

## ANALYTICAL REPORT

Job Number: 240-88815-1

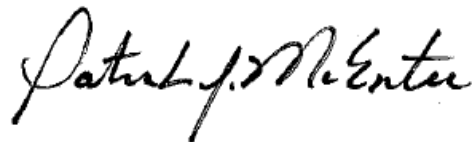
Job Description: Ravenna, OH

For:

Cardno TEC, Inc  
2496 Old Ivy Road  
Suite 300

Charlottesville, VA 22903

Attention: Mr. Peter Chapman



Approved for release.  
Patrick J McEntee  
Manager of Project Management  
12/7/2017 8:50 PM

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Patrick J McEntee, Manager of Project Management  
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12/07/2017

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 Canton 4101 Shuffel Street NW, North Canton, OH 44720

Tel (330) 497-9396 Fax (330) 497-0772 [www.testamericainc.com](http://www.testamericainc.com)

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# Definitions/Glossary

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

## Glossary

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<b>Abbreviation</b>	<b>These commonly used abbreviations may or may not be present in this report.</b>
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: Cardno TEC, Inc**

**Project: Ravenna, OH**

**Report Number: 240-88815-1**

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.

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 12/4/2017 5:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.1° C.

Hexavalent chromium analysis was performed by TestAmerica Canton. TestAmerica Canton is not hold DoD accreditation; therefore, method EPA SW-846 Method 7196A is reported with standard data qualifiers applied.

### **HEXAVALENT CHROMIUM**

Samples BKGmw-017-120417-GW (240-88815-1) and FWGmw-023-120417-GW (240-88815-2) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 7196A. The samples were analyzed on 12/04/2017.

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

# Detection Summary

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

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**Client Sample ID: BKGmw-017-120417-GW**

**Lab Sample ID: 240-88815-1**

No Detections.

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**Client Sample ID: FWGmw-023-120417-GW**

**Lab Sample ID: 240-88815-2**

No Detections.

This Detection Summary does not include radiochemical test results.

# Client Sample Results

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

**Client Sample ID: BKGmw-017-120417-GW**

**Lab Sample ID: 240-88815-1**

**Date Collected: 12/04/17 15:26**

**Matrix: Water**

**Date Received: 12/04/17 17:30**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent chromium	ND		20	3.0	ug/L			12/04/17 18:53	1

**Client Sample ID: FWGmw-023-120417-GW**

**Lab Sample ID: 240-88815-2**

**Date Collected: 12/04/17 16:05**

**Matrix: Water**

**Date Received: 12/04/17 17:30**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent chromium	ND		20	3.0	ug/L			12/04/17 18:54	1

# Default Detection Limits

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

## General Chemistry

Analyte	RL	MDL	Units	Method
Hexavalent chromium	20	3.0	ug/L	7196A



# QC Sample Results

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

## Method: 7196A - Chromium, Hexavalent

**Lab Sample ID: MB 240-306181/3**  
**Matrix: Water**  
**Analysis Batch: 306181**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent chromium	ND		20	3.0	ug/L			12/04/17 17:04	1

**Lab Sample ID: LCS 240-306181/4**  
**Matrix: Water**  
**Analysis Batch: 306181**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexavalent chromium	250	245		ug/L		98	80 - 123

# QC Association Summary

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

## General Chemistry

### Analysis Batch: 306181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-88815-1	BKGmw-017-120417-GW	Total/NA	Water	7196A	
240-88815-2	FWGmw-023-120417-GW	Total/NA	Water	7196A	
MB 240-306181/3	Method Blank	Total/NA	Water	7196A	
LCS 240-306181/4	Lab Control Sample	Total/NA	Water	7196A	

