TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-96682-2

Job Description: Ravenna, OH

For:
Cardno TEC, Inc
1658 Cole Boulevard
Suite 190
Golden, CO 80401

Attention: Ms. Heather Miner

Approved for release.
Patrick J McEntee
Manager of Project Management
5/14/2017 7:15 AM

Patrick J McEntee, Manager of Project Management
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0107
patrick.mcentee@testamericainc.com
05/14/2017

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.

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Table of Contents

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: 280-96682-2

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 5/4/2017 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6º C.

Receipt Exceptions

The requested Free Cyanide analysis for sample RQLmw-012-050317-GW (280-96682-1) will be reported under a separate job series, 280-96682-2, as the laboratory does not hold DOD ELAP certification for this analysis. All other requested analyses on the chain of custody will be reported under job series 280-96682-1.

FREE CYANIDE

Sample RQLmw-012-050317-GW (280-96682-1) was analyzed for Free Cyanide in accordance with SM20 4500_CN_I. The samples were prepared on 05/11/2017 and analyzed on 05/12/2017.

Cyanide, Free was detected in method blank MB 280-373070/4-A at a level that was above the detection limit but below one half LOQ. The value should be considered an estimate, and has been flagged.

No additional 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: 280-96682-2

Client Sample ID: RQLmw-012-050317-GW

Lab Sample ID: 280-96682-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Free	2.2	J B	10	2.0	ug/L	1		SM 4500 CN I	Total/NA

This Detection Summary does not include radiochemical test results.

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

TestAmerica Job ID: 280-96682-2

Client Sample ID: RQLmw-012-050317-GW — **Lab Sample ID: 280-96682-1**
Date Collected: 05/03/17 14:00 — **Matrix: Water**
Date Received: 05/04/17 08:55

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	2.2	J B	10	2.0	ug/L		05/11/17 06:43	05/12/17 08:00	1

Default Detection Limits

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

TestAmerica Job ID: 280-96682-2

General Chemistry

Prep: SM 4500 CN I

Analyte	RL	MDL	Units	Method
Cyanide, Free	10	2.0	ug/L	SM 4500 CN I

Method: SM 4500 CN I - Cyanide, Weak Acid Dissociable

Lab Sample ID: MB 280-373070/4-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 373312 — **Prep Batch: 373070**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	2.44	J	10	2.0	ug/L		05/11/17 06:43	05/12/17 07:42	1

Lab Sample ID: HLCS 280-373070/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 373312 — **Prep Batch: 373070**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Free	400	408		ug/L		102	75 - 120

Lab Sample ID: LCS 280-373070/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 373312 — **Prep Batch: 373070**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Free	100	98.9		ug/L		99	75 - 120

Lab Sample ID: LLCS 280-373070/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 373312 — **Prep Batch: 373070**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Free	100	102		ug/L		102	75 - 120

QC Association Summary

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

TestAmerica Job ID: 280-96682-2

General Chemistry

Prep Batch: 373070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	SM 4500 CN I	
MB 280-373070/4-A	Method Blank	Total/NA	Water	SM 4500 CN I	
HLCS 280-373070/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN I	
LCS 280-373070/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN I	
LLCS 280-373070/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN I	

Analysis Batch: 373312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	SM 4500 CN I	373070
MB 280-373070/4-A	Method Blank	Total/NA	Water	SM 4500 CN I	373070
HLCS 280-373070/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN I	373070
LCS 280-373070/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN I	373070
LLCS 280-373070/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN I	373070

Lab Chronicle

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

TestAmerica Job ID: 280-96682-2

Client Sample ID: RQLmw-012-050317-GW

Lab Sample ID: 280-96682-1

Date Collected: 05/03/17 14:00

Matrix: Water

Date Received: 05/04/17 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SM 4500 CN I			50 mL	50 mL	373070	05/11/17 06:43	JML	TAL DEN
Total/NA	Analysis	SM 4500 CN I		1	50 mL	50 mL	373312	05/12/17 08:00	JML	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

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

TestAmerica Job ID: 280-96682-2

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 CN I	SM 4500 CN I	Water	Cyanide, Free

Method Summary

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

TestAmerica Job ID: 280-96682-2

Method	Method Description	Protocol	Laboratory
SM 4500 CN I	Cyanide, Weak Acid Dissociable	SM	TAL DEN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

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

TestAmerica Job ID: 280-96682-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-96682-1	RQLmw-012-050317-GW	Water	05/03/17 14:00	05/04/17 08:55

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
CN 10ppm_00253	05/17/17	05/10/17	2% NaOH, Lot 1% NaOH_00256	100 mg/L	CN CAL Std_00054	1 mL	Cyanide, Amenable	10 mg/L
							Cyanide, Free	10 mg/L
							Cyanide, Non-amenable	10 mg/L
							Cyanide, Total	10 mg/L
							Cyanide, Weak Acid Dissociable	10 mg/L
.CN CAL Std_00054	07/31/17		Ricca, Lot 4701B68		(Purchased Reagent)		Cyanide, Amenable	1000 mg/L
							Cyanide, Free	1000 mg/L
							Cyanide, Non-amenable	1000 mg/L
							Cyanide, Total	1000 mg/L
							Cyanide, Weak Acid Dissociable	1000 mg/L
CN CAL 1 ppm_01250	05/13/17	05/12/17	1% NaOH, Lot N/A	100 mL	CN 10ppm_00253	10 mL	Cyanide, Free	1 mg/L
.CN 10ppm_00253	05/17/17	05/10/17	2% NaOH, Lot 1% NaOH_00256	100 mg/L	CN CAL Std_00054	1 mL	Cyanide, Free	10 mg/L
..CN CAL Std_00054	07/31/17		Ricca, Lot 4701B68		(Purchased Reagent)		Cyanide, Free	1000 mg/L
CN ICV Daily_01015	05/13/17	05/12/17	1% HNO3, Lot N/A	100 mL	CN ICV Int_00435	1 mL	Cyanide, Free	0.1 mg/L
.CN ICV Int_00435	05/17/17	05/10/17	1% NaOH, Lot 1% NaOH_00256	100 mL	CN ICV Std_00042	1 mL	Cyanide, Free	10 mg/L
..CN ICV Std_00042	10/26/18		CPI, Lot 1107290		(Purchased Reagent)		Cyanide, Free	1000 mg/L
CN ICV Int_00435	05/17/17	05/10/17	1% NaOH, Lot 1% NaOH_00256	100 mL	CN ICV Std_00042	1 mL	Cyanide, Amenable	10 mg/L
							Cyanide, Free	10 mg/L
							Cyanide, Non-amenable	0 mg/L
							Cyanide, Total	10 mg/L
							Cyanide, Weak Acid Dissociable	10 mg/L
.CN ICV Std_00042	10/26/18		CPI, Lot 1107290		(Purchased Reagent)		Cyanide, Amenable	1000 mg/L
							Cyanide, Free	1000 mg/L
							Cyanide, Non-amenable	0 mg/L
							Cyanide, Total	1000 mg/L
							Cyanide, Weak Acid Dissociable	1000 mg/L

Reagent

CN ICV Std_00042

USA

5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe

P.O. Box 2704 P: +31 20 638 05 97
1000 CS Amsterdam F: +31 20 420 28 36
The Netherlands

Certificate of Analysis

Rev 0

Comment:

Catalog No:	Lot No:	Expiration Date:	Matrix:	Description:
Z-G34-4400-IC9M	1107290	26-Oct-2018	0.179% NaOH	ISO Guide 34 - Cyanide, 100 mL 1,000 mg/L in H_2O

Additional Information:

Date Received: _____

Container: 4 oz (125 mL) Narrow Mouth, HDPE

Certified Values:

The certified value is based on gravimetric and volumetric preparation of this CRM. This CRM has been confirmed by inductively coupled plasma optical emission spectrometry (ICP-OES) using an internally developed method against an independent source which is directly traceable to the NIST SRM's listed below.
The uncertainty value is calculated for a 95% confidence interval with a *k* value of 2.

