

## ANALYTICAL REPORT

Job Number: 280-116270-2

Job Description: Leidos RFP# 001088 - Ravenna AAP-66

For:

Leidos, Inc.  
Picatinny Arsenal  
356 Ninth Avenue  
Suite 106  
Dover, NJ 07801

Attention: Rita Schmon-Stasik



Approved for release.  
Donna R Rydberg  
Senior Project Manager  
11/23/2018 3:46 PM

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Donna R Rydberg, Senior Project Manager  
4955 Yarrow Street, Arvada, CO, 80002  
(303)736-0192  
donna.rydberg@testamericainc.com  
11/23/2018

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

**TestAmerica Laboratories, Inc.**

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002  
Tel (303) 736-0100 Fax (303) 431-7171 [www.testamericainc.com](http://www.testamericainc.com)

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# Definitions/Glossary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

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## Qualifiers

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### General Chemistry

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

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## Glossary

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Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

## **CASE NARRATIVE**

**Client: Leidos, Inc.**

**Project: Leidos RFP# 001088 - Ravenna AAP-66**

**Report Number: 280-116270-2**

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.

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.

### **RECEIPT**

The samples were received on 10/27/2018 at 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 8 coolers at receipt time were 1.0° C, 1.2° C, 1.5° C, 2.3° C, 2.8° C, 3.2° C, 4.8° C and 5.0° C.

This report contains the data for the Hexavalent chromium samples as the TestAmerica North Canton laboratory does not have DOD certs for Hexavalent chromium. All other tests on the COC will be reported under job 280-116270-1.

### **HEXAVALENT CHROMIUM**

Samples FWGmw-020-181001-GW (280-116270-9) and LL3mw-244-181001-GW (280-116270-12) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 7196A. The samples were analyzed on 10/26/2018.

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

## Detection Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

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**Client Sample ID: FWGmw-020-181001-GW**

**Lab Sample ID: 280-116270-9**

No Detections.

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**Client Sample ID: LL3mw-244-181001-GW**

**Lab Sample ID: 280-116270-12**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

# Client Sample Results

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

## General Chemistry

**Client Sample ID: FWGmw-020-181001-GW**

**Date Collected: 10/26/18 10:00**

**Date Received: 10/27/18 08:50**

**Lab Sample ID: 280-116270-9**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Hexavalent chromium	0.010	U	0.020	0.010	0.0030	mg/L	10/26/18 16:46	1

**Client Sample ID: LL3mw-244-181001-GW**

**Date Collected: 10/26/18 08:50**

**Date Received: 10/27/18 08:50**

**Lab Sample ID: 280-116270-12**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Hexavalent chromium	0.010	U	0.020	0.010	0.0030	mg/L	10/26/18 16:45	1

# Default Detection Limits

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

## General Chemistry

Analyte	RL	MDL	Units	Method
Hexavalent chromium	0.020	0.0030	mg/L	7196A



# QC Sample Results

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

## Method: 7196A - Chromium, Hexavalent

**Lab Sample ID: MB 240-352078/36**  
**Matrix: Water**  
**Analysis Batch: 352078**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac
Hexavalent chromium	0.010	U	0.020	0.010	0.0030 mg/L		10/26/18 14:30	1

**Lab Sample ID: LCS 240-352078/37**  
**Matrix: Water**  
**Analysis Batch: 352078**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexavalent chromium	0.250	0.236		mg/L		94	80 - 123

# QC Association Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

## General Chemistry

### Analysis Batch: 352078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116270-9	FWGmw-020-181001-GW	Total/NA	Water	7196A	
280-116270-12	LL3mw-244-181001-GW	Total/NA	Water	7196A	
MB 240-352078/36	Method Blank	Total/NA	Water	7196A	
LCS 240-352078/37	Lab Control Sample	Total/NA	Water	7196A	

# Lab Chronicle

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

**Client Sample ID: FWGmw-020-181001-GW**

**Lab Sample ID: 280-116270-9**

**Date Collected: 10/26/18 10:00**

**Matrix: Water**

**Date Received: 10/27/18 08:50**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	50 mL	50 mL	352078	10/26/18 16:46	BLW	TAL CAN

**Client Sample ID: LL3mw-244-181001-GW**

**Lab Sample ID: 280-116270-12**

**Date Collected: 10/26/18 08:50**

**Matrix: Water**

**Date Received: 10/27/18 08:50**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	50 mL	50 mL	352078	10/26/18 16:45	BLW	TAL CAN

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Leidos, Inc.  
 Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

## Laboratory: TestAmerica Denver

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

## Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18 *
Minnesota	NELAP	5	039-999-348	12-31-18 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18 *

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

# Method Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

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<b>Method</b>	<b>Method Description</b>	<b>Protocol</b>	<b>Laboratory</b>
7196A	Chromium, Hexavalent	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 = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

# Sample Summary

Client: Leidos, Inc.  
Project/Site: Leidos RFP# 001088 - Ravenna AAP-66

TestAmerica Job ID: 280-116270-2

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
280-116270-9	FWGmw-020-181001-GW	Water	10/26/18 10:00	10/27/18 08:50
280-116270-12	LL3mw-244-181001-GW	Water	10/26/18 08:50	10/27/18 08:50

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Canton Job No.: 280-116270-2

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
<b>WCCHROME50PM2 00023</b>	03/11/19	09/11/18	DIWATER, Lot 052014	1000 mL	WCKDICHROME62_00003	0.1414 g	Hexavalent chromium	49.9764 mg/L
.WCKDICHROME62_00003	06/06/19		Fisher, Lot 140919		(Purchased Reagent)		Hexavalent chromium	0.35344 g/g
<b>WCCHROME50PPM 00025</b>	03/11/19	09/11/18	DIWATER, Lot 052014	1000 mL	WCKDICHROME62_00004	0.1414 g	Hexavalent chromium	49.9764 mg/L
.WCKDICHROME62_00004	09/07/21		Fisher, Lot 126893		(Purchased Reagent)		Hexavalent chromium	0.35344 g/g

Reagent

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**WCKDICHROME62\_00003**





1 Reagent Lane  
 Fair Lawn, NJ 07410  
 201.796.7100 tel  
 201.796.1329 fax

## Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0064970

This is to certify that units of the above mentioned lot number were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained:

<b>Catalog Number</b>	P188	<b>Quality Test / Release Date</b> 2/25/2014	
<b>Lot Number</b>	140919		
<b>Description</b>	POTASSIUM DICHROMATE, A.C.S.		
<b>Country of Origin</b>	United States	<b>* Suggested Retest Date</b>	Feb-2019
<b>Chemical Origin</b>	Inorganic-non animal		
<b>BSE/TSE Comment</b>	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	FINE ORANGE-RED CRYSTALS
ASSAY	%	>= 99	99.9
CALCIUM	%	<= 0.003	0.0010
CHLORIDE	%	<= 0.001	<0.0010
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
INSOLUBLE MATTER	%	<= 0.005	0.002
IRON (Fe)	%	<= 0.001	0.0010
LOSS ON DRYING @ 105 C	%	<= 0.05	0.02
SODIUM (Na)	%	<= 0.02	0.001
SULFATE (SO4)	%	<= 0.005	0.002



Edgar E. Hara

**Lab Manager Fair Lawn**

Note: The data listed is valid for all package sizes of this lot of this product, expressed as a extension of this catalog number listed above. If there are any questions with this certificate, please call Chemical Services at (800) 227-6701.  
 \*Based on suggested storage condition.

