

### **Environment Testing America**

### **ANALYTICAL REPORT**

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

Laboratory Job ID: 240-134681-1 Client Project/Site: Ford LTP Off-Site

For:

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

Attn: Kristoffer Hinskey

Mode Del Your

Authorized for release by: 8/21/2020 10:48:50 AM

Michael DelMonico, Project Manager I (330)497-9396

Michael.DelMonico@Eurofinset.com

·····LINKS ······

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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.

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

Laboratory Job ID: 240-134681-1

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### **Definitions/Glossary**

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

### **Qualifiers**

### **GC/MS VOA**

Qualifier Qualifier Description

U Indicates the analyte was analyzed for but not detected.

X Surrogate recovery exceeds control limits

### **Glossary**

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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Eisted 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

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### **Case Narrative**

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

Job ID: 240-134681-1

Job ID: 240-134681-1

Laboratory: Eurofins TestAmerica, Canton

**Narrative** 

### **CASE NARRATIVE**

Client: ARCADIS U.S., Inc.

**Project: Ford LTP Off-Site** 

Report Number: 240-134681-1

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 8/8/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.3° C.

### **VOLATILE ORGANIC COMPOUNDS (GCMS)**

Samples TRIP BLANK (240-134681-1) and MW-126S\_080620 (240-134681-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/18/2020.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for TRIP BLANK (240-134681-1) and MB 240-447614/6. Refer to the QC report for details.

The continuing calibration verification (CCV) associated with batch 447614 recovered above the upper control limit for Vinyl Chloride. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: TRIP BLANK (240-134681-1) and MW-126S\_080620 (240-134681-2).

Surrogate recovery for the method blank was outside the upper control limit: (MB 240-447614/6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside the upper control limit: TRIP BLANK (240-134681-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Eurofins TestAmerica, Canton 8/21/2020

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### **Case Narrative**

Client: ARCADIS U.S., Inc.

Job ID: 240-134681-1 Project/Site: Ford LTP Off-Site

### Job ID: 240-134681-1 (Continued)

### Laboratory: Eurofins TestAmerica, Canton (Continued)

No MS/MSD in batch 447614 due to MSD exceeding 12 hour tune time window: TRIP BLANK (240-134681-1) and MW-126S\_080620 (240-134681-2).

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

### **VOLATILE ORGANIC COMPOUNDS (GCMS SIM)**

Sample MW-126S\_080620 (240-134681-2) was analyzed for volatile organic compounds (GCMS SIM) in accordance with EPA SW-846 Method 8260B SIM. The sample was analyzed on 08/14/2020.

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: 240-134681-1

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

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### **Sample Summary**

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

Job ID: 240-134681-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134681-1	TRIP BLANK	Water	08/06/20 00:00	08/08/20 10:00	
240-134681-2	MW-126S_080620	Water	08/06/20 10:40	08/08/20 10:00	

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### **Detection Summary**

Client: ARCADIS U.S., Inc.

Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134681-1

No Detections.

No Detections.

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### **Client Sample Results**

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

**Client Sample ID: TRIP BLANK** 

Lab Sample ID: 240-134681-1 Date Collected: 08/06/20 00:00

**Matrix: Water** 

Date Received: 08/08/20 10:00

Method: 8260B - Volatile Org	anic Compo	unds (GC/	MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 14:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 14:09	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 14:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 14:09	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 14:09	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130					08/18/20 14:09	1
4-Bromofluorobenzene (Surr)	111		47 - 134					08/18/20 14:09	1
Toluene-d8 (Surr)	115		69 - 122					08/18/20 14:09	1
Dibromofluoromethane (Surr)	132	X	78 - 129					08/18/20 14:09	1

### **Client Sample Results**

Client: ARCADIS U.S., Inc.

Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

Client Sample ID: MW-126S\_080620

Date Collected: 08/06/20 10:40

Date Received: 08/08/20 10:00

Surrogate

Toluene-d8 (Surr)

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Lab Sample ID: 240-134681-2

Prepared

Analyzed

08/18/20 14:31

08/18/20 14:31

08/18/20 14:31

08/18/20 14:31

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 18:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 133					08/14/20 18:42	1
Method: 8260B - Volatile C Analyte	•	unds (GC/ Qualifier	MS) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 8260B - Volatile C	rganic Compo	unds (GC/	MS)						
Analyte	Result	Qualifier	RL			D	Prepared	- <b>-</b>	Dil Fac
Analyte 1,1-Dichloroethene	Result 1.0	Qualifier U	1.0 —	0.46	ug/L	<u>D</u> .	Prepared	08/18/20 14:31	Dil Fac
Analyte	Result	Qualifier U U	RL	0.46 0.38		<u>D</u> .	Prepared	- <b>-</b>	Dil Fac 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result 1.0 1.0	Qualifier U U U	RL 1.0 1.0	0.46 0.38	ug/L ug/L ug/L	<u> </u>	Prepared	08/18/20 14:31 08/18/20 14:31	Dil Fac 1 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene	Result 1.0 1.0 1.0	Qualifier U U U U	1.0 1.0 1.0	0.46 0.38 0.33	ug/L ug/L ug/L ug/L	<u>D</u> .	Prepared	08/18/20 14:31 08/18/20 14:31 08/18/20 14:31	Dil Fac 1 1 1 1 1 1 1

Limits

75 - 130

47 - 134

69 - 122

78 - 129

%Recovery Qualifier

100

93

104

120

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Dil Fac

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### **Surrogate Summary**

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

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

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

DCA BFB TOL DBFM Lab Sample ID (75-130) (47-134) (69-122) (78-129)
Lab Sample ID Client Sample ID (75-130) (47-134) (69-122) (78-129)
Lab Cample ib (10 100) (11 101) (10 122)
240-134681-1 TRIP BLANK 113 111 115 132 X
240-134681-2 MW-126S_080620 100 93 104 120
LCS 240-447614/4 Lab Control Sample 94 97 98 118
MB 240-447614/6 Method Blank 115 115 121 135 X

**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)					
240-134654-A-2 MS	Matrix Spike	88					
240-134654-A-2 MSD	Matrix Spike Duplicate	83					
240-134681-2	MW-126S_080620	91					
LCS 240-447208/4	Lab Control Sample	87					
MB 240-447208/5	Method Blank	88					

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

Eurofins TestAmerica, Canton

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

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

Lab Sample ID: M	B 240-447614/6
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**Matrix: Water** 

**Analysis Batch: 447614** 

Client Samp	ole ID:	Metho	od Blank	
	Prep '	Type:	Total/NA	

_	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 12:39	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 12:39	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 12:39	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 12:39	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 12:39	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 12:39	1

	MB	MB				
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (S	Surr) 115		75 - 130		08/18/20 12:39	1
4-Bromofluorobenzene (	Surr) 115		47 - 134		08/18/20 12:39	1
Toluene-d8 (Surr)	121		69 - 122		08/18/20 12:39	1
Dibromofluoromethane (	Surr) 135	X	78 - 129		08/18/20 12:39	1

Lab Sample ID: LCS 240-447614/4

**Matrix: Water** 

Analysis Batch: 447614

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

Spi	ke LCS	LCS			%Rec.	
Analyte Add	ed Result	Qualifier Unit	t D	%Rec	Limits	
1,1-Dichloroethene	0.0 11.4	ug/L	<del></del>	114	73 - 129	
cis-1,2-Dichloroethene	).0 11.5	ug/L	-	115	75 - 124	
Tetrachloroethene 10	0.0 10.9	ug/L	-	109	70 - 125	
trans-1,2-Dichloroethene 10	0.0 11.6	ug/L	-	116	74 - 130	
Trichloroethene 10	0.0 10.5	ug/L	-	105	71 - 121	
Vinyl chloride 10	0.0 12.2	ug/L	-	122	61 - 134	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		75 - 130
4-Bromofluorobenzene (Surr)	97		47 - 134
Toluene-d8 (Surr)	98		69 - 122
Dibromofluoromethane (Surr)	118		78 - 129