Element	Symbol	CAS No	SRM No	NIST Lot No	Source Lot No	Purity %	Concentration mg/L	Uncertainty ± mg/L
Cyanide	CN	151-50-8	N/A	N/A	363.9.1S	99.3	1000	3.5

USA

5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe

P.O. Box 2704 P: +31 20 638 05 97
1000 CS Amsterdam F: +31 20 420 28 36
The Netherlands

Certificate of Analysis

Rev 0

Comment:

Catalog No:	Lot No:	Expiration Date:	Matrix:	Description:
Z-G34-4400-IC9M	1107290	26-Oct-2018	0.179% NaOH	ISO Guide 34 - Cyanide, 100 mL 1,000 mg/L in H_2O

Calculation of Uncertainty

The following equations are used to calculate the value of the expanded uncertainty:
$U=ku_c$ U=Expanded Uncertainty, k= the coverage factor at the 95% confidence level, k=2, u_c = the combined uncertainty
$u_c = \sqrt{\sum u_i^2}$ where u_i are the individual uncertainty components for raw material, transportation, homogeneity, and shelf life.

Expiration Information:

The Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. These tests include the effect of temperature and packaging on the product. This standard is guaranteed until the expiration date listed above.

Accreditation:

This standard was manufactured by an ISO 17025 Chemical Testing Lab (Certificate number 3031.01) and ISO Guide 34 Reference Material Producer (RMP) Certificate number 3031.02 accredited by The American Association of Laboratory Accreditation (A2LA). Manufacturer's Quality System audited and registered by NSF-ISR to ISO 9001:2008 (Certificate number IZ391-IS4).

Manufactured By:

Kayla Dennin
Chemist
Manufacture Date: 4/24/2017

Certified By:

Cristy Lane
Chemist
Certified Date:4/24/2017

Released By:

Mark Filla
Chemist
Original Issue Date: 4/24/2017

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-2

SDG No.:

Project: Ravenna, OH

Client Sample ID	Lab Sample ID
RQLmw-012-050317-GW	280-96682-1

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: RQLmw-012-050317-GW
Lab Sample ID: 280-96682-1
Lab Name: TestAmerica Denver
Job No.: 280-96682-2
SDG ID.:
Matrix: Water
Date Sampled: 05/03/2017 14:00
Reporting Basis: WET
Date Received: 05/04/2017 08:55

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Cyanide, Free	2.2	10	2.0	ug/L	J	B	1	SM 4500 CN I

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Analyst: JML Batch Start Date: 05/12/2017

Reporting Units: mg/L Analytical Batch No.: 373312

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	ICV	07:33	Cyanide, Free	0.0999	0.100	100	90-110		CN ICV Daily_01015
15	ICB	07:34	Cyanide, Free	ND					
29	CCV	07:55	Cyanide, Free	0.204	0.200	102	90-110		CN CAL 1 ppm_01250
30	CCB	07:57	Cyanide, Free	ND					
44	CCV	08:18	Cyanide, Free	0.207	0.200	104	90-110		CN CAL 1 ppm_01250
45	CCB	08:19	Cyanide, Free	ND					

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

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 373312	Date: 05/12/2017 07:42	Prep Batch: 373070	Date: 05/11/2017 06:43				
SM 4500 CN I	MB 280-373070/4-A	Cyanide, Free	2.44	J	ug/L	10	1

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 373312	Date: 05/12/2017 07:40		Prep Batch: 373070		Date: 05/11/2017 06:43						
					LCS Source: CN ICV Int_00435						
SM 4500 CN I	LCS 280-373070/3-A	Cyanide, Free	98.9		ug/L	100	99	75-120			

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

FORM VIIA-IN

7A-IN
LOW LEVEL CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 373312	Date: 05/12/2017 07:39		Prep Batch: 373070		Date: 05/11/2017 06:43						
					LCS Source: CN 10ppm_00253						
SM 4500 CN I	LLCS 280-373070/2-A	Cyanide, Free	102		ug/L	100	102	75-120			

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

FORM VIIA-IN

7A-IN
HIGH LEVEL CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 373312	Date: 05/12/2017 07:37		Prep Batch: 373070		Date: 05/11/2017 06:43						
					LCS Source: CN 10ppm_00253						
SM 4500 CN I	HLCS 280-373070/1-A	Cyanide, Free	408		ug/L	400	102	75-120			

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

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-2

SDG Number:

Matrix: Water Instrument ID: WC_Alp 1

Method: SM 4500 CN I MDL Date: 10/11/2010 11:56

Prep Method: SM 4500 CN I

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Cyanide, Free		0.01	0.002

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-2

SDG Number:

Matrix: Water Instrument ID: WC_Alp 1

Method: SM 4500 CN I XMDL Date: 10/11/2010 11:56

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Cyanide, Free		0.01	0.002

12-IN
PREPARATION LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Prep Method: SM 4500 CN I

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
HLCS 280-373070/1-A	05/11/2017 06:43	373070		50	50
LLCS 280-373070/2-A	05/11/2017 06:43	373070		50	50
LCS 280-373070/3-A	05/11/2017 06:43	373070		50	50
MB 280-373070/4-A	05/11/2017 06:43	373070		50	50
280-96682-1	05/11/2017 06:43	373070		50	50

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Instrument ID: WC_Alp 1 Analysis Method: SM 4500 CN I

Start Date: 05/12/2017 07:13 End Date: 05/12/2017 09:42

Lab Sample Id	D/F	Type	Time	Analytes
				CNFree
ZZZZZZ			07:13	
ZZZZZZ			07:15	
ZZZZZZ			07:16	
ZZZZZZ			07:18	
IC 280-373312/5			07:19	X
IC 280-373312/6			07:21	X
IC 280-373312/7			07:22	X
IC 280-373312/8			07:24	X
IC 280-373312/9			07:25	X
IC 280-373312/10			07:27	X
IC 280-373312/11			07:28	X
ZZZZZZ			07:30	
ZZZZZZ			07:31	
ICV 280-373312/14	1		07:33	X
ICB 280-373312/15	1		07:34	X
ZZZZZZ			07:36	
HLCS 280-373070/1-A	1	T	07:37	X
LLCS 280-373070/2-A	1	T	07:39	X
LCS 280-373070/3-A	1	T	07:40	X
MB 280-373070/4-A	1	T	07:42	X
ZZZZZZ			07:43	
ZZZZZZ			07:45	
ZZZZZZ			07:46	
ZZZZZZ			07:48	
ZZZZZZ			07:49	
ZZZZZZ			07:51	
ZZZZZZ			07:52	
ZZZZZZ			07:54	
CCV 280-373312/29	1		07:55	X
CCB 280-373312/30	1		07:57	X
ZZZZZZ			07:58	
280-96682-1	1	T	08:00	X
ZZZZZZ			08:01	
ZZZZZZ			08:03	
ZZZZZZ			08:04	
ZZZZZZ			08:06	
ZZZZZZ			08:07	
ZZZZZZ			08:09	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Instrument ID: WC_Alp 1 Analysis Method: SM 4500 CN I

