

## ANALYTICAL REPORT

Job Number: 280-96682-1

Job Description: Ravenna, OH

For:

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

Attention: Ms. Heather Miner



Approved for release.  
Stephanie K Rothmeyer  
Project Manager I  
5/17/2017 10:01 AM

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05/17/2017

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.**

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# Definitions/Glossary

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

TestAmerica Job ID: 280-96682-1

## Qualifiers

### LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

### General Chemistry

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
H	Sample was prepped or analyzed beyond the specified holding time
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

## Glossary

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: Cardno TEC, Inc**

**Project: Ravenna, OH**

**Report Number: 280-96682-1**

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

### **PERCHLORATE**

Samples LL3mw-246-050317-GW (280-96682-2) and BKGmw-024-050317-GW (280-96682-3) were analyzed for Perchlorate in accordance with 6860. The samples were analyzed on 05/11/2017.

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

### **ALKALINITY**

Sample RQLmw-012-050317-GW (280-96682-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 05/09/2017.

Alkalinity was detected in method blank MB 280-372960/31 at a level that was above one half the LOQ but below the LOQ. The value should be considered an estimate, and has been flagged J. If the associated sample reported a result above the LOQ, the result has been flagged B. Refer to the QC report for details.

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

### **HEXAVALENT CHROMIUM**

Samples RQLmw-012-050317-GW (280-96682-1), BKGmw-005-050317-GW (280-96682-4), FWGmw-005-050317-GW (280-96682-5), FWGmw-021-050317-GW (280-96682-6) and LL1mw-084-050317-GW (280-96682-7) were analyzed for hexavalent chromium in accordance with 7196A. The samples were analyzed on 05/04/2017.

The following sample was received with less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less: RQLmw-012-050317-GW (280-96682-1). As such, the laboratory had insufficient time remaining to perform the analysis within holding time.

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

### **CYANIDE, TOTAL AND/OR AMENABLE**

Sample RQLmw-012-050317-GW (280-96682-1) was analyzed for Cyanide, Total and/or Amenable in accordance with 9012B. The samples were prepared and analyzed on 05/12/2017.

Cyanide, Total was detected in method blank MB 280-373272/5-A at a level exceeding the LOQ. If the associated sample reported a result above the DL and/or LOQ, the result has been flagged.

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

### **SULFIDE**

Sample RQLmw-012-050317-GW (280-96682-1) was analyzed for sulfide in accordance with EPA SW-846 Method 9034. The samples

were prepared and analyzed on 05/09/2017.

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

**ANIONS (28 DAYS)**

Sample RQLmw-012-050317-GW (280-96682-1) was analyzed for anions (28 days) in accordance with 9056A. The samples were analyzed on 05/04/2017.

Sulfate was detected in method blank MB 280-372162/6 at a level that was above one half the LOQ but below the LOQ. The value should be considered an estimate, and has been flagged J. If the associated sample reported a result above the LOQ, the result has been flagged B. Refer to the QC report for details.

Sulfate failed the recovery criteria high for the MS and MSD of sample RQLmw-012-050317-GW (280-96682-1) in batch 280-372162. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Refer to the QC report for details.

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

**ANIONS (48 HOURS)**

Sample RQLmw-012-050317-GW (280-96682-1) was analyzed for anions (48 hours) in accordance with 9056A. The samples were analyzed on 05/04/2017.

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: 280-96682-1

## Client Sample ID: RQLmw-012-050317-GW

Lab Sample ID: 280-96682-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	640		500	42	ug/L	1		9056A	Total/NA
Sulfate	190000	J	5000	230	ug/L	1		9056A	Total/NA
Alkalinity	28		5.0	1.1	mg/L	1		SM 2320B	Total/NA

## Client Sample ID: LL3mw-246-050317-GW

Lab Sample ID: 280-96682-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perchlorate	0.073	M	0.050	0.0040	ug/L	1		6860	Total/NA

## Client Sample ID: BKGmw-024-050317-GW

Lab Sample ID: 280-96682-3

No Detections.