Reagent

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**WCKDICHROME62\_00004**



1 Reagent Lane  
 Fair Lawn, NJ 07410  
 201.796.7100 tel  
 201.796.1329 fax

## Certificate of Analysis

Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by DNV Certificate number CERT-08052-2006-AQ-HOU-ANAB

This is to certify that units of the above mentioned lot number were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing. Fisher does not claim regulatory coverage under 21 CFR nor maintain DMF's with the FDA. The following are the actual analytical results obtained:

<b>Catalog Number</b>	P188	<b>Mfg. Date</b>	11/16/2012
<b>Lot Number</b>	126893		
<b>Description</b>	POTASSIUM DICHROMATE, A.C.S.		
<b>Country of Origin</b>	United States	<b>Recommended Retest Date</b>	Nov-2017
<b>Chemical Origin</b>	Inorganic-non animal		
<b>BSE/TSE Comment</b>	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	Fine, orange-red powder
ASSAY	%	>= 99	99.8
CALCIUM	%	<= 0.003	<0.0010
CHLORIDE	%	<= 0.001	<0.0010
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
INSOLUBLE MATTER	%	<= 0.005	0.004
IRON (Fe)	%	<= 0.001	0.0010
LOSS ON DRYING @ 105 C	%	<= 0.05	0.03
SODIUM (Na)	%	<= 0.02	0.005
SULFATE (SO4)	%	<= 0.005	0.003



Edgar E. Hara

**Lab Manager Fair Lawn**

Note: The data listed is valid for all package sizes of this lot of this product, expressed as a extension of this catalog number listed above. If there are any questions with this certificate, please call Chemical Services at (800) 227-6701.

# GENERAL CHEMISTRY

COVER PAGE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job Number: 280-116270-2

SDG No.: \_\_\_\_\_

Project: Leidos RFP# 001088 - Ravenna AAP-66

Client Sample ID	Lab Sample ID
<u>FWGmw-020-181001-GW</u>	<u>280-116270-9</u>
<u>LL3mw-244-181001-GW</u>	<u>280-116270-12</u>

Comments:

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1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: FWGmw-020-181001-GW

Lab Sample ID: 280-116270-9

Lab Name: TestAmerica Canton

Job No.: 280-116270-2

SDG ID.: \_\_\_\_\_

Matrix: Water

Date Sampled: 10/26/2018 10:00

Reporting Basis: WET

Date Received: 10/27/2018 08:50

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Hexavalent chromium	0.010	0.020	0.0030	mg/L	U		1	7196A

1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: LL3mw-244-181001-GW

Lab Sample ID: 280-116270-12

Lab Name: TestAmerica Canton

Job No.: 280-116270-2

SDG ID.: \_\_\_\_\_

Matrix: Water

Date Sampled: 10/26/2018 08:50

Reporting Basis: WET

Date Received: 10/27/2018 08:50

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Hexavalent chromium	0.010	0.020	0.0030	mg/L	U		1	7196A

2-IN  
 CALIBRATION QUALITY CONTROL  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 280-116270-2  
 SDG No.: \_\_\_\_\_  
 Analyst: MMM Batch Start Date: 10/11/2018  
 Reporting Units: mg/L Analytical Batch No.: 349697

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
7	ICV	17:26	Hexavalent chromium	0.269	0.250	108	90-110		WCCHROME50PM2_0002 3
8	ICB	17:27	Hexavalent chromium	0.010				U	

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



2-IN  
 CALIBRATION QUALITY CONTROL  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 280-116270-2  
 SDG No.: \_\_\_\_\_  
 Analyst: BLW Batch Start Date: 10/26/2018  
 Reporting Units: mg/L Analytical Batch No.: 352078

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
28	CCV	10:12	Hexavalent chromium	0.245	0.250	98	90-110		WCCHROME50PPM_00025
29	CCB	10:12	Hexavalent chromium	0.010				U	
34	CCV	14:34	Hexavalent chromium	0.253	0.250	101	90-110		WCCHROME50PPM_00025
35	CCB	14:35	Hexavalent chromium	0.010				U	
43	CCV	15:44	Hexavalent chromium	0.250	0.250	100	90-110		WCCHROME50PPM_00025
44	CCB	15:44	Hexavalent chromium	0.010				U	
47	CCV	16:48	Hexavalent chromium	0.249	0.250	100	90-110		WCCHROME50PPM_00025
48	CCB	16:49	Hexavalent chromium	0.010				U	

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

3-IN  
METHOD BLANK  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton

Job No.: 280-116270-2

SDG No.: \_\_\_\_\_

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 352078 Date: 10/26/2018 14:30							
7196A	MB 240-352078/36	Hexavalent chromium	0.010	U	mg/L	0.020	1

7A-IN  
 LAB CONTROL SAMPLE  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 280-116270-2  
 SDG No.: \_\_\_\_\_  
 Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 352078			Date: 10/26/2018 14:30			LCS Source: WCCHROME50PM2_00023					
7196A	LCS 240-352078/37	Hexavalent chromium	0.236		mg/L	0.250	94	80-123			

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

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job Number: 280-116270-2  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: OSCAR  
Method: 7196A MDL Date: 04/25/2017 11:21

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Hexavalent chromium		0.02	0.003

9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job Number: 280-116270-2  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: OSCAR  
Method: 7196A XMDL Date: 04/25/2017 11:21

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Hexavalent chromium		0.02	0.003