Start Date: 05/12/2017 07:13 End Date: 05/12/2017 09:42

Lab Sample Id	D/F	Type	Time	Analytes
				CNFree
ZZZZZZ			08:10	
ZZZZZZ			08:12	
ZZZZZZ			08:13	
ZZZZZZ			08:15	
ZZZZZZ			08:16	
CCV 280-373312/44	1		08:18	X
CCB 280-373312/45	1		08:19	X
ZZZZZZ			08:21	
ZZZZZZ			08:22	
ZZZZZZ			08:24	
ZZZZZZ			08:25	
ZZZZZZ			08:27	
ZZZZZZ			08:28	
ZZZZZZ			08:30	
ZZZZZZ			08:31	
ZZZZZZ			08:33	
ZZZZZZ			08:34	
ZZZZZZ			08:36	
ZZZZZZ			08:37	
ZZZZZZ			08:39	
CCV 280-373312/59			08:40	
CCB 280-373312/60			08:42	
ZZZZZZ			08:43	
ZZZZZZ			08:45	
ZZZZZZ			08:46	
ZZZZZZ			08:48	
ZZZZZZ			08:49	
ZZZZZZ			08:51	
ZZZZZZ			08:52	
ZZZZZZ			08:54	
ZZZZZZ			08:55	
ZZZZZZ			08:57	
ZZZZZZ			08:58	
ZZZZZZ			09:00	
ZZZZZZ			09:01	
CCV 280-373312/74			09:03	
CCB 280-373312/75			09:04	
ZZZZZZ			09:06	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Instrument ID: WC_Alp 1 Analysis Method: SM 4500 CN I

Start Date: 05/12/2017 07:13 End Date: 05/12/2017 09:42

Lab Sample Id	D/F	Type	Time	Analytes
				CNFree
ZZZZZZ			09:07	
ZZZZZZ			09:09	
ZZZZZZ			09:10	
ZZZZZZ			09:12	
ZZZZZZ			09:13	
ZZZZZZ			09:15	
ZZZZZZ			09:16	
ZZZZZZ			09:18	
ZZZZZZ			09:19	
ZZZZZZ			09:21	
ZZZZZZ			09:22	
ZZZZZZ			09:24	
CCV 280-373312/89			09:25	
CCB 280-373312/90			09:27	
ZZZZZZ			09:28	
ZZZZZZ			09:30	
ZZZZZZ			09:31	
ZZZZZZ			09:33	
ZZZZZZ			09:34	
ZZZZZZ			09:36	
ZZZZZZ			09:37	
CCV 280-373312/98			09:39	
CCB 280-373312/99			09:40	
ZZZZZZ			09:42	

Prep Types:
T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Batch Number: 373070 Batch Start Date: 05/11/17 06:43 Batch Analyst: Lehman, Jeffrey M

Batch Method: SM 4500 CN I Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	DistillpHCheck	SulfideCheck	ChlorineCheck	CN 10ppm 00253
HLCS 280-373070/1		SM 4500 CN I, SM 4500 CN I		50 mL	50 mL	>12	N	N	2 mL
LLCS 280-373070/2		SM 4500 CN I, SM 4500 CN I		50 mL	50 mL	>12	N	N	0.5 mL
LCS 280-373070/3		SM 4500 CN I, SM 4500 CN I		50 mL	50 mL	>12	N	N	
MB 280-373070/4		SM 4500 CN I, SM 4500 CN I		50 mL	50 mL	>12	N	N	
280-96682-B-1	RQLmw-012-050317-GW	SM 4500 CN I, SM 4500 CN I	T	50 mL	50 mL	>12	N	N	

Lab Sample ID	Client Sample ID	Method Chain	Basis	CN ICV Int 00435					
HLCS 280-373070/1		SM 4500 CN I, SM 4500 CN I							
LLCS 280-373070/2		SM 4500 CN I, SM 4500 CN I							
LCS 280-373070/3		SM 4500 CN I, SM 4500 CN I		0.5 mL					
MB 280-373070/4		SM 4500 CN I, SM 4500 CN I							
280-96682-B-1	RQLmw-012-050317-GW	SM 4500 CN I, SM 4500 CN I	T						

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 Denver Job No.: 280-96682-2

SDG No.:

Batch Number: 373070 Batch Start Date: 05/11/17 06:43 Batch Analyst: Lehman, Jeffrey M

Batch Method: SM 4500 CN I Batch End Date:

Batch Notes	
Acetate Buffer ID	WAD Acetate_00010
Methyl Red Indicator ID	METHYL RED_00012
Sodium Hydroxide ID	2% NaOH_00277
Pipette ID	WC T1000
WAD Releasing Agent ID	10% Acetic_00017
Zinc Acetate Buffer ID	ZINC BUFFER_00013

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-2

SDG No.:

Batch Number: 373312 Batch Start Date: 05/12/17 07:13 Batch Analyst: Lehman, Jeffrey M

Batch Method: SM 4500 CN I Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CN CAL 1 ppm 01250	CN ICV Daily 01015		
ICV 280-373312/14		SM 4500 CN I		50 mL	50 mL		50 mL		
ICB 280-373312/15		SM 4500 CN I		50 mL	50 mL				
HLCS 280-373070/1-A		SM 4500 CN I		50 mL	50 mL				
LLCS 280-373070/2-A		SM 4500 CN I		50 mL	50 mL				
LCS 280-373070/3-A		SM 4500 CN I		50 mL	50 mL				
MB 280-373070/4-A		SM 4500 CN I		50 mL	50 mL				
CCV 280-373312/29		SM 4500 CN I		50 mL	50 mL	10 mL			
CCB 280-373312/30		SM 4500 CN I		50 mL	50 mL				
280-96682-B-1-A	RQLmw-012-050317-GW	SM 4500 CN I	T	50 mL	50 mL				
CCV 280-373312/44		SM 4500 CN I		50 mL	50 mL	10 mL			
CCB 280-373312/45		SM 4500 CN I		50 mL	50 mL				

Batch Notes	
Buffer Reagent ID Number	CN Buffer_00095
Chloramine-T ID	CN Chloro-T_00784
Pipette ID	WC 5000ELJ WC T1000
Pyridine-Barbituric Acid ID	CN Pyr/Barb_00164

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.