## Client Sample ID: BKGmw-005-050317-GW

Lab Sample ID: 280-96682-4

No Detections.

## Client Sample ID: FWGmw-005-050317-GW

Lab Sample ID: 280-96682-5

No Detections.

## Client Sample ID: FWGmw-021-050317-GW

Lab Sample ID: 280-96682-6

No Detections.

## Client Sample ID: LL1mw-084-050317-GW

Lab Sample ID: 280-96682-7

No Detections.

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

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

TestAmerica Job ID: 280-96682-1

## Client Sample ID: RQLmw-012-050317-GW

Date Collected: 05/03/17 14:00  
Date Received: 05/04/17 08:55

## Lab Sample ID: 280-96682-1

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	4.0	U H	20	4.0	ug/L			05/04/17 12:19	1
Cyanide, Total	5.0	U	10	2.0	ug/L		05/12/17 07:22	05/12/17 14:16	1
Sulfide	1900	U	4000	790	ug/L		05/09/17 18:50	05/09/17 19:44	1
Nitrate as N	640		500	42	ug/L			05/04/17 13:56	1
Sulfate	190000	J	5000	230	ug/L			05/04/17 13:56	1
Nitrite as N	100	U	500	49	ug/L			05/04/17 13:56	1
Alkalinity	28		5.0	1.1	mg/L			05/09/17 14:11	1

## Client Sample ID: LL3mw-246-050317-GW

Date Collected: 05/03/17 15:30  
Date Received: 05/04/17 08:55

## Lab Sample ID: 280-96682-2

Matrix: Water

### Method: 6860 - Perchlorate by IC/MS or IC/MS/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.073	M	0.050	0.0040	ug/L			05/11/17 17:03	1

## Client Sample ID: BKGmw-024-050317-GW

Date Collected: 05/03/17 12:30  
Date Received: 05/04/17 08:55

## Lab Sample ID: 280-96682-3

Matrix: Water

### Method: 6860 - Perchlorate by IC/MS or IC/MS/MS

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.010	U	0.050	0.0040	ug/L			05/11/17 17:08	1

## Client Sample ID: BKGmw-005-050317-GW

Date Collected: 05/03/17 15:37  
Date Received: 05/04/17 08:55

## Lab Sample ID: 280-96682-4

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	4.0	U	20	4.0	ug/L			05/04/17 12:19	1

## Client Sample ID: FWGmw-005-050317-GW

Date Collected: 05/03/17 14:51  
Date Received: 05/04/17 08:55

## Lab Sample ID: 280-96682-5

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	4.0	U	20	4.0	ug/L			05/04/17 12:19	1

## Client Sample ID: FWGmw-021-050317-GW

Date Collected: 05/03/17 14:30  
Date Received: 05/04/17 08:55

## Lab Sample ID: 280-96682-6

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	4.0	U	20	4.0	ug/L			05/04/17 12:19	1



# Client Sample Results

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

TestAmerica Job ID: 280-96682-1

**Client Sample ID: LL1mw-084-050317-GW**

**Lab Sample ID: 280-96682-7**

**Date Collected: 05/03/17 15:21**

**Matrix: Water**

**Date Received: 05/04/17 08:55**

## General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	4.0	U	20	4.0	ug/L			05/04/17 12:19	1

# Default Detection Limits

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

TestAmerica Job ID: 280-96682-1

## Method: 6860 - Perchlorate by IC/MS or IC/MS/MS

Analyte	LOQ	DL	Units	Method
Perchlorate	0.050	0.0040	ug/L	6860

## General Chemistry

Analyte	LOQ	DL	Units	Method
Chromium, hexavalent	20	4.0	ug/L	7196A
Nitrate as N	500	42	ug/L	9056A
Nitrite as N	500	49	ug/L	9056A
Sulfate	5000	230	ug/L	9056A
Alkalinity	5.0	1.1	mg/L	SM 2320B