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

Lab Sample ID: MB 240-44720 Matrix: Water Analysis Batch: 447208	08/5						Client Sam	ple ID: Method Prep Type: To	
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 12:26	1
	МВ	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		70 - 133			-		08/14/20 12:26	

8/21/2020

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Client: ARCADIS U.S., Inc. Project/Site: Ford LTP Off-Site Job ID: 240-134681-1

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

Lab Sample ID: LCS 240-447208/4

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

**Analysis Batch: 447208** 

**Matrix: Water** 

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits 1,4-Dioxane 10.0 106 80 - 135 10.6 ug/L

LCS LCS

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 87 70 - 133

Lab Sample ID: 240-134654-A-2 MS **Client Sample ID: Matrix Spike** Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 447208** 

Sample Sample Spike MS MS %Rec. Result Qualifier Added Analyte Result Qualifier Unit D %Rec Limits 46 - 170

1,4-Dioxane 2.0 U 10.0 10.3 103 ug/L

MS MS Limits Surrogate %Recovery Qualifier 1,2-Dichloroethane-d4 (Surr) 88 70 - 133

Lab Sample ID: 240-134654-A-2 MSD Client Sample ID: Matrix Spike Duplicate Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 447208** 

Sample Sample Spike MSD MSD %Rec. **RPD** Analyte Result Qualifier Added Limits RPD Limit Result Qualifier Unit D %Rec 1,4-Dioxane 2.0 U 10.0 10.1 ug/L 101 46 - 170

Surrogate %Recovery Qualifier Limits 70 - 133 1,2-Dichloroethane-d4 (Surr) 83

MSD MSD

Eurofins TestAmerica, Canton

### **QC Association Summary**

Client: ARCADIS U.S., Inc.

Project/Site: Ford LTP Off-Site

Job ID: 240-134681-1

**GC/MS VOA** 

**Analysis Batch: 447208** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134681-2	MW-126S_080620	Total/NA	Water	8260B SIM	
MB 240-447208/5	Method Blank	Total/NA	Water	8260B SIM	
LCS 240-447208/4	Lab Control Sample	Total/NA	Water	8260B SIM	
240-134654-A-2 MS	Matrix Spike	Total/NA	Water	8260B SIM	
240-134654-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B SIM	

Analysis Batch: 447614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134681-1	TRIP BLANK	Total/NA	Water	8260B	
240-134681-2	MW-126S_080620	Total/NA	Water	8260B	
MB 240-447614/6	Method Blank	Total/NA	Water	8260B	
LCS 240-447614/4	Lab Control Sample	Total/NA	Water	8260B	

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### **Lab Chronicle**

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-134681-1

Date Collected: 08/06/20 00:00 Matrix: Water Date Received: 08/08/20 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B			447614	08/18/20 14:09	LEE	TAL CAN

Date Collected: 08/06/20 10:40 Date Received: 08/08/20 10:00

Batch Batch Dilution Batch Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab Analysis 447614 08/18/20 14:31 LEE TAL CAN Total/NA 8260B Total/NA Analysis 8260B SIM 1 447208 08/14/20 18:42 SAM TAL CAN

Laboratory References:

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

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**Matrix: Water** 

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### **Accreditation/Certification Summary**

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1 Project/Site: Ford LTP Off-Site

**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	07-31-20 *
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	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

<sup>\*</sup> Accreditation/Certification renewal pending - accreditation/certification considered valid.