Run Results Report

Facility Name
Facility Location
Department
Operator Name JML
Operator ID JML
Platform FS III/IV/3100
Software Rev Code 222
Data system ID 57

Result path C:\FLOW_4\C051217.RST
Sample table path C:\FLOW_4\c051217.tbl
Method path C:\FLOW_4\cyanide.mth
Date acquired 12-May-17
Time acquired 09:47

				|-------- Cyanide, Total -------|	
Date	Time	Cup	Name	Response	Calc [ppb]	Flags
12-May-17	07:13	107	Sync	315924	391.403	
12-May-17	07:15	0	Carryover	374	-0.210	LO
12-May-17	07:16	0	Carryover	81	-0.574	LO
12-May-17	07:18	0	Baseline	0	-0.674	BL
12-May-17	07:19	101	CAL 0.00 ppb	176	-0.455	LO
12-May-17	07:21	102	CAL 10.0 ppb	8382	9.728	
12-May-17	07:22	103	CAL 20.0 ppb	16423	19.708	
12-May-17	07:24	104	CAL 50.0 ppb	41232	50.496	
12-May-17	07:25	105	CAL 100 ppb	81813	100.861	
12-May-17	07:27	106	Cal 200 ppb	161565	199.836	
12-May-17	07:28	107	Cal 400 ppb	322711	399.826	
12-May-17	07:30	0	BLK	0	-0.674	LO
12-May-17	07:31	0	Baseline	0	-0.674	BL
12-May-17	07:33	108	ICV 100 ppb	81033	99.891	
12-May-17	07:34	0	ICB	-15	-0.693	LO
12-May-17	07:36	0	Baseline	0	-0.674	BL
12-May-17	07:37	113	hlcs 280-373070/1-a	328995	407.625	
12-May-17	07:39	114	llcs 280-373070/2-a	82735	102.005	
12-May-17	07:40	115	lcs 280-373070/3-a	80224	98.888	
12-May-17	07:42	116	mb 280-373070/4-a	2509	2.440	
12-May-17	07:43	117	280-96618-c-1-a	14900	17.817	
12-May-17	07:45	118	280-96618-c-1-b ms	85914	105.950	
12-May-17	07:46	119	280-96618-c-1-c msd	86282	106.407	
12-May-17	07:48	120	280-96618-c-2-a	1991	1.798	
12-May-17	07:49	121	280-96646-g-1-a	2851	2.864	
12-May-17	07:51	122	280-96645-l-1-a	2105	1.938	
12-May-17	07:52	0	BLK	21	-0.647	LO
12-May-17	07:54	0	baseline	0	-0.674	BL
12-May-17	07:55	109	CCV 200PPB	164960	204.049	
12-May-17	07:57	0	CCB	-25	-0.705	LO
12-May-17	07:58	0	Baseline	0	-0.674	BL
12-May-17	08:00	123	280-96682-b-1-a	2353	2.246	
12-May-17	08:01	124	280-96734-a-2-a	1984	1.788	
12-May-17	08:03	125	280-96690-f-1-a	1933	1.725	
12-May-17	08:04	126	hlcs 280-373195/1-a	329452	408.192	
12-May-17	08:06	127	llcs 280-373195/2-a	84836	104.611	
12-May-17	08:07	128	lcs 280-373195/3-a	81074	99.943	
12-May-17	08:09	129	mb 280-373195/4-a	2387	2.289	
12-May-17	08:10	130	280-96586-b-1-a	2157	2.003	
12-May-17	08:12	131	280-96586-b-1-b ms	79875	98.455	
12-May-17	08:13	132	280-96586-b-1-c msd	82243	101.394	
12-May-17	08:15	0	BLK	-83	-0.777	LO
12-May-17	08:16	0	baseline	0	-0.674	BL
12-May-17	08:18	109	CCV 200PPB	167556	207.272	
12-May-17	08:19	0	CCB	-20	-0.699	LO
12-May-17	08:21	0	Baseline	0	-0.674	BL

Result path C:\FLOW_4\C051217.RST
Sample table path C:\FLOW_4\c051217.tbl
Method path C:\FLOW_4\cyanide.mth
Date acquired 12-May-17
Time acquired 09:47

				Cyanide, Total		
Date	Time	Cup	Name	Response	Calc [ppb]	Flags
12-May-17	08:22	133	280-96560-y-1-a	4137	4.461	
12-May-17	08:24	134	280-96560-l-2-a	3751	3.982	
12-May-17	08:25	135	280-96560-l-3-a	1850	1.622	
12-May-17	08:27	136	280-96560-a-5-a	2431	2.343	
12-May-17	08:28	137	280-96572-m-2-a	1898	1.681	
12-May-17	08:30	138	280-96572-m-3-a	1098	0.689	
12-May-17	08:31	139	320-27971-j-3-a	2411	2.318	
12-May-17	08:33	140	320-27971-j-4-a	1611	1.326	
12-May-17	08:34	141	680-138351-c-3-a	4397	4.783	
12-May-17	08:36	142	280-96582-c-1-a	2708	2.687	
12-May-17	08:37	0	BLK	-64	-0.753	LO
12-May-17	08:39	0	baseline	0	-0.674	BL
12-May-17	08:40	109	CCV 200PPB	168572	208.531	
12-May-17	08:42	0	CCB	-64	-0.753	LO
12-May-17	08:43	0	Baseline	0	-0.674	BL
12-May-17	08:45	143	280-96600-a-1-a	1642	1.364	
12-May-17	08:46	144	280-96600-a-1-b ms	83105	102.464	
12-May-17	08:48	145	280-96600-a-1-c msd	82015	101.110	
12-May-17	08:49	146	280-96600-a-2-a	2826	2.833	
12-May-17	08:51	147	280-96600-b-3-d	2110	1.945	
12-May-17	08:52	148	280-96600-a-9-a	4405	4.793	
12-May-17	08:54	149	280-96600-c-11-a	2568	2.513	
12-May-17	08:55	150	280-96607-m-1-a	2951	2.988	
12-May-17	08:57	151	280-96607-m-2-a	3853	4.108	
12-May-17	08:58	152	280-96615-a-1-a	1798	1.558	
12-May-17	09:00	0	BLK	42	-0.621	LO
12-May-17	09:01	0	baseline	0	-0.674	BL
12-May-17	09:03	109	CCV 200PPB	171721	212.440	
12-May-17	09:04	0	CCB	-58	-0.746	LO
12-May-17	09:06	0	Baseline	0	-0.674	BL
12-May-17	09:07	153	280-96617-l-2-a	2701	2.678	
12-May-17	09:09	154	hlcs 280-373222/1-a	333623	413.369	
12-May-17	09:10	155	llcs 280-373222/2-a	83506	102.961	
12-May-17	09:12	156	mb 280-373222/3-a	83168	102.541	
12-May-17	09:13	157	lcs 280-373222/4-a	1832	1.600	
12-May-17	09:15	158	280-96606-q-1-a	2668	2.637	
12-May-17	09:16	159	280-96606-q-1-b ms	83397	102.825	
12-May-17	09:18	160	280-96606-q-1-c msd	83386	102.812	
12-May-17	09:19	201	280-96606-q-2-a	2520	2.453	
12-May-17	09:21	202	280-96606-q-3-a	2823	2.830	
12-May-17	09:22	0	BLK	67	-0.591	LO
12-May-17	09:24	0	baseline	0	-0.674	BL
12-May-17	09:25	109	CCV 200PPB	172156	212.980	
12-May-17	09:27	0	CCB	16	-0.654	LO
12-May-17	09:28	0	Baseline	0	-0.674	BL
12-May-17	09:30	203	280-96606-q-4-a	2635	2.596	
12-May-17	09:31	204	280-96606-q-5-a	2278	2.154	
12-May-17	09:33	205	320-27971-r-1-a	2302	2.183	
12-May-17	09:34	206	320-27971-j-2-a	5055	5.600	
12-May-17	09:36	0	BLK	-5	-0.681	LO
12-May-17	09:37	0	baseline	0	-0.674	BL
12-May-17	09:39	109	CCV 200PPB	176703	218.623	
12-May-17	09:40	0	CCB	-51	-0.737	LO
12-May-17	09:42	0	Baseline	0	-0.674	BL