# Lab Chronicle

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

**Client Sample ID: BKGmw-017-120417-GW**

**Lab Sample ID: 240-88815-1**

**Date Collected: 12/04/17 15:26**

**Matrix: Water**

**Date Received: 12/04/17 17:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	306181	12/04/17 18:53	JWW	TAL CAN

**Client Sample ID: FWGmw-023-120417-GW**

**Lab Sample ID: 240-88815-2**

**Date Collected: 12/04/17 16:05**

**Matrix: Water**

**Date Received: 12/04/17 17:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	306181	12/04/17 18:54	JWW	TAL CAN

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

## Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Ohio VAP	State Program	5	CL0024	09-06-19

## Laboratory: TestAmerica Denver

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
A2LA	DoD ELAP		2907.01	10-31-19 *
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	04-05-18
Arkansas DEQ	State Program	6	88-0687	06-01-18
California	State Program	9	2513	01-08-18
Connecticut	State Program	1	PH-0686	09-30-18
Florida	NELAP	4	E87667	06-30-18
Georgia	State Program	4	N/A	01-08-18
Illinois	NELAP	5	200017	04-30-18
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-18
Louisiana	NELAP	6	02096	06-30-18
Maine	State Program	1	CO0002	03-03-19
Nevada	State Program	9	CO0026	07-31-18
New Hampshire	NELAP	1	205310	04-28-18
New Jersey	NELAP	2	CO004	06-30-18
New York	NELAP	2	11964	04-01-18
North Dakota	State Program	8	R-034	01-09-18
Oklahoma	State Program	6	8614	08-31-18
Oregon	NELAP	10	4025	01-08-18
Pennsylvania	NELAP	3	68-00664	07-31-18
South Carolina	State Program	4	72002001	01-08-18
Texas	NELAP	6	T104704183-17-14	09-30-18
USDA	Federal		P330-16-00397	12-15-19
Utah	NELAP	8	CO00026	07-31-18
Virginia	NELAP	3	460232	06-14-18
Washington	State Program	10	C583	08-03-18
West Virginia DEP	State Program	3	354	11-30-17 *
Wisconsin	State Program	5	999615430	08-31-18
Wyoming (UST)	A2LA	8	2907.01	10-31-19

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

# Method Summary

Client: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

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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: Cardno TEC, Inc  
Project/Site: Ravenna, OH

TestAmerica Job ID: 240-88815-1

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
240-88815-1	BKGmw-017-120417-GW	Water	12/04/17 15:26	12/04/17 17:30
240-88815-2	FWGmw-023-120417-GW	Water	12/04/17 16:05	12/04/17 17:30

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-88815-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
<b>WCCHROME50PM2 00021</b>	03/08/18	09/08/17	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 00022</b>	03/08/18	09/08/17	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

# GENERAL CHEMISTRY



COVER PAGE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job Number: 240-88815-1

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

Project: Ravenna, OH

Client Sample ID	Lab Sample ID
<u>BKGmw-017-120417-GW</u>	<u>240-88815-1</u>
<u>FWGmw-023-120417-GW</u>	<u>240-88815-2</u>

Comments:

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1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: BKGmw-017-120417-GW

Lab Sample ID: 240-88815-1

Lab Name: TestAmerica Canton

Job No.: 240-88815-1

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

Matrix: Water

Date Sampled: 12/04/2017 15:26

Reporting Basis: WET

Date Received: 12/04/2017 17:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Hexavalent chromium	ND	20	3.0	ug/L			1	7196A

1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: FWGmw-023-120417-GW

Lab Sample ID: 240-88815-2

Lab Name: TestAmerica Canton

Job No.: 240-88815-1

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

Matrix: Water

Date Sampled: 12/04/2017 16:05

Reporting Basis: WET

Date Received: 12/04/2017 17:30

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Hexavalent chromium	ND	20	3.0	ug/L			1	7196A

2-IN  
CALIBRATION QUALITY CONTROL  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 240-88815-1  
SDG No.: \_\_\_\_\_  
Analyst: BLW Batch Start Date: 11/08/2017  
Reporting Units: mg/L Analytical Batch No.: 302588