## General Chemistry

### Prep: 9012B

Analyte	LOQ	DL	Units	Method
Cyanide, Total	10	2.0	ug/L	9012B

## General Chemistry

### Prep: 9030B

Analyte	LOQ	DL	Units	Method
Sulfide	4000	790	ug/L	9034

# QC Sample Results

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

TestAmerica Job ID: 280-96682-1

## Method: 6860 - Perchlorate by IC/MS or IC/MS/MS

**Lab Sample ID: MB 280-373139/13**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.010	U	0.050	0.0040	ug/L			05/11/17 13:28	1

**Lab Sample ID: MB 280-373139/36**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	0.010	U	0.050	0.0040	ug/L			05/11/17 15:27	1

**Lab Sample ID: DLCK 280-373139/12**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	Spike Added	DLCK Result	DLCK Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0497	J	ug/L		99	70 - 130

**Lab Sample ID: LCS 280-373139/14**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0462	J M	ug/L		92	84 - 119

**Lab Sample ID: LCS 280-373139/37**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0470	J M	ug/L		94	84 - 119

**Lab Sample ID: LCSD 280-373139/15**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.0500	0.0467	J M	ug/L		93	84 - 119	1	20

**Lab Sample ID: LCSD 280-373139/38**  
**Matrix: Water**  
**Analysis Batch: 373139**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perchlorate	0.0500	0.0500		ug/L		100	84 - 119	6	20

**Lab Sample ID: INF 280-373139/39**  
**Matrix: Water**  
**Analysis Batch: 373139**

**Client Sample ID: Lab Control Sample**

Analyte	Spike Added	INF Result	INF Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	0.0500	0.0465	J M	ug/L		93	70 - 130

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# QC Sample Results

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

TestAmerica Job ID: 280-96682-1

## Method: 7196A - Chromium, Hexavalent

**Lab Sample ID: MB 280-372214/10**  
**Matrix: Water**  
**Analysis Batch: 372214**

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	4.0	U	20	4.0	ug/L			05/04/17 12:19	1

**Lab Sample ID: LCS 280-372214/8**  
**Matrix: Water**  
**Analysis Batch: 372214**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	100	105		ug/L		105	90 - 111

**Lab Sample ID: LCSD 280-372214/9**  
**Matrix: Water**  
**Analysis Batch: 372214**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	100	99.5		ug/L		99	90 - 111	5	20

**Lab Sample ID: 280-96682-1 MS**  
**Matrix: Water**  
**Analysis Batch: 372214**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	4.0	U H	100	99.5		ug/L		99	90 - 111

**Lab Sample ID: 280-96682-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 372214**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	4.0	U H	100	102		ug/L		102	90 - 111	3	20

**Lab Sample ID: 280-96682-1 DU**  
**Matrix: Water**  
**Analysis Batch: 372214**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	4.0	U H	100	4.0	U	ug/L				NC	20

## Method: 9012B - Cyanide, Total and/or Amenable

**Lab Sample ID: MB 280-373272/5-A**  
**Matrix: Water**  
**Analysis Batch: 373406**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 373272**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	2.22	J	10	2.0	ug/L		05/12/17 07:22	05/12/17 13:55	1

# QC Sample Results

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

TestAmerica Job ID: 280-96682-1

## Method: 9012B - Cyanide, Total and/or Amenable (Continued)

**Lab Sample ID: HLCS 280-373272/1-A**  
**Matrix: Water**  
**Analysis Batch: 373406**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 373272**  
**%Rec.**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	400	378		ug/L		94	90 - 110

**Lab Sample ID: LCS 280-373272/3-A**  
**Matrix: Water**  
**Analysis Batch: 373406**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 373272**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	100	92.1		ug/L		92	83 - 116

**Lab Sample ID: LCSD 280-373272/4-A**  
**Matrix: Water**  
**Analysis Batch: 373406**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 373272**  
**%Rec.** **RPD**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	100	92.3		ug/L		92	83 - 116	0	20