Peak Table:Cyanide, Total

File name: C:\FLOW_4\C051217.RST
Date: 12-May-17
Operator: JML

Peak	Cup	Name	R	Type	Dil	Wt	Height	Calc. (ppb)	Flags
1	107	Sync	1	SYNC	1	1	315924	391.403351	
2	0	Carryover	1	CO	1	1	374	-0.209842	LO
3	0	Carryover	2	CO	1	1	81	-0.573729	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
5	101	CAL 0.00 ppb	1	C	1	1	176	-0.455062	LO
6	102	CAL 10.0 ppb	1	C	1	1	8382	9.728281	
7	103	CAL 20.0 ppb	1	C	1	1	16423	19.707750	
8	104	CAL 50.0 ppb	1	C	1	1	41232	50.496464	
9	105	CAL 100 ppb	1	C	1	1	81813	100.860542	
10	106	Cal 200 ppb	1	C	1	1	161565	199.835724	
11	107	Cal 400 ppb	1	C	1	1	322711	399.826324	
12	0	BLK	1	BLNK	1	1	0	-0.674459	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
14	108	ICV 100 ppb	1	CCV	1	1	81033	99.891487	
15	0	ICB	1	U	1	1	-15	-0.692820	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
17	113	hlcs 280-373070/1-a 1	U		1	1	328995	407.625275	
18	114	llcs 280-373070/2-a 1	U		1	1	82735	102.004677	
19	115	lcs 280-373070/3-a 1	U		1	1	80224	98.887825	
20	116	mb 280-373070/4-a 1	U		1	1	2509	2.439537	
21	117	280-96618-c-1-a 1	U		1	1	14900	17.817394	
22	118	280-96618-c-1-b ms 1	U		1	1	85914	105.949684	
23	119	280-96618-c-1-c msd 1	U		1	1	86282	106.406708	
24	120	280-96618-c-2-a 1	U		1	1	1991	1.797688	
25	121	280-96646-g-1-a 1	U		1	1	2851	2.864205	
26	122	280-96645-l-1-a 1	U		1	1	2105	1.938292	
27	0	BLK	1	BLNK	1	1	21	-0.647368	LO
B	0	baseline	1	RB	1	1	0	-0.673853	BL
29	109	CCV 200PPB	1	CCV	1	1	164960	204.049332	
30	0	CCB	1	U	1	1	-25	-0.705469	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
32	123	280-96682-b-1-a 1	U		1	1	2353	2.245955	
33	124	280-96734-a-2-a 1	U		1	1	1984	1.788282	
34	125	280-96690-f-1-a 1	U		1	1	1933	1.725091	
35	126	hlcs 280-373195/1-a 1	U		1	1	329452	408.192139	
36	127	llcs 280-373195/2-a 1	U		1	1	84836	104.611282	
37	128	lcs 280-373195/3-a 1	U		1	1	81074	99.942978	
38	129	mb 280-373195/4-a 1	U		1	1	2387	2.288600	
39	130	280-96586-b-1-a 1	U		1	1	2157	2.003491	
40	131	280-96586-b-1-b ms 1	U		1	1	79875	98.455246	
41	132	280-96586-b-1-c msd 1	U		1	1	82243	101.394157	
42	0	BLK	1	BLNK	1	1	-83	-0.776886	LO
B	0	baseline	1	RB	1	1	0	-0.673853	BL
44	109	CCV 200PPB	1	CCV	1	1	167556	207.271667	
45	0	CCB	1	U	1	1	-20	-0.699023	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
47	133	280-96560-y-1-a 1	U		1	1	4137	4.460889	
48	134	280-96560-l-2-a 1	U		1	1	3751	3.981852	
49	135	280-96560-l-3-a 1	U		1	1	1850	1.622463	
50	136	280-96560-a-5-a 1	U		1	1	2431	2.342800	
51	137	280-96572-m-2-a 1	U		1	1	1898	1.681359	
52	138	280-96572-m-3-a 1	U		1	1	1098	0.689436	
53	139	320-27971-j-3-a 1	U		1	1	2411	2.318455	
54	140	320-27971-j-4-a 1	U		1	1	1611	1.325618	
55	141	680-138351-c-3-a 1	U		1	1	4397	4.782872	
56	142	280-96582-c-1-a 1	U		1	1	2708	2.686567	
57	0	BLK	1	BLNK	1	1	-64	-0.752897	LO
B	0	baseline	1	RB	1	1	0	-0.673853	BL
59	109	CCV 200PPB	1	CCV	1	1	168572	208.531494	
60	0	CCB	1	U	1	1	-64	-0.753354	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
62	143	280-96600-a-1-a 1	U		1	1	1642	1.363792	
63	144	280-96600-a-1-b ms 1	U		1	1	83105	102.463852	
64	145	280-96600-a-1-c msd 1	U		1	1	82015	101.110474	
65	146	280-96600-a-2-a 1	U		1	1	2826	2.833196	
66	147	280-96600-b-3-d 1	U		1	1	2110	1.944900	
67	148	280-96600-a-9-a 1	U		1	1	4405	4.793386	
68	149	280-96600-c-11-a 1	U		1	1	2568	2.512926	
69	150	280-96607-m-1-a 1	U		1	1	2951	2.988039	
70	151	280-96607-m-2-a 1	U		1	1	3853	4.107900	

Peak	Cup	Name	R	Type	Dil	Wt	Height	Calc. (ppb)	Flags
71	152	280-96615-a-1-a	1	U	1	1	1798	1.557708	
72	0	BLK	1	BLNK	1	1	42	-0.621110	LO
B	0	baseline	1	RB	1	1	0	-0.673853	BL
74	109	CCV 200PPB	1	CCV	1	1	171721	212.439987	
75	0	CCB	1	U	1	1	-58	-0.746278	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
77	153	280-96617-l-2-a	1	U	1	1	2701	2.678125	
78	154	hlcs 280-373222/1-a	1	U	1	1	333623	413.368835	
79	155	llcs 280-373222/2-a	1	U	1	1	83506	102.961349	
80	156	mb 280-373222/3-a	1	U	1	1	83168	102.541267	
81	157	lcs 280-373222/4-a	1	U	1	1	1832	1.600136	
82	158	280-96606-q-1-a	1	U	1	1	2668	2.636885	
83	159	280-96606-q-1-b ms	1	U	1	1	83397	102.825417	
84	160	280-96606-q-1-c msd	1	U	1	1	83386	102.811668	
85	201	280-96606-q-2-a	1	U	1	1	2520	2.453358	
86	202	280-96606-q-3-a	1	U	1	1	2823	2.829870	
87	0	BLK	1	BLNK	1	1	67	-0.590807	LO
B	0	baseline	1	RB	1	1	0	-0.673853	BL
89	109	CCV 200PPB	1	CCV	1	1	172156	212.980438	
90	0	CCB	1	U	1	1	16	-0.654194	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL
92	203	280-96606-q-4-a	1	U	1	1	2635	2.596044	
93	204	280-96606-q-5-a	1	U	1	1	2278	2.153823	
94	205	320-27971-r-1-a	1	U	1	1	2302	2.183391	
95	206	320-27971-j-2-a	1	U	1	1	5055	5.599728	
96	0	BLK	1	BLNK	1	1	-5	-0.680604	LO
B	0	baseline	1	RB	1	1	0	-0.673853	BL
98	109	CCV 200PPB	1	CCV	1	1	176703	218.623184	
99	0	CCB	1	U	1	1	-51	-0.736869	LO
B	0	Baseline	1	RB	1	1	0	-0.673853	BL