	Test America Laboratory location: Brighton 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763	tion Drive, Suite 200 / Brighton, MI 48116 / 810-229-27	63	THE LEADER IN CHAIRDNMENTAL TESTING
Client Contact	Regulatory program: DW	NPDES RCRA Other		
Company Name: Areams	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
Address: 28550 Cabot Drive, Suite 500	Telephone, 248-094-2240	Telenhane 734-644-5131	Tolenhone: 130-407-0306	
City/State/Zip: Novi, MI, 48377	OLE - LO COLO -		occasional and a second	( of ') COCs
Phone: 248-994-2240	Email: kristoffer.hinskey@arcadis.com	Analysis I urnaround 1 me	Analyses	For lab use only
Project Name: Ford LTP Off-Site	Sampler Name: Willes Com	TAT it different from below  3 weeks		Walk-in client
Project Number: 30050315,402,04	rier:	☐ I week ☐ 2 days		Studente ora
PO#30050315,402.04	Shipping/Tracking No:	le (Y /	8560B	Job/SDG No:
	Matrix	8260	DUQS OB	
Sample Identification	Sample Date Sample Time Air Solid Other:	1,1-DCE Composit Unpres Unpres Mach Mach HXSO4 HXSO4	cis-1,2-Dioxa	Sample Specific Notes / Special Instructions:
TRIP BLANK	8/6/1020 - X	X BO	X X X X X	TRIP BLANK
MIN 12/5 ASKO	C11. Jan 14110 X		-	
27 mon (971 - M:1	062 8000		XXXXX	3 years for \$ 260 \$
		240-134681 Chain of Custody		
Possible Hazard Identification	ein Irriant Doison R Indenoun	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	s are retained longer than I month)	
s/QC Requirements & Commen		Actual to Citem Tasposal by Lao	AKRIIVE FOF	
Submit all results through Cadena at Itomalia@cadenaco.com. Cadena #E203631 Level IV Reporting requested.	cadenaco.com, Cadena #E203831			
Relinquished by:	Date/Time:	Cald	Сотра	Date/Time:
Relinquished by:	Company: Date Time:	Received by A A	Storage Afroads	0
amber Brannick	215	0915	670	81772 ON
Manufarance of:	Company 614	OALD Received of Aboratory by	Company:	Date/Time:
		X 2000 1100 1100 1100 1100 1100 1100 110	1111	0

Eurofins TestAmerica Canton Sample Receipt Form/Narrative	Login #: 3468)
Canton Facility	Cooler unpacked by:
Client Arcadis Site Name	1 1 1
Cooler Received on 8-8-2e Opened on 8-8-2e	Adam Janey
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier	Other
Receipt After-hours: Drop-off Date/Time Storage Location	
TestAmerica Cooler # Foam Box Client Cooler Box Other  Packing material used: Bubble Wrap Foam Plastic Bag None 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 Fo	orm
IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler	
IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 3.4°C Corrected Cooler	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  -Were tamper/custody seals intact and uncompromised?  Shippers' packing slip attached to the cooler(s)?  Did custody papers accompany the sample(s)?  Were the custody papers relinquished & signed in the appropriate place?  Was/were the person(s) who collected the samples clearly identified on the COC?  Did all bottles arrive in good condition (Unbroken)?  Could all bottle labels be reconciled with the COC?  Were correct bottle(s) used for the test(s) indicated?  Sufficient quantity received to perform indicated analyses?  If yes, Questions 12-16 have been checked at the originating laboratory.  Were all preserved sample(s) at the correct pH upon receipt?  Were VOAs on the COC?  Were air bubbles >6 mm in any VOA vials?  Larger than this.	Tests that are not checked for pH by Receiving:  VOAs Oil and Grease TOC  S No N
Contacted PM Date by via Verbal V	Voice Mail Other
Concerning	
17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by:
18. SAMPLE CONDITION	
Sample(s) were received after the recommended hold	
	d in a broken container.
Sample(s) were received with bubble >6 mm	in diameter. (Notify PM)
19. SAMPLE PRESERVATION	
Sample(c)	urther preserved in the laborates.
Sample(s) were full Time preserved: Preservative(s) added/Lot number(s):	orther preserved in the laboratory.
VOA Sample Preservation - Date/Time VOAs Frozen:	

WI-NC-099

### DATA VERIFICATION REPORT



August 21, 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: 30050315.0402.04 off site

Event Specific Scope of Work References: Sample COC

Laboratory: TestAmerica - North Canton

Laboratory submittal: 134681-1 Sample date: 2020-08-06

Report received by CADENA: 2020-08-21

Initial Data Verification completed by CADENA: 2020-08-21

Number of Samples: 1 Water and 1 trip blank

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.

