Was a VOA trip blan</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s)	the cOC? the originating la I upon receipt?	r than this.	Yes Yes Yes Yes	No No No	pH Strip Lot# <u>HC9078</u> 서국 스
<ol> <li>Are these work share = If yes, Questions 13-1</li> <li>Were all preserved san</li> <li>Were VOAs on the C</li> <li>Were air bubbles &gt;6 n</li> <li>Was a VOA trip blan</li> <li>Was a LL Hg or Me I</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present?	the cOC? the originating la I upon receipt? (Larger )? Trip Blank Lot	r than this. t #NA	Yes Yes Yes Yes Yes	NO NO NO NO NO	1.2N
<ol> <li>Are these work share = If yes, Questions 13-1</li> <li>Were all preserved santa.</li> <li>Were VOAs on the C</li> <li>Were air bubbles &gt;6 minute</li> <li>Was a VOA trip blanta</li> <li>Was a LL Hg or Me I</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present?	the cOC? the originating la I upon receipt? (Larger )? Trip Blank Lot	r than this. t #NA	Yes Yes Yes Yes Yes	NO NO NO NO NO	1.2N
<ol> <li>Are these work share : If yes, Questions 13-1</li> <li>Were all preserved san</li> <li>Were VOAs on the C</li> <li>Were air bubbles &gt;6 n</li> <li>Was a VOA trip blan</li> <li>Was a LL Hg or Me I</li> <li>Contacted PM</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present?	the cOC? the originating lai I upon receipt? Larger )? Trip Blank Lot	r than this. t #NA 	Yes Yes Yes Yes Yes	NO NO NO NO NO	1.2N
<ol> <li>Are these work share : If yes, Questions 13-1</li> <li>Were all preserved san</li> <li>Were VOAs on the C</li> <li>Were air bubbles &gt;6 n</li> <li>Was a VOA trip blan</li> <li>Was a LL Hg or Me I</li> <li>Contacted PM</li> <li>Concerning</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present? Date	the COC? the originating la upon receipt? Larger )? Trip Blank Lot	r than this. t #NA 	Yes Yes Yes Yes Verbal V	NO NO NO NO NO	MS 5
<ol> <li>Are these work share : If yes, Questions 13-1</li> <li>Were all preserved san</li> <li>Were VOAs on the C</li> <li>Were air bubbles &gt;6 n</li> <li>Was a VOA trip blan</li> <li>Was a LL Hg or Me I</li> <li>Contacted PM</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present? Date	the COC? the originating la upon receipt? Larger )? Trip Blank Lot	r than this. t #NA	Yes Yes Yes Yes Verbal V	No No No No No No No No No No No	MS 5
<ol> <li>Are these work share : If yes, Questions 13-1          Were all preserved san          Were VOAs on the C          Were vOAs on the C          Were air bubbles &gt;6 i          Was a VOA trip blan          Was a LL Hg or Me H         Contacted PM          Concerning          </li></ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Hg trip blank present? Date DY & SAMPLE DISC	h the COC? the originating laid H upon receipt? Larger )? Trip Blank Lot by Brepancies	r than this. NA	Yes Yes Yes Yes Verbal V	No NA No No No No No Samples pro	her
<ol> <li>Are these work share : If yes, Questions 13-1         3. Were all preserved san         4. Were VOAs on the C         5. Were air bubbles &gt;6 i         6. Was a VOA trip blan         7. Was a LL Hg or Me H         Contacted PM Concerning         8. CHAIN OF CUSTO         9. SAMPLE CONDITI         Sample(s)         </li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s Ig trip blank present? Date Dy & SAMPLE DISC	h the COC? the originating lai I upon receipt? Larger )? Trip Blank Lot by Brepancies were received aff	r than this. t #	Yes Yes Yes Yes Verbal V ext page	No NA No No No No No No Samples pro	her bocessed by:
2. Are these work share : If yes, Questions 13-1 3. Were all preserved san 4. Were VOAs on the C 5. Were air bubbles >6 i 6. Was a VOA trip blan 7. Was a LL Hg or Me H Contacted PM Concerning 8. CHAIN OF CUSTO 9. SAMPLE CONDITI Sample(s) Complexed by	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present? Date Dy & SAMPLE DISC	h the COC? the originating lai I upon receipt? Larger )? Trip Blank Lot by Brepancies  were received aff	t than this. t #NA via  dadditional ne	Yes Yes Yes Yes Verbal V ext page	No NA No No No No No No No Samples pro	her bocessed by: expired. container.
2. Are these work share : If yes, Questions 13-1 3. Were all preserved san 4. Were VOAs on the C 5. Were air bubbles >6 i 6. Was a VOA trip blan 7. Was a LL Hg or Me H Contacted PM Concerning 8. CHAIN OF CUSTO 9. SAMPLE CONDITI Sample(s) Complexed by	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present? Date Dy & SAMPLE DISC	h the COC? the originating lai I upon receipt? Larger )? Trip Blank Lot by Brepancies  were received aff	t than this. t #NA via  dadditional ne	Yes Yes Yes Yes Verbal V ext page	No NA No No No No No No No Samples pro	her bocessed by: expired. container.
<ul> <li>2. Are these work share : If yes, Questions 13-1</li> <li>13. Were all preserved sand the end of the</li></ul>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present? Date Dy & SAMPLE DISC	h the COC? the originating lai I upon receipt? Larger )? Trip Blank Lot by Brepancies  were received aff	t than this. t #NA via  dadditional ne	Yes Yes Yes Yes Verbal V ext page	No NA No No No No No No No Samples pro	her bocessed by: expired. container.
<ol> <li>Are these work share = If yes, Questions 13-1</li> <li>Were all preserved san</li> <li>Were VOAs on the C</li> <li>Were air bubbles &gt;6 n</li> <li>Was a VOA trip blan</li> <li>Was a LL Hg or Me I</li> <li>Contacted PM</li> <li>Concerning</li> </ol>	samples and all listed on 7 have been checked at mple(s) at the correct pH OC? nm in any VOA vials? k present in the cooler(s) Ig trip blank present? Date Date DY & SAMPLE DISC	h the COC? the originating lai H upon receipt? Larger )? Trip Blank Lot by EREPANCIES were received aff were received aff	t than this. t #NA via via additional ne additional ne ter the recomme we eived with bubbl	Yes Yes Yes Yes Verbal V ext page	No NA No No No No No No No No No No No No No	her bocessed by: expired. container.