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
7	ICV	09:37	Hexavalent chromium	0.269	0.250	108	90-110		WCCHROME50PM2_0002 1

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.: 240-88815-1  
 SDG No.: \_\_\_\_\_  
 Analyst: JWW Batch Start Date: 12/04/2017  
 Reporting Units: mg/L Analytical Batch No.: 306181

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	17:02	Hexavalent chromium	0.249	0.250	100	90-110		WCCHROME50PPM_0002 2
2	CCB	17:03	Hexavalent chromium	ND					
11	CCV	17:12	Hexavalent chromium	0.249	0.250	100	90-110		WCCHROME50PPM_0002 2
12	CCB	17:13	Hexavalent chromium	ND					
14	CCV	17:35	Hexavalent chromium	0.237	0.250	95	90-110		WCCHROME50PPM_0002 2
15	CCB	17:36	Hexavalent chromium	ND					
18	CCV	18:55	Hexavalent chromium	0.228	0.250	91	90-110		WCCHROME50PPM_0002 2
19	CCB	18:56	Hexavalent chromium	ND					

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.: 240-88815-1

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

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 306181 Date: 12/04/2017 17:04							
7196A	MB 240-306181/3	Hexavalent chromium	ND		ug/L	20	1

7A-IN  
 LAB CONTROL SAMPLE  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 240-88815-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 306181			Date: 12/04/2017 17:05			LCS Source: WCCHROME50PM2_00021					
7196A	LCS 240-306181/4	Hexavalent chromium	245		ug/L	250	98	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: 240-88815-1  
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: 240-88815-1  
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.: 240-88815-1

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

Instrument ID: OSCAR Analysis Method: 7196A

Start Date: 11/08/2017 09:37 End Date: 11/09/2017 09:42

Lab Sample Id	D/F	T y p e	Time	C r 6	Analytes															
IC 240-302588/1	1		09:37	X																
IC 240-302588/2	1		09:37	X																
IC 240-302588/3	1		09:37	X																
IC 240-302588/4	1		09:37	X																
IC 240-302588/5	1		09:37	X																
IC 240-302588/6	1		09:37	X																
ICV 240-302588/7	1		09:37	X																
ICB 240-302588/8			09:38																	
ZZZZZZ			09:39																	
ZZZZZZ			09:40																	
ZZZZZZ			09:41																	
ZZZZZZ			09:42																	
ZZZZZZ			09:43																	
ZZZZZZ			09:44																	
ZZZZZZ			09:45																	
ZZZZZZ			09:46																	
ZZZZZZ			09:47																	
CCV 240-302588/18			09:48																	
CCB 240-302588/19			09:37																	
ZZZZZZ			09:49																	
ZZZZZZ			09:50																	
ZZZZZZ			09:51																	
ZZZZZZ			09:52																	
ZZZZZZ			09:53																	
ZZZZZZ			09:54																	
ZZZZZZ			09:55																	
ZZZZZZ			09:56																	
ZZZZZZ			09:57																	
CCV 240-302588/29			09:58																	
CCB 240-302588/30			09:59																	
ZZZZZZ			10:00																	
ZZZZZZ			10:01																	
ZZZZZZ			10:02																	
ZZZZZZ			10:03																	
ZZZZZZ			10:04																	
CCV 240-302588/36			10:05																	
CCB 240-302588/37			10:06																	
ZZZZZZ			11:40																	
ZZZZZZ			11:41																	
ZZZZZZ			11:42																	
CCV 240-302588/41			11:43																	

13-IN  
 ANALYSIS RUN LOG  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 240-88815-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: OSCAR Analysis Method: 7196A  
 Start Date: 11/08/2017 09:37 End Date: 11/09/2017 09:42