The following minor QC exceptions or missing information were noted:

GCMS VOC surrogate recoveries were outside of laboratory control limits biased HIGH for at least 1 surrogate. All associated results were non-detect so qualification was not required based on these high bias QC outliers: QC batch 447614 method blank and sample -001.

GCMS VOC CCV STANDARD response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

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 <a href="http://clms.cadenaco.com/index.cfm">http://clms.cadenaco.com/index.cfm</a>.

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.
Е	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**

**CADENA Project ID:** E203631

**Laboratory:** TestAmerica - North Canton

**Laboratory Submittal:** 134681-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2401346 8/6/202	5811			MW-120 2401340 8/6/202	- 6812	20	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-826	<u>50B</u>									
	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-826	50BBSim									
	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 # 240-134681-1

CADENA Verification Report: 2020-08-21

Analyses Performed By:

TestAmerica

Edison, New Jersey

Report #38047R Review Level: Tier III Project: 30050315.402.02

### **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-134681-1 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:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	VOC (Full Scan)	Analysis VOC (SIM)	MISC
0.40.40.400.4.4	TRIP BLANK	240-134681-1	Water	8/6/2020		X		
240-134681-1	MW-126S_080620	240-134681-2	Water	8/6/2020		Х	Х	

### **ANALYTICAL DATA PACKAGE DOCUMENTATION**

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

	Rep	orted		rmance ptable	Not
Items Reviewed	No	Yes	No	Yes	Required
Sample receipt condition		Х		Х	
2. Requested analyses and sample results		Х		Х	
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	
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.

#### 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 was not performed on a sample within 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 SPECTROMETE	RY (GC/N	/IS)			
Tier II Validation					
Holding times/Preservation		Х		X	
Tier III Validation					
System performance and column resolution		Х		X	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		X	
Continuing calibration %Ds		Х		Х	
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		X	
Field Duplicate RPD		Х		Х	
Internal standard		Х		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		X	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		X	
E. Reporting limits adjusted to reflect sample dilutions		Х		X	
Notes:					

### Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE:

DATE: August 27, 2020

Juph c. House

PEER REVIEW: Andrew Korycinski

DATE: August 27, 2020

# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

## NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS

### **Client Sample Results**

Client: ARCADIS U.S., Inc. Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

**Client Sample ID: TRIP BLANK** 

Lab Sample ID: 240-134681-1 Date Collected: 08/06/20 00:00

**Matrix: Water** 

Date Received: 08/08/20 10:00

Method: 8260B - Volatile Org	anic Compo	unds (GC/	MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/18/20 14:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/18/20 14:09	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/18/20 14:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/18/20 14:09	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/18/20 14:09	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/18/20 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 130					08/18/20 14:09	1
4-Bromofluorobenzene (Surr)	111		47 - 134					08/18/20 14:09	1
Toluene-d8 (Surr)	115		69 - 122					08/18/20 14:09	1
Dibromofluoromethane (Surr)	132	X	78 - 129					08/18/20 14:09	1

### **Client Sample Results**

Client: ARCADIS U.S., Inc.

Job ID: 240-134681-1

Project/Site: Ford LTP Off-Site

Client Sample ID: MW-126S\_080620

Date Collected: 08/06/20 10:40

Date Received: 08/08/20 10:00

Surrogate

Toluene-d8 (Surr)

1,2-Dichloroethane-d4 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Lab Sample ID: 240-134681-2