Login # : 139970

Cooler Description (Circle)	rofins TestAmerica C IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-11_18-12	2.0	2.9	Wettee Blue Ice Dry Ic Water None
The Client Box Other	IR-11 HR-12	1.9	2.8	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12	1.1	0	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12	Colorador a sub-color a secondar and a sub-	ingeneration destand a second at a second	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12		and a second	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12		and the second	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12	and the second	2.10	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12		while you do not a	Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry lo Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry lo Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None
TA Client Box Other	IR-11 IR-12			Wet Ice Blue Ice Dry Ic Water None

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

### **DATA VERIFICATION REPORT**



November 25, 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: 139970-1 Sample date: 2020-11-09 Report received by CADENA: 2020-11-25 Initial Data Verification completed by CADENA: 2020-11-25 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 <u>http://clms.cadenaco.com/index.cfm</u>.

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.
В	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: 139970-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401399 11/9/20	9701			MW-152 2401399 11/9/20		20	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC OSW-8260	סר									
0300-8200	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		2.2	1.0	ug/l	
<u>OSW-8260</u>	<u>OBBSim</u>									
	1,4-Dioxane	123-91-1					ND	2.0	ug/l	



### Ford Motor Company – Livonia Transmission Project

## **DATA REVIEW**

### Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-139970-1 CADENA Verification Report: 2020-11-25

Analyses Performed By: TestAmerica North Canton, Ohio

Report # 39309R Review Level: Tier III Project: 30050315.402.02

### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-139970-1 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		Analy	/sis
Sample ID	Lab ID	Matrix	Collection Date	Parent Sample	VOC (Full Scan)	VOC (SIM)
TRIP BLANK	240-139970-1	Water	11/09/20		Х	
MW-151S_110920	240-139970-2	Water	11/09/20		Х	Х

#### ANALYTICAL DATA PACKAGE DOCUMENTATION

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

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

#### **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.

#### 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, with the exception of the compounds presented in the following table.