Lab Sample Id	D/F	T y p e	Time	Analytes																							
				C r 6																							
CCB 240-302588/42			11:44																								
ZZZZZZ			11:45																								
ZZZZZZ			11:46																								
ZZZZZZ			11:47																								
ZZZZZZ			11:48																								
ZZZZZZ			11:49																								
CCV 240-302588/48			11:50																								
CCB 240-302588/49			11:51																								
ZZZZZZ			11:43																								

Prep Types: \_\_\_\_\_  
 =

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Canton Job No.: 240-88815-1

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

Instrument ID: OSCAR Analysis Method: 7196A

Start Date: 12/04/2017 17:02 End Date: 12/04/2017 18:56

Lab Sample Id	D/F	Type	Time	Analytes																									
				C	6																								
CCV 240-306181/1	1		17:02	X																									
CCB 240-306181/2	1		17:03	X																									
MB 240-306181/3	1	T	17:04	X																									
LCS 240-306181/4	1	T	17:05	X																									
ZZZZZZ			17:06																										
ZZZZZZ			17:07																										
ZZZZZZ			17:08																										
ZZZZZZ			17:09																										
ZZZZZZ			17:10																										
ZZZZZZ			17:11																										
CCV 240-306181/11	1		17:12	X																									
CCB 240-306181/12	1		17:13	X																									
ZZZZZZ			17:33																										
CCV 240-306181/14	1		17:35	X																									
CCB 240-306181/15	1		17:36	X																									
240-88815-1	1	T	18:53	X																									
240-88815-2	1	T	18:54	X																									
CCV 240-306181/18	1		18:55	X																									
CCB 240-306181/19	1		18:56	X																									

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

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Canton Job No.: 240-88815-1

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

Batch Number: 302588 Batch Start Date: 11/08/17 09:37 Batch Analyst: Woodward, Bruce

Batch Method: 7196A Batch End Date: 11/08/17 12:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	UnCorResp	WCCHROME50PM2 00021	WCCHROME50PPM 00022	
IC 240-302588/1		7196A		50 mL	50 mL	0 Absorbance			
IC 240-302588/2		7196A		50 mL	50 mL	0.010 Absorbance		0.005 mL	
IC 240-302588/3		7196A		50 mL	50 mL	0.012 Absorbance		0.01 mL	
IC 240-302588/4		7196A		50 mL	50 mL	0.091 Absorbance		0.1 mL	
IC 240-302588/5		7196A		50 mL	50 mL	0.207 Absorbance		0.25 mL	
IC 240-302588/6		7196A		50 mL	50 mL	0.381 Absorbance		0.5 mL	
ICV 240-302588/7		7196A		50 mL	50 mL	0.212 Absorbance	0.25 mL		

Batch Notes	
Acid Used for pH Adjustment ID	3294428
Spectrophotometer Cell Path Length	1 cm
Color Reagent ID	3325146
Pipette ID	E11,F1

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.: 240-88815-1

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

Batch Number: 306181 Batch Start Date: 12/04/17 17:02 Batch Analyst: Weimer, Joshua W

Batch Method: 7196A Batch End Date: 12/04/17 19:02

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ColorBlk	UnCorResp	WCCHROME50PM2 00021	WCCHROME50PPM 00022
CCV 240-306181/1		7196A		50 mL	50 mL		0.197 Absorbance		0.25 mL
CCB 240-306181/2		7196A		50 mL	50 mL		0.001 Absorbance		
MB 240-306181/3		7196A		50 mL	50 mL		0.001 Absorbance		
LCS 240-306181/4		7196A		50 mL	50 mL		0.194 Absorbance	0.25 mL	
CCV 240-306181/11		7196A		50 mL	50 mL		0.197 Absorbance		0.25 mL
CCB 240-306181/12		7196A		50 mL	50 mL		0.001 Absorbance		
CCV 240-306181/14		7196A		50 mL	50 mL		0.188 Absorbance		0.25 mL
CCB 240-306181/15		7196A		50 mL	50 mL		0 Absorbance		
240-88815-A-1	BKGmw-017-120417 -GW	7196A	T	50 mL	50 mL	0.051 Absorbance	0.051 Absorbance		
240-88815-A-2	FWGmw-023-120417 -GW	7196A	T	50 mL	50 mL	0.002 Absorbance	0.002 Absorbance		
CCV 240-306181/18		7196A		50 mL	50 mL		0.181 Absorbance		0.25 mL
CCB 240-306181/19		7196A		50 mL	50 mL		0 Absorbance		