13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 280-116270-2

SDG No.: \_\_\_\_\_

Instrument ID: OSCAR Analysis Method: 7196A

Start Date: 10/26/2018 08:33 End Date: 10/26/2018 16:49

Lab Sample Id	D/F	Type	Time	Analytes																			
				C	r	6																	
CCV 240-352078/1			08:33																				
CCB 240-352078/2			08:33																				
ZZZZZZ			08:34																				
ZZZZZZ			08:35																				
ZZZZZZ			08:36																				
ZZZZZZ			08:37																				
ZZZZZZ			08:38																				
ZZZZZZ			08:39																				
ZZZZZZ			08:40																				
ZZZZZZ			08:41																				
ZZZZZZ			08:42																				
ZZZZZZ			08:43																				
CCV 240-352078/13			08:44																				
CCB 240-352078/14			08:45																				
ZZZZZZ			08:46																				
ZZZZZZ			08:47																				
CCV 240-352078/17			08:49																				
CCB 240-352078/18			08:50																				
ZZZZZZ			10:05																				
ZZZZZZ			10:06																				
ZZZZZZ			10:07																				
ZZZZZZ			10:08																				
ZZZZZZ			10:09																				
ZZZZZZ			10:10																				
ZZZZZZ			10:10																				
ZZZZZZ			10:11																				
ZZZZZZ			10:11																				
CCV 240-352078/28	1		10:12	X																			
CCB 240-352078/29	1		10:12	X																			
ZZZZZZ			14:30																				
MB 240-352078/36	1	T	14:30	X																			
LCS 240-352078/37	1	T	14:30	X																			
ZZZZZZ			14:31																				
ZZZZZZ			14:32																				
ZZZZZZ			14:33																				
CCV 240-352078/34	1		14:34	X																			
CCB 240-352078/35	1		14:35	X																			
ZZZZZZ			15:40																				
ZZZZZZ			15:41																				
ZZZZZZ			15:42																				
ZZZZZZ			15:42																				

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 280-116270-2

SDG No.: \_\_\_\_\_

Instrument ID: OSCAR Analysis Method: 7196A

Start Date: 10/26/2018 08:33 End Date: 10/26/2018 16:49

Lab Sample Id	D/F	Type	Time	Analytes																											
				C	r	6																									
ZZZZZZ			15:43																												
CCV 240-352078/43	1		15:44	X																											
CCB 240-352078/44	1		15:44	X																											
280-116270-12	1	T	16:45	X																											
ZZZZZZ			16:45																												
ZZZZZZ			16:45																												
280-116270-9	1	T	16:46	X																											
CCV 240-352078/47	1		16:48	X																											
CCB 240-352078/48	1		16:49	X																											

Prep Types: \_\_\_\_\_  
T = Total/NA



GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Canton Job No.: 280-116270-2

SDG No.: \_\_\_\_\_

Batch Number: 349697 Batch Start Date: 10/11/18 17:20 Batch Analyst: Moser, Morgan

Batch Method: 7196A Batch End Date: 10/11/18 17:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	UnCorResp	WCCHROME50PM2 00023	WCCHROME50PPM 00025	
IC 240-349697/1		7196A		50 mL	50 mL	0 Absorbance			
IC 240-349697/2		7196A		50 mL	50 mL	0.004 Absorbance		0.005 mL	
IC 240-349697/3		7196A		50 mL	50 mL	0.008 Absorbance		0.01 mL	
IC 240-349697/4		7196A		50 mL	50 mL	0.084 Absorbance		0.1 mL	
IC 240-349697/5		7196A		50 mL	50 mL	0.191 Absorbance		0.25 mL	
IC 240-349697/6		7196A		50 mL	50 mL	0.369 Absorbance		0.5 mL	
ICV 240-349697/7		7196A		50 mL	50 mL	0.202 Absorbance	0.25 mL		
ICB 240-349697/8		7196A		50 mL	50 mL	0 Absorbance			

Batch Notes	
Acid Used for pH Adjustment ID	3715210
Spectrophotometer Cell Path Length	1 cm
Color Reagent ID	3830583
Phosphoric Acid ID	3521890
Pipette/Syringe/Dispenser ID	E5

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Canton Job No.: 280-116270-2

SDG No.: \_\_\_\_\_

Batch Number: 352078 Batch Start Date: 10/26/18 08:33 Batch Analyst: Woodward, Bruce

Batch Method: 7196A Batch End Date: 10/26/18 16:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ColorBlk	UnCorResp	WCCHROME50PM2 00023	WCCHROME50PPM 00025
CCV 240-352078/28		7196A		50 mL	50 mL		0.184 Absorbance		0.25 mL
CCB 240-352078/29		7196A		50 mL	50 mL		0 Absorbance		
CCV 240-352078/34		7196A		50 mL	50 mL		0.190 Absorbance		0.25 mL
CCB 240-352078/35		7196A		50 mL	50 mL		0 Absorbance		
MB 240-352078/36		7196A		50 mL	50 mL		0 Absorbance		
LCS 240-352078/37		7196A		50 mL	50 mL		0.177 Absorbance	0.25 mL	
CCV 240-352078/43		7196A		50 mL	50 mL		0.188 Absorbance		0.25 mL
CCB 240-352078/44		7196A		50 mL	50 mL		0 Absorbance		
280-116270-H-12	LL3mw-244-181001 -GW	7196A	T	50 mL	50 mL	0 Absorbance	0.001 Absorbance		
280-116270-O-9	FWGmw-020-181001 -GW	7196A	T	50 mL	50 mL	0.003 Absorbance	0.003 Absorbance		
CCV 240-352078/47		7196A		50 mL	50 mL		0.187 Absorbance		0.25 mL
CCB 240-352078/48		7196A		50 mL	50 mL		0 Absorbance		

Batch Notes	
Acid Used for pH Adjustment ID	3715210
Spectrophotometer Cell Path Length	1 cm
Color Reagent ID	3863006
Pipette/Syringe/Dispenser ID	E6