Sample ID	Initial/Continuing	Compound	Criteria
TRIP BLANK MW-151S_110920	CCV %D	Trichloroethene	-23.1%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing	RRF <0.05	Non-detect	R
Calibration	1111 50.00	Detect	J

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.01 <sup>1</sup>	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF 20.05 01 RRF 20.01	Detect	NO ACION
	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
Initial Calibration	%RSD > 15% of a correlation coefficient <0.99	Detect	J
		Non-detect	R
	%RSD >90%	Detect	J
		Non-detect	No Action
	%D >20% (increase in sensitivity)	Detect	J
Continuing Colibustion		Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
		Non-detect	R
	%D >90% (increase/decrease in sensitivity)	Detect	J

Note:

<sup>1</sup> RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

#### 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	Re	ported		ormance eptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMET	RY (GC/N	IS)			1
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	X		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	Х				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		Х		Х	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	

#### Notes:

%RSD Relative standard deviation

- %R Percent recovery
- RPD Relative percent difference

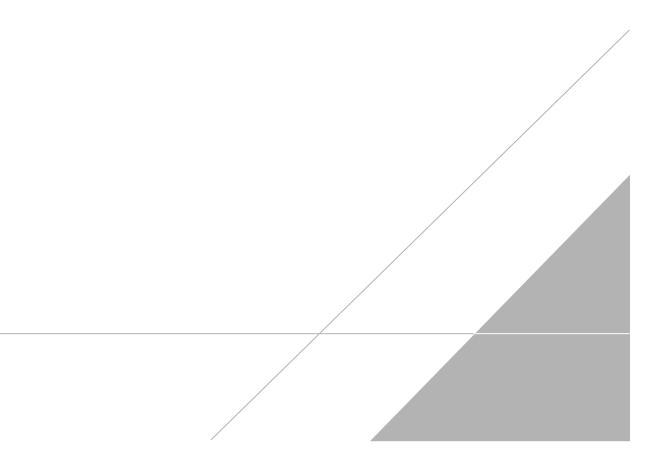
%D Percent difference

VALIDATION PERFORMED BY:	Hrishikesh Upadhyaya
SIGNATURE:	Curindialund
DATE:	December 01, 2020