Cyanide, Total:Calibration 1: Peak 5-100

File name: C:\FLOW_4\C051217.RST
Date: 12-May-17
Operator: JML

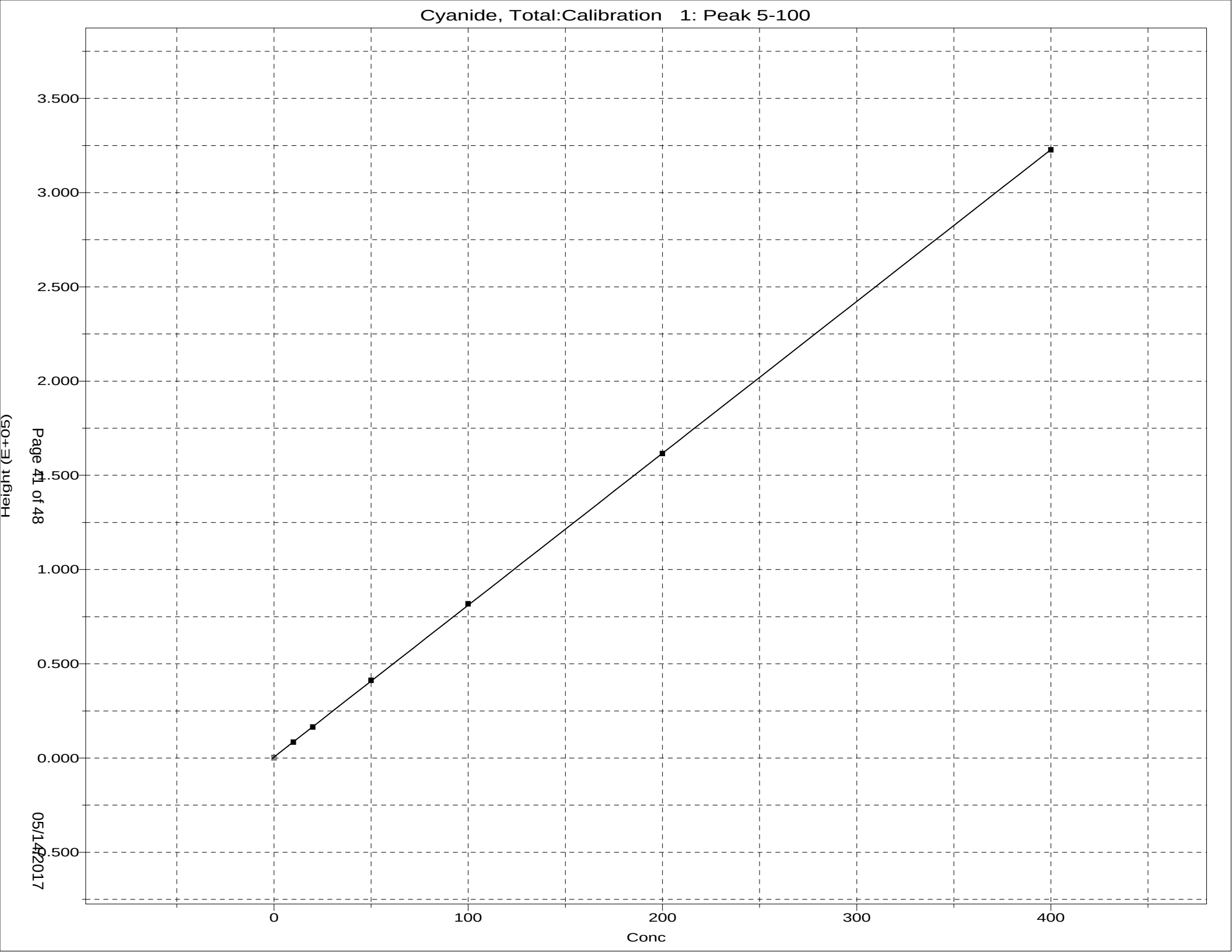
*	Name	Conc	Height
*	CAL 0.00 ppb	0.000000	176.295059
*	CAL 10.0 ppb	10.000000	8381.733398
*	CAL 20.0 ppb	20.000000	16422.898438
*	CAL 50.0 ppb	50.000000	41231.539062
*	CAL 100 ppb	100.000000	81813.429688
*	Cal 200 ppb	200.000000	161564.718750
*	Cal 400 ppb	400.000000	322711.281250