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

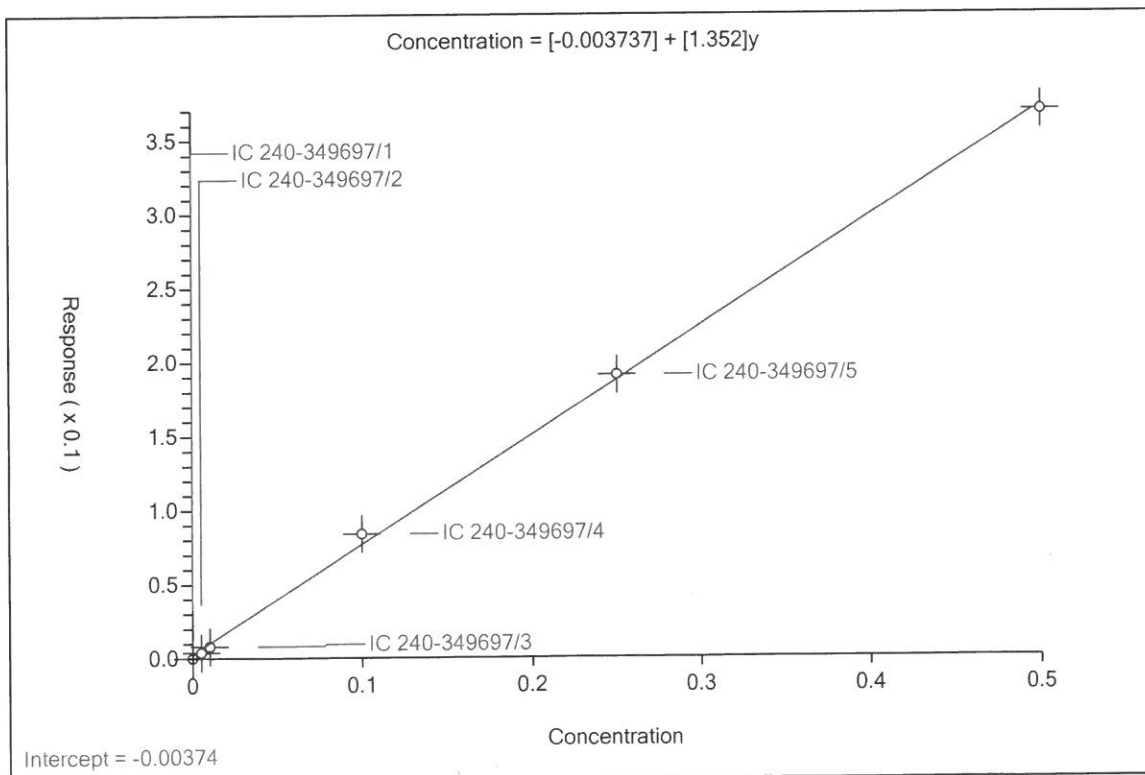
Calibration

Calib 349697-0 / Cr (VI)

Curve Type: Linear  
 Weighting: None  
 Origin: None  
 Dependency: Concentration  
 Calib Mode: ESTD  
 Response Base: AREA  
 RF Rounding: 0

Curve Coefficients	
Intercept:	-0.003737
Slope:	1.352
Error Coefficients	
Standard Error:	0.00659
Relative Standard Error:	42.4
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.999 (0.999)

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	IC 240-349697/1	0.0	0.0			NaN	Y
2	IC 240-349697/2	0.004998	0.004			0.800378	Y
3	IC 240-349697/3	0.009995	0.008			0.800378	Y
4	IC 240-349697/4	0.099953	0.084			0.840397	Y
5	IC 240-349697/5	0.249882	0.191			0.764361	Y
6	IC 240-349697/6	0.499764	0.369			0.738349	Y



# Subcontract Data

# Shipping and Receiving Documents



Chain of Custody Record

Leidos Proprietary

Page 1 of 1

COC No.: RVAAP-026-TA  
Date: 10/26/18

Name Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAAP FWGW Sampling Event  
Job/P.O. No.: P010216426  
Sampler (Signature) *[Signature]*  
(Printed Name) Roman Zoss

Laboratory No	Sample ID	Site Type	Depth	Date	Time	Matrix
FWGmw-018-181001-GW	FW-1B-181001-TB	SW	NA	10/26/18	0930	W
			NA	10/26/18	0930	Z

Requested Parameters		Total Number of Containers
VOCs (1)(B)	3	13
SVOCs (2)(A)	2	
LL PAHs (3)(A)	2	
Explosives (6)(A)	2	
Pesticides (5)(A)		
PCBs (4)(A)	2	
TAL Metals (7)(C)	1	
Cyanide (8)(D)	1	
Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)		
Sulfide (9)(E)		
Perchlorate (11)(A)		
Nitrocellulose (12)(A)		
Hexavalent Chromium (13)(A)		
Temperature Blank		

Laboratory Name: Test America-Canton  
Address: 4101 Shuffel St NW  
North Canton, OH 44720  
Phone: (330) 497-9396  
Fax:  
Contact:

OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS



Relinquished by	Date	Received by	Date
<i>[Signature]</i> NICHOLE ADAMS	10/26/18 1500	<i>[Signature]</i> KRISTA DUNNAP	10-27-18 0850
		TRA DEN	

Notes:	Total Number of Containers:	Shipment Method:	Courier
A. Cool 4C B. HCl, pH<2, Cool 4C C. HNO3, pH<2, Cool 4C D. NaOH, pH>12, Cool 4C	13	NA (U) 2/18	
E. NaOH/Zn Acetate, pH>8, Cool 4C			

Leidos  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802

Lab:  
Temperature Blank

Leidos White: Laboratory Pink: Project Manager Yellow: Project QAO Goldenrod: Field Project Manager  
0.3, 2.1, 4.1, 1.0, 4.3, 0.8, 10.5 + 0.7 IC #9 JD 10/27/18

2



Chain of Custody Record

Leidos Proprietary

Page 1 of 1

COC No.: RVAAP-053-TA

Date: 10/26/18

Name Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P.O. No.: P010216426  
 Sampler (Signature) *[Signature]* (Printed Name)

*[Signature]*  
Ryan Luckin

Laboratory No.	Sample ID	Site Type	Depth	Date	Time	Matrix
	LL2mw-264-181001-GW	GW	1M	10/26/18	1400	W
<i>[Large handwritten signature]</i>						

Requested Parameters		Total Number of Containers
VOCs (1)(B)		
SVOCs (Phthalates) (2)(A)		
LL PAHs (3)(A)		
Explosives (6)(A)		
Pesticides (5)(A)		
PCBs (4)(A)		
TAL Metals (7)(C)		
Cyanide (8)(D)		
Nitrate (10)(A)		
Sulfide (9)(E)		
Perchlorate (11)(A)		
Nitrocellulose (12)(A)		
Hexavalent Chromium (13)(A)		
Temperature Blank		
Total Number of Containers		1

Notes: A. Cool 4C B. HCl, pH<2, Cool 4C C. HNO3, pH<2, Cool 4C D. NaOH, pH>12, Cool 4C E. NaOH/Zn Acetate, pH>9, Cool 4C

Notes: 1. SW 8250

Notes: 1

Shipment Method: \_\_\_\_\_ Courier: \_\_\_\_\_

Temperature Blank

Lab: \_\_\_\_\_

Leidos  
 8866 Commons Drive  
 Twinsburg, OH 44087  
 (330) 405-5802

Leidos White Laboratory Pink Project Manager Yellow Project QAO Goldensrod Field Project Manager

1



# Chain of Custody Record

COC No.: **RVAAP-001-TA**

Date: 10/26/15

Name Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P.O. No.: P010216426  
 Sampler (Signature) *[Signature]* (Printed Name) **RVA Harris**

Laboratory No. **CBPrvw-008-181001-GW** Sample ID **10/26/15** Date **10/25** Time **16:25** Matrix **W**

Requested Parameters	
VOCs (1)(B)	
SVOCs (2)(A)	
LL PAHs (3)(A)	
Explosives (6)(A)	
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	
Cyanide (8)(D)	
Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A)	
Temperature Blank	
<b>NO OF CONTAINERS</b>	<b>1</b>