PEER REVIEW: Andrew Korycinski

DATE: December 02, 2020

## CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



#### **Chain of Custody Record**

### TestAmerica

Client Contact Company Name: Arcadis	Regulat	ory program:		- DW	F	NPDE	5	- RC	RA	F 0	ther			TAT	10		HGAN	N.	TestAmerica Laboratories, In	
	Client Project Manager: Kris Hinskey Site C					Site Contact: Julia McClafferty					Lab Contact: Mike DelMonico							COC No:		
Address: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240			Tele	Telephone: 734-644-5131					Tele	ohone:	330-49	7-939	6					
City/State/Zip: Novi, MI, 48377								around	Ime		-					alvse			of COCs	
Phone: 248-994-2240	Email: kristoff	er.hinskey@ar	cadis.com			Auarys	IS TUTE	around	THE		F	1			Au	aryse		TT	For tab use only	
Project Name: Ford LTP Off-Site	Sampler Name	1 64				if differe		stow 3 weeks											Walk-in client	
Project Number: 30050315.402.04	EMM+ Method of Ship	+ WIT	ners	POCH	2 1	0 day		2 weeks 1 week									_		Lab sampling	
				*	_		F	2 days		£.,	2		8260B			80	3 SIM			
PO # 30050315.402.04	Shipping/Track	ing No:					Г	I day		mple (Y /	60B	8260B	E 826			826	8260B		Job/SDG No:	
				Matrix		Contai	ners &	Preserval	ives		32	8	2-DC	OB	OB	oride	ane 8			
Sample Identification	Sample Date	Sample Time	Air Aqueous	Sediment Solid Other:	H2SO4	HN03	NaOH	ZaAc/ NaOH Unpres	Other:	Filtered	1,1-DCE 8	cis-1,2-DCE	Trans-1,2-DCE	PCE 8260B	TCE 8260B	Vinyl Chloride 8260B	1,4-Dioxane		Sample Specific Notes / Special Instructions:	
TRIP BLANK		-	1			(	T			N	3 X	X	X	x	X	X	<		1 TKIP BLANK 3 Vans For 8260B 3 VOOLS FOI 8260BSI	
MW-1515_110920	11/0 /00	930	6		-	14	,				1	xv	V	V	X	X			3 Vans For 8260B	
1.100 1313-1109 20	1/9/20	730	Q	-+		14	2			120	7	10	X	$\land$	4	$ \land $			3 voerSfei 82601551	
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Possible Hazard Identification																				
✓ Non-Hazard □ lammable □ kin Ir	ritant 🔽 Poise	n B	Unknown				turn to	al ( A fee Client		Disposal				rchive 1		an I n	Months			
Special Instructions/QC Requirements & Comments:																				
Submit all results through Cadena at jtomalia@cader Level IV Reporting requested.	aco.com. Cadena #	E203631																		
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Relinquished by:	A Company	-1	Date	Time	hai	70	Rec	eived in	Laborat	ory by	Y	12	2	-	Comp	any:Z	THE		Date/Time:	
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										//										

#### **Client Sample ID: TRIP BLANK** Date Collected: 11/09/20 00:00

Date Received: 11/11/20 09:15

4-Bromofluorobenzene (Surr)

Toluene-d8 (Surr)

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 18:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			11/20/20 18:26	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			11/20/20 18:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			11/20/20 18:26	1
Trichloroethene	1.0	N UJ	1.0	0.10	ug/L			11/20/20 18:26	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			11/20/20 18:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		75 - 130					11/20/20 18:26	1

47 - 134

69 - 122

78 - 129

#### Dibromofluoromethane (Surr) 93 Client Sample ID: MW-151S 110920 Date Collected: 11/09/20 09:30

101

99

#### Date Received: 11/11/20 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 11/17/20 22:37 0.86 ug/L 1 Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 129 70 - 133 11/17/20 22:37 1 Method: 8260B - Volatile Organic Compounds (GC/MS) Analyte MDL Unit **Result Qualifier** RL D Prepared Analyzed Dil Fac 1,1-Dichloroethene 1.0 U 1.0 0.19 ug/L 11/20/20 18:51 1 cis-1.2-Dichloroethene 1.0 U 1.0 11/20/20 18:51 0.16 ug/L 1 Tetrachloroethene 1.0 U 1.0 0.15 ug/L 11/20/20 18:51 1 trans-1.2-Dichloroethene 1.0 11/20/20 18:51 1.0 U 0.19 ug/L 1 Trichloroethene 1.0 🔪 UJ 1.0 0.10 ug/L 11/20/20 18:51 1 1.0 0.20 ug/L 11/20/20 18:51 1 **Vinyl chloride** 2.2

Surrogate	%Recovery	Qualifier Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114	75 - 13	30	11/20/20 18:51	1
4-Bromofluorobenzene (Surr)	102	47 - 13	34	11/20/20 18:51	1
Toluene-d8 (Surr)	99	69 - 12	22	11/20/20 18:51	1
Dibromofluoromethane (Surr)	96	78 - 12	29	11/20/20 18:51	1

Job ID: 240-139970-1

#### Lab Sample ID: 240-139970-1 Matrix: Water

Lab	Sam	ple	ID:	240-1	39970-2

11/20/20 18:26

11/20/20 18:26

11/20/20 18:26

Matrix: Water

1

1

1