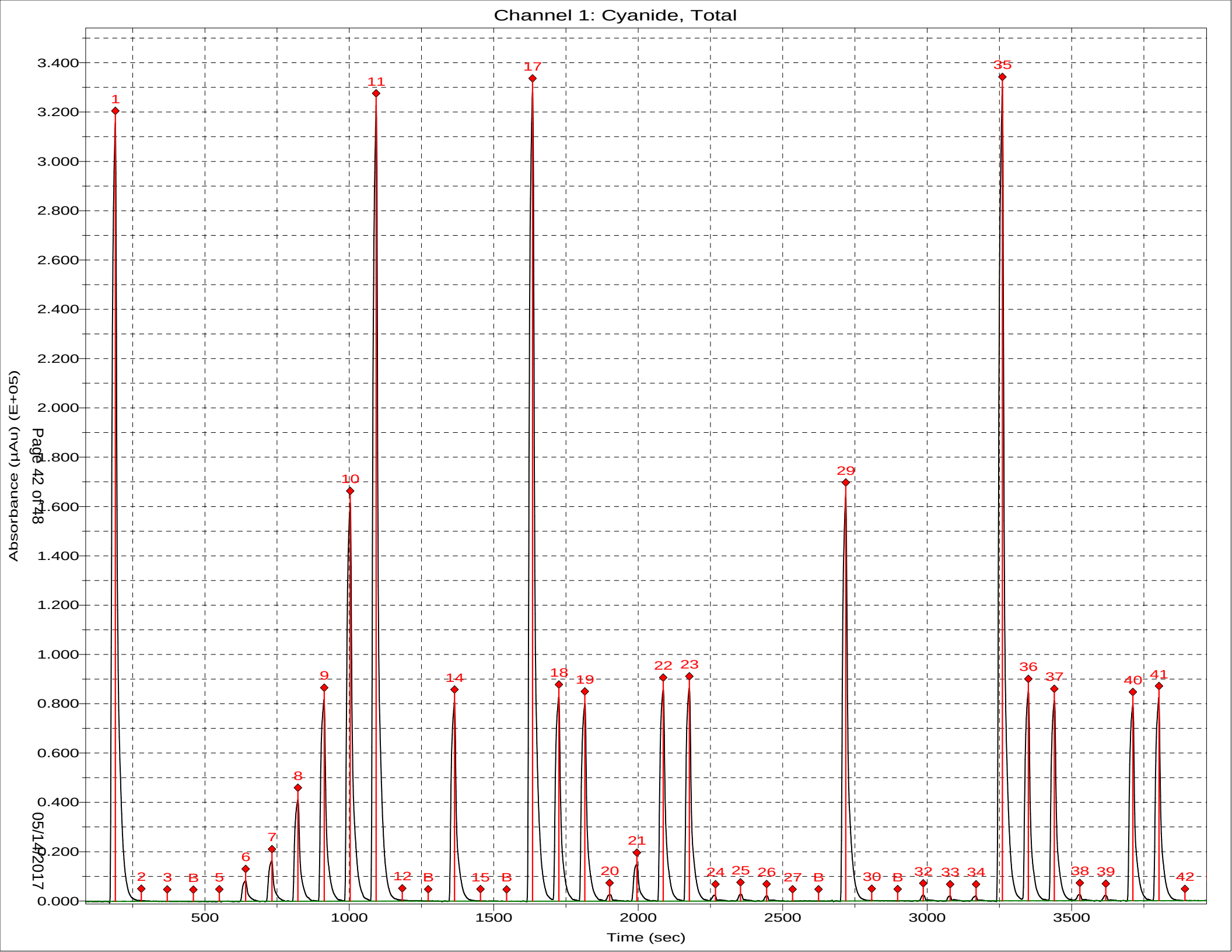
Calib Coef:
y=bx+a
a: (intercept) 5.4297e+02
b: 8.0577e+02

Corr Coef: 0.999994

Carryover: 0.118%

No Drift Peaks


Cyanide, Total:Calibration 1: Peak 5-100
Height (E+05)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
-0.500
0
100
200
300
400
Conc


Channel 1: Cyanide, Total
Absorbance (µAu) (E+05)
Time (sec)
3.400
3.200
3.000
2.800
2.600
2.400
2.200
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
500
1000
1500
2000
2500
3000
3500
1
2
3
B
5
6
7
8
9
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11
12
B
14
15
B
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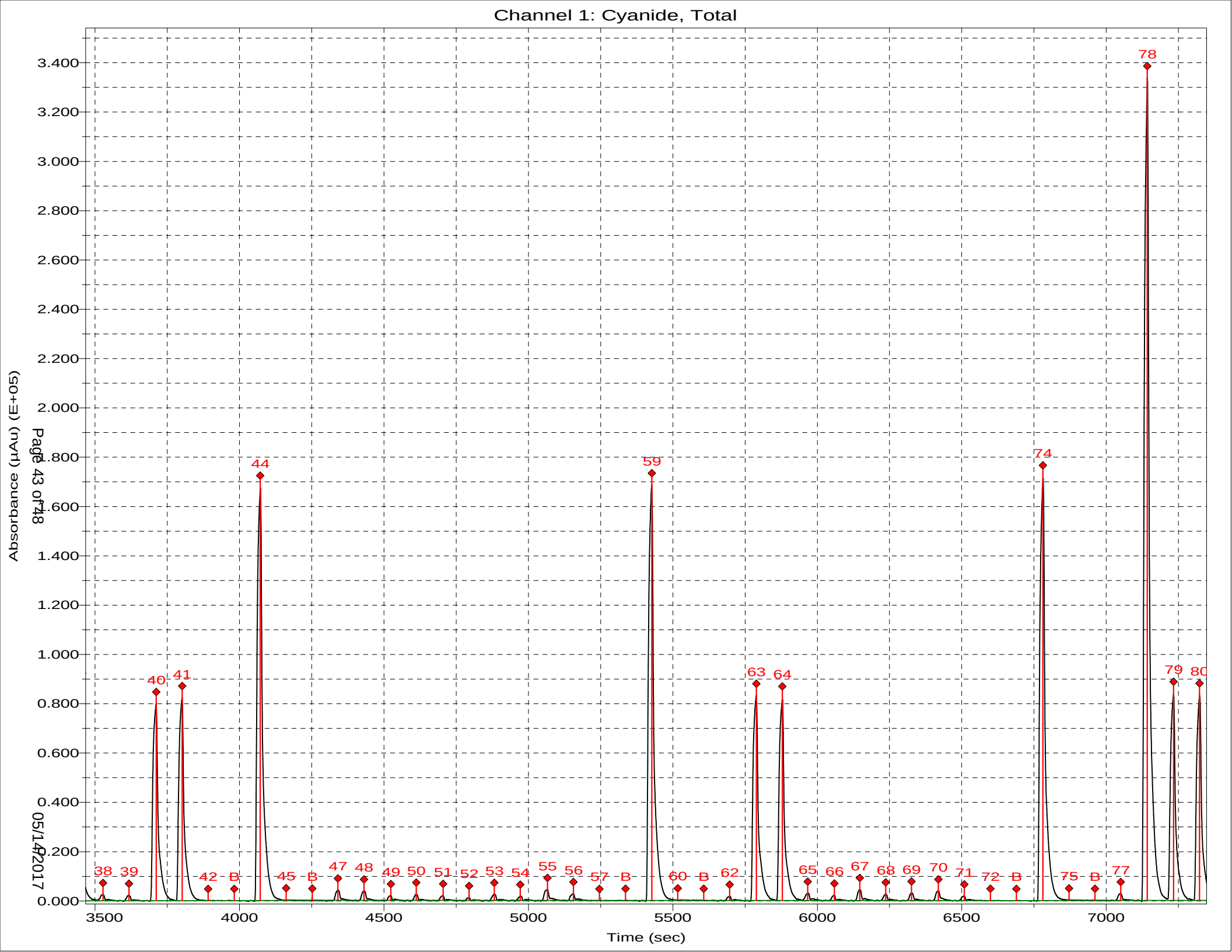
Channel 1: Cyanide, Total
Absorbance (µAu) (E+05)
Time (sec)
Page 43 of 48
05/14/2017
3.400
3.200
3.000
2.800
2.600
2.400
2.200
2.000
1.800
1.600
1.400
1.200
1.000
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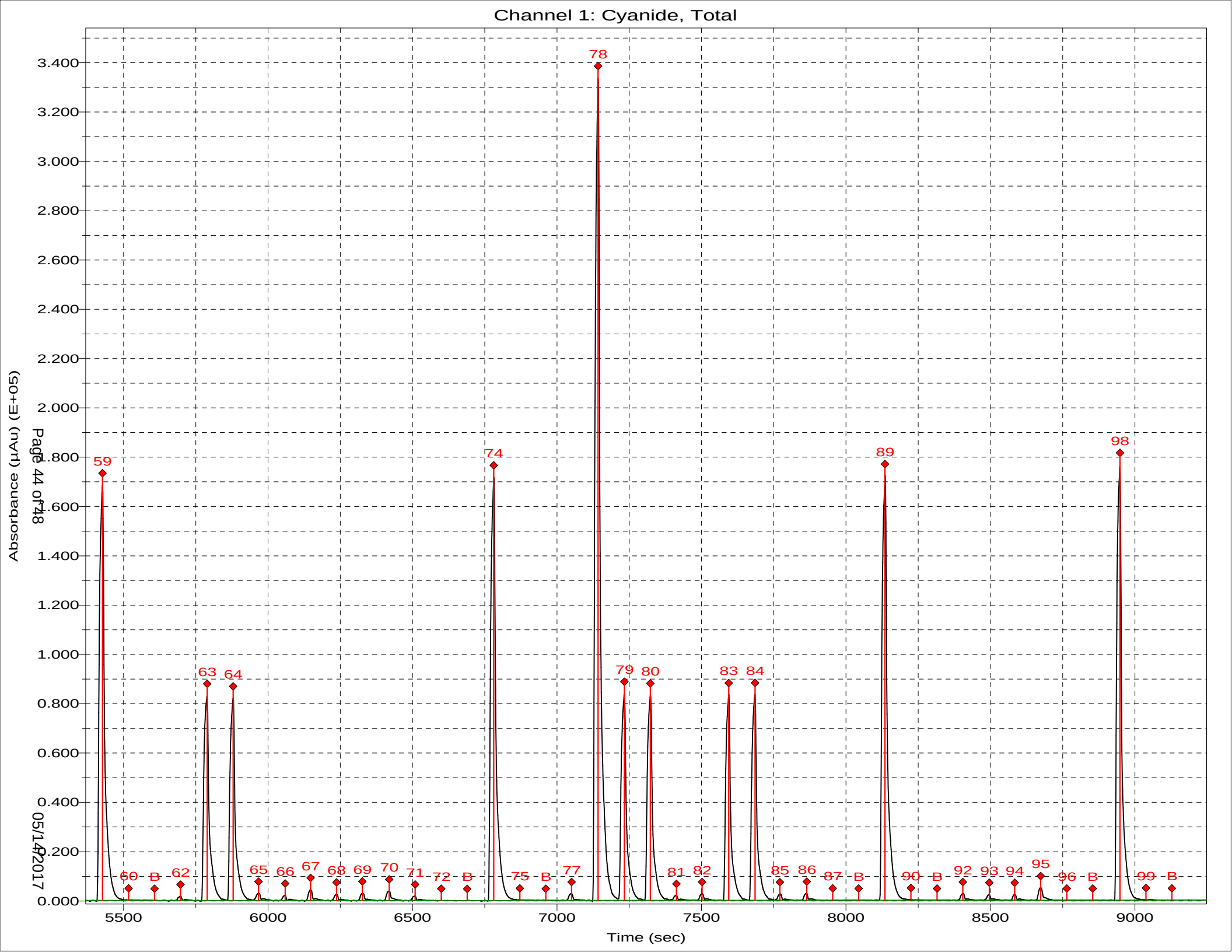
0.600
0.400
0.200
0.000
3500
4000
4500
5000
5500
6000
6500
7000
38 39 40 41 42 B 44 45 B 47 48 49 50 51 52 53 54 55 56 57 B 59 60 B 62 63 64 65 66 67 68 69 70 71 72 B 74 75 B 77 78 79 80