Batch Notes	
Acid Used for pH Adjustment ID	3294428
Spectrophotometer Cell Path Length	1 cm
Color Reagent ID	3374600
Pipette ID	E8

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.


# Shipping and Receiving Documents

TestAmerica Denver  
 4955 Yarrow Street  
 Arvada, CO 80002  
 Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Hex Chrom #2 - later delivery

TestAmerica  
 THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Information</b> Client Contact: Elizabeth Busby Company: Cardno TEC, Inc Address: 1658 Cole Boulevard Suite 190 City: Golden State: CO, Zip: 80401 Phone: 303-273-0231 Email: Elizabeth.Busby@cardno-ts.com Project Name: Ravenna, OH - Load Line 7 Site:		Lab PM: McEntee, Patrick J E-Mail: patrick.mcEntee@testamericainc.com Carrier Tracking No(s): Page: Job #:	
<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): 20 Business days PO #: 0091979 WO #: 076003.009.007 TestAmerica Project #: 28014271 SSO#:		Total Number of Containers: 1 Preservation Codes: A - HCL B - NiOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Arctichlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
<b>Sample Identification</b> BKGMW-017-120417-gw FWGMW-023-120417-gw Sample Date: 12.4.17 1526 ↓ 1605 Sample Time: G W G W Matrix (Water, Solid, Dewatered, etc.) Sample Type (C=Comp, G=grab) Preservation Code: Field Filtered Sample (Yes or No) N N N Perform MS/MSD (Yes or No) N N N 8260B - VOCs eb 8270D - SVOCs List 4 (Phthalates) eb 82308 - Explosives/Tropheants eb 6010C/6026A/7470A - Total Metals eb X 2 X 2 Hex.Chrom		Special Instructions/Note: 240-88815 Chain of Custody 	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Relinquished by: <i>Elizabeth Busby</i> Date/Time: 12/4/17 1730 Company: Cardno		Received by: <i>[Signature]</i> Date/Time: 12-4-17 1730 Company: TA	
Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____	
Relinquished by: _____ Date/Time: _____ Company: _____		Received by: _____ Date/Time: _____ Company: _____	
Custody Seals Intact: _____ Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:	



TestAmerica Canton Sample Receipt Form/Narrative  
Canton Facility

Login # : 88915

Client CAEDALO Site Name \_\_\_\_\_  
Cooler Received on 12-4-17 Opened on 12-4-17

Cooler unpacked by:

JOP

FedEx: 1<sup>st</sup> 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 \_\_\_\_\_  
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
IR GUN# IR-8 (CF -0.3 °C) Observed Cooler Temp. 0.4 °C Corrected Cooler Temp. 0.1 °C  
IR GUN #36 (CF +0.3 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
IR GUN # 627 (CF -1.3 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity \_\_\_\_\_ Yes No  
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No  
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

If yes, Questions 12-16 have been checked at the originating laboratory.  
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC730269

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:  
VOAs  
Oil and Grease  
TOC

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
Sample(s) \_\_\_\_\_ were received in a broken container.  
Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_

# Login Sample Receipt Checklist

Client: Cardno TEC, Inc

Job Number: 240-88815-1

**Login Number: 88815**

**List Source: TestAmerica Canton**

**List Number: 1**

**Creator: Sutek, Nick**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
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.	True	Preservation labels on samples match COC
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	