Laboratory Name: Test America - Canton  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax:  
 Contact:

**OBSERVATIONS, COMMENTS  
 SPECIAL INSTRUCTIONS**

Relinquished by	Date	Time	Matrix	Notes	Shipment Method:
<i>[Signature]</i>	10-27-15	0850		Notes: Total Number of Containers: 1 A. Cool, 4C B. HCl, pH-2, Cool, 4C C. HNO3, pH-2, Cool, 4C D. NaOH, pH-12, Cool, 4C E. NaOH/2m Acetone, pH-9, Cool, 4C	Courier
KRISTINA DUNN					
JADEN					

Relinquished by: *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: KRISTINA DUNN  
 Leidos: JADEN  
 Company: TADEN  
 Relinquished by: *[Signature]*  
 Signature: *[Signature]*  
 Printed Name: *[Signature]*  
 Company: *[Signature]*

Date: 10/27/15  
 Time: 0850

Date: 10/26/15  
 Time: 1500

Notes: Total Number of Containers: 1  
 A. Cool, 4C  
 B. HCl, pH-2, Cool, 4C  
 C. HNO3, pH-2, Cool, 4C  
 D. NaOH, pH-12, Cool, 4C  
 E. NaOH/2m Acetone, pH-9, Cool, 4C

Notes:  
 1. SW 8160  
 2. SW 8270  
 3. SW 8270SIM  
 4. SW 8082  
 5. SW 8081  
 6. SW 8330  
 7. SW 8010  
 8. SW 8012  
 9. SW 9034  
 10. SW 8068/SW2220  
 11. SW 8980  
 12. EPA 353.2  
 13. SW 7198

Temperature Blank  
 Lab: *[Signature]*

Leidos  
 White: Laboratory  
 Pink: Project Manager  
 Yellow: Project QAO  
 Goldenrod: Field Project Manager

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Chain of Custody Record

Leidos Proprietary

COC No.: RVAAP-002-TA

Date: 10/26/18

Name: Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P. O. No.: P010216426  
 Sampler (Signature) \_\_\_\_\_ (Printed Name)

Ryne Wynn

Laboratory No. \_\_\_\_\_ Sample ID: CBPrmw-009-181001-GW Date: 10/26/18 Time: 0850 Matrix: W

VOCs (1)(B)	
SVOCs (2)(A)	
LL PAHs (3)(A)	
Explosives (6)(A)	
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	
Cyanide (8)(D)	1
Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A)	
Temperature Blank	
Total Number of Containers	1

Laboratory Name: Test America - Canton  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax: \_\_\_\_\_  
 Contact: \_\_\_\_\_

OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS

Relinquished by	Signature: <i>[Signature]</i>	Date: 10/26/18	Time: 0850	Matrix: W	VOCs (1)(B)	SVOCs (2)(A)	LL PAHs (3)(A)	Explosives (6)(A)	Pesticides (5)(A)	PCBs (4)(A)	TAL Metals (7)(C)	Cyanide (8)(D)	Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)	Sulfide (9)(E)	Perchlorate (11)(A)	Nitrocellulose (12)(A)	Hexavalent Chromium (13)(A)	Temperature Blank	Total Number of Containers	Shipment Method:	Courier	
Printed Name	KRISTAL ADAMS																					
Signature	<i>[Signature]</i>																					
Company	Leidos																					
Relinquished by	Signature: <i>[Signature]</i>	Date: 10-27-18	Time: 0850	Matrix: W																		
Printed Name	KRISTAL ADAMS																					
Signature	<i>[Signature]</i>																					
Company	Leidos																					

Date: 10/26/18  
 Time: 15:00  
 Notes: Total Number of Containers: 1  
 A. Cool, 4C  
 B. HCl, pH=2, Cool, 4C  
 C. HNO3, pH=2, Cool, 4C  
 D. NaOH, pH=12, Cool, 4C  
 E. NaOH/Zn Acetate, pH=9, Cool, 4C

Temperature Blank  
Lab:

Leidos  
 8866 Commons Drive  
 Twinsburg, OH 44087  
 (330) 405-5802



Chain of Custody Record

Leidos Proprietary

Page 1 of 1

COC No.: **RVAAP-051-TA**  
Date: 10/26/18

Name Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAAP FWGW Sampling Event  
Job/P.O. No.: P010216426  
Sampler (Signature) *[Signature]*  
(Printed Name) Ryan Lavrich

*[Signature]*  
Ryan Lavrich

Requested Parameters	Temperature Blank	Total Number of Containers	Shipment Method:	Courier
VOCs (1)(B)				
SVOCs (Phthalates) (2)(A)				
LL PAHs (3)(A)				
Explosives (6)(A)				
Pesticides (5)(A)				
PCBs (4)(A)				
TAL Metals (7)(C)				
Cyanide (8)(D)		1		
Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)				
Sulfide (9)(E)				
Perchlorate (11)(A)				
Nitrocellulose (12)(A)				
Hexavalent Chromium (13)(A)				
Temperature Blank				
Total Number of Containers		3		
OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS				

Laboratory Name: Test America -Canton	Address: 4101 Shuffel St NW
North Canton, OH 44720	Phone: (330) 497-9396
Fax: (330) 497-9396	Contact:

Laboratory No.	Sample ID	Site Type	Depth	Date	Time	Matrix
LL1mw-089-181001-GW	GW	NA	10/26/18	1225	W	

Relinquished by	Date	Received by	Date	Notes:	Total Number of Containers:
<i>[Signature]</i> Heather Adams	10/26/18	<i>[Signature]</i> Kirsta Dunlap	10-27-18	A. Cool 4C B. HCl, pH<2, Cool 4C C. HNO3, pH<2, Cool 4C D. NaOH, pH>12, Cool 4C	3
	5:00P	<i>[Signature]</i> TADEN	05:50	E. NaOH/Zn Acetate, pH>8, Cool 4C	

Relinquished by	Date	Received by	Date	Notes:
				1. SW B260 2. SW B270 3. SW B270SIM 4. SW B282 5. SW B281 6. SW B330 7. SW B310 8. SW B012 9. SW B034 10. SW B056/SK2320 11. SW B980 12. EPA 3532 13. SW 7198

Signature	Date	Signature	Date
<i>[Signature]</i>		<i>[Signature]</i>	

Printed Name	Time	Printed Name	Time

Company	Company
Leidos	Leidos

Company	Company
Leidos	Leidos

3



Chain of Custody Record

Leidos Proprietary

Page 1 of 1

COC No.: RVAAP-024-TA  
Date: 10/25/18

4

Name Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAAP FWGW Sampling Event  
Job/P.O. No.: P010216426  
Sampler (Signature) *Jed Thomas*  
(Printed Name)