Channel 1: Cyanide, Total
Absorbance (µAu) (E+05)
Time (sec)
3.400
3.200
3.000
2.800
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Shipping and Receiving Documents

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kroenke-Lead	Lab PM: McEntee, Patrick J	Carrier Tracking No(s): 810486071425	COC No:
Client Contact: Ms. Heather Miner	Phone: 3303881598	E-Mail: patrick.mcentee@testamericainc.com		Page: Page:
Company: Cardno TEC, Inc				Job #:

Address: 1658 Cole Boulevard Suite 190	Due Date Requested:
City: Golden	TAT Requested (days): Standard
State, Zip: CO, 80401	
Phone:	PO #: 0091979
Email: heather.miner@cardno-gs.com	WO #: 076003.009.007
Project Name: Ravenna, OH - Ramsdell Quarry Landfill	TestAmerica Project #: 28014271
Site:	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VOCs 8260B	SVOCs 8270D - phthalates	SVOCs 8270D - phthalates, phenols	SVOCs 8270D - phthalates, nitroaromatics, phenols	PAHs 8270D_SIM (LVI)	PCBs 8082A (LL - 1L)	Explosives 8330B	Pesticides 8081B (LVI)	Total Cyanide 9012B	Free Cyanide 4500_CN_I	Total Metals 6010C6020A/7470A	Hexavalent Chromium 7196A - 24 Hour HT!	Alkalinity 2320B	Sulfide 9034	Anions 9056A - Sulfate, Nitrate & Nitrite - 48 Hour HT!	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	N	N	N	N	B	B	D	N	N	B/C	N		
RQLMW-012-050317-GW	5/3/17	1400	G	W	N	N									X	X		X	X	X	X	6	

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
K Kroenke	5/3/17 1700	ATC	FedEx	5/3/17 1700	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
			Rec'd KP	5-4-17 0855	TAP
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		0.6 IR #7 0.0 Transfer KP 5-4-17

05/14/2017

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Multiple; Kroeinke-Leed	Lab PM: McEntee, Patrick J	Carrier Tracking No(s): 8104860 71425	COC No:
Client Contact: Ms. Heather Miner	Phone: 330 387 1598	E-Mail: patrick.mcentee@testamericainc.com		Page: Page:
Company: Cardno TEC, Inc		**Analysis Requested**		Job #:
Address: 1658 Cole Boulevard Suite 190	Due Date Requested:			
City: Golden	TAT Requested (days): Standard			
State, Zip: CO, 80401				
Phone:	PO #: 0091979			
Email: heather.miner@cardno-gs.com	WO #: 076003.009.007			
Project Name: Ravenna, OH	TestAmerica Project #: 28014271			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
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)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Perchlorate 6850	Cr(VI) 7196A	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
LL3MW-246-050317-GW	5/3/17	1530	G	W	N	N	X		1	
BKGMW-024-050317-GW	5/3/17	1230	G	W	N	N	X		1	
~~BKGMW-008-050317-GW~~ (KSK)	~~5/3/17~~		~~G~~	~~W~~	~~N~~	~~N~~		~~X~~		
BKGMW-005-050317-GW	5/3/17	1537	G	W	N	N		X	1	
~~BKGMW-015-050317-GW~~ (KSK)	~~5/3/17~~		~~G~~	~~W~~	~~N~~	~~N~~		~~X~~		
FWGMW-005-050317-GW	5/3/17	1451	G	W	N	N		X	1	
FWGMW-021-050317-GW	5/3/17	1430	G	W	N	N		X	1	
LL1MW-084-050317-GW	5/3/17	1521	G	W	N	N		X	1	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 5/3/17 1700	Company: ATC	Received by: FedEx	Date/Time: 5/3/17 1700	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 5-4-17 0855	Company: TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: Cardno TEC, Inc

Job Number: 280-96682-2

Login Number: 96682
List Number: 1
Creator: Pottruff, Reed W

List Source: TestAmerica Denver

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.	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.	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	
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	