Prepared

Analyzed

08/18/20 14:31

08/18/20 14:31

08/18/20 14:31

08/18/20 14:31

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			08/14/20 18:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		70 - 133					08/14/20 18:42	1
Method: 8260B - Volatile C Analyte	•	unds (GC/ Qualifier	MS) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Method: 8260B - Volatile C	Organic Compo	unds (GC/	MS)						
Analyte	Result	Qualifier	RL			D	Prepared	- <b>-</b>	Dil Fac
Analyte 1,1-Dichloroethene	Result 1.0	Qualifier U	1.0 —	0.46	ug/L	<u>D</u> .	Prepared	08/18/20 14:31	Dil Fac
Analyte	Result	Qualifier U U	RL	0.46 0.38		<u>D</u> .	Prepared	- <b>-</b>	Dil Fac 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene	Result 1.0 1.0	Qualifier U U U	1.0 1.0	0.46 0.38 0.33	ug/L ug/L	<u> </u>	Prepared	08/18/20 14:31 08/18/20 14:31	Dil Fac 1 1 1 1
Analyte 1,1-Dichloroethene cis-1,2-Dichloroethene Tetrachloroethene	Result 1.0 1.0 1.0	Qualifier U U U U	1.0 1.0 1.0	0.46 0.38 0.33 0.43	ug/L ug/L ug/L	<u>D</u> .	Prepared	08/18/20 14:31 08/18/20 14:31 08/18/20 14:31	Dil Fac 1 1 1 1 1 1 1

Limits

75 - 130

47 - 134

69 - 122

78 - 129

%Recovery Qualifier

100

93

104

120

4

5

7

8

10

11

Dil Fac

13

Client Contact	TestAmerica Laboratory location: Brighton 10448 Citation Drive, Suite 2007 Engiton, MI 48116 7 810-229-2763	on Drive, Suite 200 / Brighton, MI 48116 / 810-22	0017.0	THE PERSON OF THE PROPERTY OF THE PROPERTY OF
Comment Manner Amendia	Regulatory program: DW	□ NPDES □ RCRA □ Other		
Company Name: Arcadis	Client Project Manager: Kris Hinskey	Site Contact: Julia McClafferty	Lab Contact: Mike DelMonico	COC No:
Address: 28550 Cabot Drive, Suite 500	Telembone: 248-004-2240	Telenhone, 734,644,5131	Telenhone: 130,407,0306	
City/State/Zip: Novi, MI, 48377	OLEGA TO STATE AND	receptories controlled	neggette Longe sammelana	( of ') COCs
Phone: 248-994-2240	Email: kristoffer.hinskey@arcadis.com	Analysis I urnaround 11me	Analyses	For lab use only
Project Name: Ford LTP Off-Site	Sampler Name:	TAT'if different from below  3 weeks		Walk-in client
Project Number: 30050315,402,04	rier:	☐ I week ☐ 2 days		Sinding
PO#30050315.402.04	Shipping/Tracking No:	le (Y /	8560B	Job/SDG No:
	Matrix	J=1	08 -DCE 80	
Sample Identification	Sample Date Sample Time Art Solid Order:	17-DCE HAO3 HAO3 HAO3 HAO3 HAC1 HAO3	cle-1,2-Dioxa	Sample Specific Notes / Special Instructions:
TRIP BLANK	8/6/1020 - X	X A A	X X X X X	1 TRIP BLANK
MILLIONS STORY	X (1/4) (1/4)		17	
7 mon 5971-M.	060 8000	5	XXXXX	3 year for \$ 260 g
		240-134681 Chain of Custody		
Possible Hazard Identification	cin Irriant Poison B Unknown	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	uples are retained longer than 1 month)	
s/QC Requirements & Commen		Neturn to Cuern	TO ANGING FOLL MOBILIS	
Submit all results through Cadena at Itomalia@cadenaco.com. Cadena #E203531 Level IV Reporting requested.	adenaco.com. Cadena #E203831			
Relinquished by: How	Date/Time:	Received by:	Сотра	Date/Time: 1672
Relinguished by:	Company Date Time	Received by A	Storage Arcadio	0
ander Brannick	215	0915	O Company 610	81712 ON
Keinquisned by:	Company 614 8/7/10	O310 Received of aboratory by:	Company:	Date/Time:
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