*Jed Mitchell* *Jed Mitchell*  
(Printed Name)

Laboratory No	Sample ID	Site Type	Depth	Date	Time	Matrix
	FWGMW-016-181001-GW	GW	N/A	10/25/18	1540	W

Requested Parameters	
VOCs (1)(B)	2
SVOCs (phthalates)(2)(A)	2
LL PAHs (3)(A)	
Explosives (6)(A)	2
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	1
Cyanide (8)(D)	
Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A)	
Temperature Blank	
Total Number of Containers	5

Laboratory Name: Test America - Canton  
Address: 4101 Shuffel St NW  
North Canton, OH 44720  
Phone: (330) 497-9396  
Fax:  
Contact:

OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS

Relinquished by	Date	Received by	Date	Notes	Shipment Method:
<i>[Signature]</i>	10/25/18	<i>[Signature]</i>	10/25/18		Courier
<i>[Signature]</i>	10/25/18	<i>[Signature]</i>	10/25/18		

Relinquished by: *[Signature]*  
Signature: *[Signature]*  
Printed Name: KRISTINA DUNLAP  
Company: Leidos  
Date: 10/25/18  
Time: 1500  
Received by: *[Signature]*  
Signature: *[Signature]*  
Printed Name: TADEN  
Company: Leidos  
Date: 10/25/18  
Time: 0850

Date: 10-27-18  
Time: 0850

Notes: Total Number of Containers: 5  
A. Cool, 4C  
B. HCl, pH<2, Cool, 4C  
C. HNO3, pH<2, Cool, 4C  
D. NaOH, pH>12, Cool, 4C  
E. NaOH/zn Acetate, pH<8, Cool, 4C

Signature: *[Signature]*  
Printed Name: *[Signature]*  
Company: Leidos  
Date: *[Signature]*  
Time: *[Signature]*  
Signature: *[Signature]*  
Printed Name: *[Signature]*  
Company: Leidos

White: Laboratory  
Pink: Project Manager  
Yellow: Project QAO  
Goldendrod: Field Project Manager

Temperature Blank  
Lab:  
Leidos  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802



Chain of Custody Record

Leidos Proprietary

COC No.: RVAAP-028-TA  
Date: 10/26/18

75

Name: Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAAP FWGW Sampling Event  
Job/P.O. No.: P010216426  
Sampler (Signature): *Jed Thomas*  
(Printed Name)

Requested Parameters:  
VOCs (1)(B) 3  
SVOCs (2)(A) 2  
LL PAHs (3)(A) 2  
Explosives (6)(A) 2  
Pesticides (5)(A) 2  
PCBs (4)(A) 2  
TAL Metals (7)(C) 1  
Cyanide (8)(D) 1  
Alkalinity/Sulfate/Nitrate/Nitrite (10)(A)  
Sulfide (9)(E)  
Perchlorate (11)(A)  
Nitrocellulose (12)(A)  
Hexavalent Chromium (13)(A1)  
Temperature Blank  
Total Number of Containers 14

Shipment Method: Courier

LABORATORY NAME: Test America - Canton  
Address: 4101 Shuffel St NW  
North Canton, OH 44720  
Phone: (330) 497-9396  
Fax:  
Contact:

Requisitioned by: *Jed Thomas*  
Date: *10/26/18*  
Signature: *Jed Thomas*  
Printed Name: *JED THOMAS*  
Time: *1500P*  
Company: *Leidos*

Received by: *Jackie Mitchell*  
Date: *10/26/18*  
Signature: *Jackie Mitchell*  
Printed Name: *JACKIE MITCHELL*  
Time: *1600P*  
Company: *Leidos*

Received by: *Krista Dunlap*  
Date: *10-27-18*  
Signature: *Krista Dunlap*  
Printed Name: *KRISTA DUNLAP*  
Time: *0850*  
Company: *TADEN*

Table with columns: Laboratory No., Sample ID, Site Type, Depth, Date, Time, Matrix. Row 1: FWG1W-020-181001-GW, GW, N/A, 10/26/18, 1600P, W.

Notes: A. Cool, 4C; A1. Field filtered, Cool, 4C; B. HCl, pH<2, Cool, 4C; C. HNO3, pH<2, Cool, 4C; D. NaOH, pH>12, Cool, 4C; E. NaOH/Zn Acetate, pH>9, Cool, 4C.

Temperature Blank  
Lab: *Leidos*  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802

Requisitioned by: *Jed Thomas*  
Date: *10/26/18*  
Signature: *Jed Thomas*  
Printed Name: *JED THOMAS*  
Time: *1500P*  
Company: *Leidos*

Received by: *Krista Dunlap*  
Date: *10-27-18*  
Signature: *Krista Dunlap*  
Printed Name: *KRISTA DUNLAP*  
Time: *0850*  
Company: *TADEN*

Temperature Blank  
Lab: *Leidos*  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802



Chain of Custody Record

Leidos Proprietary

Page 1 of 1

COC No.: RVAAP-056-TA  
Date: 10/26/18

Name Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Job/P. O. No.: P010216426  
Sampler (Signature) *[Signature]*  
(Printed Name) Gabrielle Gromosky

Laboratory No.	Sample ID	Site Type	Depth	Date	Time	Matrix
	LL3HW-234-181001-GW	GW	NA	10/26/18	1115	W

Requested Parameters	
VOCs (1)(B)	
SVOCs (2)(A)	
LL PAHs (3)(A)	
Explosives (6)(A)	
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	
Cyanide (8)(D)	1
Nitrate (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A)	
Temperature Blank	
Total Number of Containers	1

Laboratory Name: Test America -Canton  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax:  
 Contact:

OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS

Relinquished by	Date	Received by	Date	Notes:	Total Number of Containers:	Shipment Method:	Courier:
<i>[Signature]</i> KEATHE ADAMS	10/26/18	<i>[Signature]</i> KASTA DUNAP	10-27-18	A. Cool 4C B. HCl, pH<2, Cool, 4C C. HNO3, pH<2, Cool, 4C D. NaOH, pH>12, Cool 4C	1		
				E. NaOH/Zn Acetate, pH>9, Cool 4C			

Leidos

Relinquished by: *[Signature]*  
Date: 10/26/18

Received by: *[Signature]*  
Date: 10-27-18

Signature: *[Signature]*  
Printed Name: KASTA DUNAP  
Company: Leidos

Signature: *[Signature]*  
Printed Name: TADEN  
Company: Leidos

Notes:  
A. Cool 4C  
B. HCl, pH<2, Cool, 4C  
C. HNO3, pH<2, Cool, 4C  
D. NaOH, pH>12, Cool 4C  
E. NaOH/Zn Acetate, pH>9, Cool 4C

Temperature Blank  
Lab: Leidos  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802

White: Laboratory  
Pink: Project Manager  
Yellow: Project QAO  
Goldend: Field Project Manager





Chain of Custody Record

Leidos Proprietary

Page 1 of 1 Date: 10/26/18

COC No.: RVAAP-057-TA

Name Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P.O. No.: P010216426  
 Sampler (Signature) *Eli Rogate*  
 (Printed Name)

Laboratory No.	Sample ID	Site Type	Depth	Date	Time	Matrix
	LL3mw-237-181001-GW	N/A	N/A	10/26/18	13:10	W

Requested Parameters		Temperature Blank	Total Number of Containers
VOCs (1)(B)			2
SVOCs (2)(A)			
LL PAHs (3)(A)			
Explosives (6)(A)			
Pesticides (5)(A)			
PCBs (4)(A)			
TAL Metals (7)(C)			
Cyanide (8)(D)			
Nitrate (10)(A)			
Sulfide (9)(E)			
Perchlorate (11)(A)			
Nitrocellulose (12)(A)			
Hexavalent Chromium (13)(A)			

Laboratory Name: Test America - Canton  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax:  
 Contact:

OBSERVATIONS, COMMENTS  
 SPECIAL INSTRUCTIONS

Relinquished by	Date	Received by	Date
<i>Eli Rogate</i>	10/26/18	<i>Krista Dunlap</i>	10-27-18
<i>Alanna Adams</i>	10/26/18	<i>Jaden</i>	10/27/18

Notes:	Total Number of Containers:	Notes:
A. Cool 4C B. HCl, pH<2, Cool, 4C C. HNO3, pH<2, Cool, 4C D. NaOH, pH>12, Cool 4C	2	

Shipment Method: Courier

Relinquished by: *Eli Rogate*  
 Signature: *Eli Rogate*  
 Date: 10/26/18  
 Printed Name: ALANNA ADAMS  
 Company: Leidos

Received by: *Krista Dunlap*  
 Signature: *Krista Dunlap*  
 Date: 10/27/18  
 Printed Name: KRISTA DUNLAP  
 Company: RVAAP

Relinquished by: *Jaden*  
 Signature: *Jaden*  
 Date: 10/27/18  
 Printed Name: JADEN  
 Company: Leidos

Temperature Blank  
 Lab:  
 Leidos  
 8866 Commons Drive  
 Twinsburg, OH 44087  
 (330) 405-5802

Leidos White Laboratory Pink Project Manager Yellow Project QA Goldenrod Field Project Manager

6



Chain of Custody Record

Leidos Proprietary

Page 1 of 1

COC No.: RVAAP-058-TA  
Date: 5/26/18

Name: Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAAP FMGW Sampling Event  
Job/P.O. No.: P010216426  
Sampler (Signature): *[Signature]*  
(Printed Name):

Laboratory No: *[Signature]* Sample ID: LL3mw-244-181001-GW Site Type: GW Depth: NA Date: 05/26/18 Time: 0850 Matrix: W  
*[Signature]* *[Signature]* *[Signature]*

Requested Parameters	
VOCs (1)(B)	
SVOCs (Phthalates) (2)(A)	
LL PAHs (3)(A)	
Explosives (6)(A)	
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	
Cyanide (8)(D)	
Nitrate (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A1)	
Temperature Blank	
Total Number of Containers	8

Laboratory Name: Test America - Canton  
Address: 4101 Shuffel St NW  
North Canton, OH 44720  
Phone: (330) 497-9396  
Fax:  
Contact:

OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS

02 + 6 field filtered

Relinquished by	Date	Received by	Date	Notes	Shipment Method:
<i>[Signature]</i> Sergeant KEVIN ADAMS	05/21/18	<i>[Signature]</i> KEVIN DUNLAP	05/27/18	Notes: A. Cool 4C A1: Field filtered, Cool 4C B. HCl, pH<2, Cool 4C C. HNO3, pH<2, Cool 4C 1. SW 8260 2. SW 8270 3. SW 8270SIM 4. SW 8082 5. SW 8081 6. SW 8330 7. SW 6010 8. SW 9012 9. SW 9034 10. SW 9056 11. SW 8860 12. EPA 353.2 13. SW 7196	Courier
Relinquished by	Date	Received by	Date	Notes:	Shipment Method:
				D. NaOH, pH>12, Cool 4C E. NaOH/Zn Acetate, pH>9, Cool 4C	
Signature	Time	Signature	Time	Notes:	
Printed Name	Time	Printed Name	Time	Temperature Blank	Lab:
Company		Company			

Leidos  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802

Leidos White Laboratory Pink Project Manager Yellow Project QAO Goldenrod Field Project Manager

7



Chain of Custody Record

Leidos Proprietary

Page 1 of 1 COC No.: RVAAP-075-TA Date: 10/26/18

Name Leidos
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087
Phone Number: (330) 405-5802
Project Manager: Jed Thomas
Project: RVAAP FWGW Sampling Event
Job/P.O. No.: P010216426
(Printed Name) Roman Zoci

Requested Parameters table with columns: VOCs (1)(B), SVOCs (Phthalates) (2)(A), LL PAHs (3)(A), Explosives (6)(A), Pesticides (5)(A), PCBs (4)(A), TAL Metals (7)(C), Cyanide (8)(D), Alkalinity/Sulfate/Nitrate/Nitrite (10)(A), Sulfide (9)(E), Perchlorate (11)(A), Nitrocellulose (12)(A), Hexavalent Chromium (13)(A), Temperature Blank, Total Number of Containers

LABORATORY NAME: Test America - Canton
Address: 4101 Shuffel St NW
North Canton, OH 44720
Phone: (330) 487-9396
Fax:
Contact:
OBSERVATIONS, COMMENTS
SPECIAL INSTRUCTIONS

Table with columns: Laboratory No, Sample ID, Site Type, Depth, Date, Time, Matrix. Row 1: SCFHW-004-181001-GW, GW, 144, 10/26/18, 1335, W

Table with columns: Date, Time, Matrix. Row 1: 10-27-18, 0850, W

Table with columns: Relinquished by, Date, Signature, Received by, Date, Signature. Includes handwritten signatures and dates.

Table with columns: Date, Time, Matrix. Includes handwritten entries for date and time.

Notes: Total Number of Containers: 7
A. Cool, 4C
B. HCl, pH<2, Cool, 4C
C. HNO3, pH<2, Cool, 4C
D. NaOH, pH>12, Cool, 4C
E. NaOH/Na Acetate, pH>9, Cool, 4C
Notes:
Shipment Method: Courier

Leidos
Relinquished by: [Signature]
Date: 10/26/18
Signature: [Signature]
Printed Name: KEITH WATERS
Company: Leidos

Received by: [Signature]
Date: 10-27-18
Signature: [Signature]
Printed Name: KRISTA DUNLAP
Company: TADEN

Relinquished by: [Signature]
Date: 10/26/18
Signature: [Signature]
Printed Name: [Blank]
Company: [Blank]

Temperature Blank
Lab:
Leidos
8866 Commons Drive
Twinsburg, OH 44087
(330) 405-5802
White Laboratory
Pink: Project Manager
Yellow: Project QA
Goldendick: Field Project Manager







Leidos Proprietary

# Chain of Custody Record

COC No.: **RVAAP-049-TA**

Date: **10/20/18**

Name: Leidos  
 Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
 Phone Number: (330) 405-5802  
 Project Manager: Jed Thomas  
 Project: RVAAP FWGW Sampling Event  
 Job/P.O. No.: P010216426  
 Sampler (Signature): *Jed Thomas*  
 (Printed Name)

Requested Parameters

VOCs (1)(B)	
SVOCs (Phthalates) (2)(A)	
LL PAHs (3)(A)	
Explosives (6)(A)	
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	
Cyanide (8)(D)	
Nitrate (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A)	
Temperature Blank	
Total Number of Containers	5

Laboratory Name: Test America - Canton  
 Address: 4101 Shuffel St NW  
 North Canton, OH 44720  
 Phone: (330) 497-9396  
 Fax:  
 Contact:

OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS

Laboratory No	Sample ID	Site Type	Depth	Date	Time	Matrix
	LL1mw-087-181001-GW	GW	N/A	10/20/18	1330	W

Relinquished by	Date	Received by	Date	Notes:	Shipment Method:
<i>Jed Thomas</i>	10/20/18	<i>Jed Thomas</i>	10/20/18		Courier
<i>NEATHA THOMAS</i>	5:00	<i>Rick Rossini</i>	15:00	Notes: 1. SW 8280 2. SW 8270 3. SW 8270S/M 4. SW 8082 5. SW 8081	
		<i>REISA DUNLAP</i>	10:27-1:08	Notes: A. Cool. 4C B. HCl, pH<2, Cool. 4C C. HNO <sub>3</sub> , pH<2, Cool. 4C D. NaOH, pH>12, Cool. 4C E. NaOH/Na <sub>2</sub> O/acetic, pH>9, Cool. 4C	
		<i>TRADEN</i>	08:50		

Signature: *Jed Thomas*  
 Printed Name: NEATHA THOMAS  
 Company: Leidos  
 Relinquished by: *Jed Thomas*  
 Date: 10/20/18  
 Signature: *Rick Rossini*  
 Printed Name: RICK ROSSINI  
 Company: Leidos  
 Received by: *Rick Rossini*  
 Date: 10/20/18  
 Signature: *REISA DUNLAP*  
 Printed Name: REISA DUNLAP  
 Company: Leidos  
 Received by: *REISA DUNLAP*  
 Date: 10/20/18  
 Signature: *TRADEN*  
 Printed Name: TRADEN  
 Company: Leidos  
 Relinquished by: *TRADEN*  
 Date: 10/20/18

Leidos  
 8866 Commons Drive  
 Twinsburg, OH 44087  
 (330) 405-5802  
 Lab:  
 Temperature Blank  
 Leidos  
 8866 Commons Drive  
 Twinsburg, OH 44087  
 (330) 405-5802  
 White: Laboratory  
 Pink: Project Manager  
 Yellow: Project QAO  
 Goldenrod: Field Project Manager

(F)



Chain of Custody Record

Leidos Proprietary

COC No.: **RVAP-061-TA**  
Date: 10/26/18

Name: Leidos  
Address: 8866 Commons Blvd, Suite 201, Twinsburg, OH 44087  
Phone Number: (330) 405-5802  
Project Manager: Jed Thomas  
Project: RVAP FWGW Sampling Event  
Job/P.O. No.: P010216426  
Sampler (Signature) \_\_\_\_\_  
(Printed Name)

Lab No. *LL4mw-200-181001-GW* Sample ID *6W* Site Type *NAF* Depth *10/26/18* Date *1450* Time *W* Matrix

VOCs (1)(B)	
SVOCs (2)(A)	
LL PAHs (3)(A)	
Explosives (5)(A)	
Pesticides (5)(A)	
PCBs (4)(A)	
TAL Metals (7)(C)	
Cyanide (8)(D)	1
Nitrate (10)(A)	
Sulfide (9)(E)	
Perchlorate (11)(A)	
Nitrocellulose (12)(A)	
Hexavalent Chromium (13)(A)	
Temperature Blank	1
Total Number of Containers	1

Requested Parameters  
Laboratory Name: Test America - Canton  
Address: 4101 Shuffel St. NW  
North Canton, OH 44720  
Phone: (330) 497-9396  
Fax:  
Contact:  
OBSERVATIONS, COMMENTS  
SPECIAL INSTRUCTIONS

Relinquished by <i>[Signature]</i>	Date <i>10/26/18</i>	Received by <i>[Signature]</i>	Date <i>10-27-18</i>
Signature <i>[Signature]</i>	Time <i>1500P</i>	Signature <i>[Signature]</i>	Time <i>0850</i>
Printed Name <i>NEATHK ADAMS</i>		Printed Name <i>Rex Fabis</i>	
Leidos		Company <i>Rex Fabis</i>	
Relinquished by	Date	Received by	Date
Signature	Time	Signature	Time
Printed Name		Printed Name <i>KEISTA DUNNAP</i>	
Company		Company <i>TADEN</i>	

Notes:	Total Number of Containers:	Notes:
A. Cool 4C	1	E. NaOH/2N Acetic, pH=9, Cool 4C
B. HCl, pH<2, Cool 4C		
C. HNO3, pH<2, Cool 4C		
D. NaOH, pH>12, Cool 4C		
1. SW 8280		
2. SW 8270		
3. SW 8270S/M		
4. SW 8082		
5. SW 8081		
6. SW 8330		
7. SW 8010		
8. SW 8012		
9. SW 8034		
10. SW 8056		
11. SW 8660		
12. EPA 353.2		
13. SW 7198		

Shipment Method: Courier  
Temperature Blank  
Lab:  
Leidos  
8866 Commons Drive  
Twinsburg, OH 44087  
(330) 405-5802  
White: Laboratory  
Pink: Project Manager  
Yellow: Project QAO  
Goldendrod: Field Project Manager

# Login Sample Receipt Checklist

Client: Leidos, Inc.

Job Number: 280-116270-2

**Login Number: 116270**  
**List Number: 1**  
**Creator: Diffendall, Jessica L**

**List Source: TestAmerica Denver**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	