**Lab Sample ID: LLCS 280-373272/2-A**  
**Matrix: Water**  
**Analysis Batch: 373406**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 373272**  
**%Rec.**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	100	96.0		ug/L		96	44 - 167

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID: MB 280-372881/1-A**  
**Matrix: Water**  
**Analysis Batch: 372887**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 372881**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	1900	U	4000	790	ug/L		05/09/17 18:50	05/09/17 19:44	1

**Lab Sample ID: LCS 280-372881/2-A**  
**Matrix: Water**  
**Analysis Batch: 372887**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 372881**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Sulfide	22000	16800		ug/L		76	50 - 106

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 280-372161/6**  
**Matrix: Water**  
**Analysis Batch: 372161**

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	100	U	500	42	ug/L			05/04/17 11:05	1
Nitrite as N	100	U	500	49	ug/L			05/04/17 11:05	1

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# QC Sample Results

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

TestAmerica Job ID: 280-96682-1

## Method: 9056A - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 280-372161/4**  
**Matrix: Water**  
**Analysis Batch: 372161**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5000	5010		ug/L		100	88 - 111
Nitrite as N	5000	5160		ug/L		103	87 - 111

**Lab Sample ID: LCSD 280-372161/5**  
**Matrix: Water**  
**Analysis Batch: 372161**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5000	5010		ug/L		100	88 - 111	0	10
Nitrite as N	5000	5170		ug/L		103	87 - 111	0	10

**Lab Sample ID: MRL 280-372161/3**  
**Matrix: Water**  
**Analysis Batch: 372161**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.200	0.218	J	mg/L		109	50 - 150
Nitrite as N	0.200	0.221	J	mg/L		111	50 - 150

**Lab Sample ID: 280-96682-1 MS**  
**Matrix: Water**  
**Analysis Batch: 372161**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	640		5000	5660		ug/L		100	88 - 111
Nitrite as N	100	U	5000	5070		ug/L		101	87 - 111

**Lab Sample ID: 280-96682-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 372161**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	640		5000	5720		ug/L		102	88 - 111	1	10
Nitrite as N	100	U	5000	5130		ug/L		103	87 - 111	1	10

**Lab Sample ID: 280-96682-1 DU**  
**Matrix: Water**  
**Analysis Batch: 372161**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	640		632		ug/L		1	10
Nitrite as N	100	U	100	U	ug/L		NC	10

**Lab Sample ID: MB 280-372162/6**  
**Matrix: Water**  
**Analysis Batch: 372162**

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	362	J	5000	230	ug/L			05/04/17 11:05	1

TestAmerica Denver

# QC Sample Results

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

TestAmerica Job ID: 280-96682-1

## Method: 9056A - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 280-372162/4**  
**Matrix: Water**  
**Analysis Batch: 372162**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	100000	104000		ug/L		104	87 - 112

**Lab Sample ID: LCSD 280-372162/5**  
**Matrix: Water**  
**Analysis Batch: 372162**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	100000	105000		ug/L		105	87 - 112	0	10

**Lab Sample ID: MRL 280-372162/3**  
**Matrix: Water**  
**Analysis Batch: 372162**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	2.50	2.51	J	mg/L		100	50 - 150

**Lab Sample ID: 280-96682-1 MS**  
**Matrix: Water**  
**Analysis Batch: 372162**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	190000	J	25000	218000	J 4	ug/L		115	87 - 112

**Lab Sample ID: 280-96682-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 372162**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	190000	J	25000	218000	J 4	ug/L		116	87 - 112	0	10

**Lab Sample ID: 280-96682-1 DU**  
**Matrix: Water**  
**Analysis Batch: 372162**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	190000	J	25000	189000		ug/L				0.08	10

## Method: SM 2320B - Alkalinity

**Lab Sample ID: MB 280-372960/31**  
**Matrix: Water**  
**Analysis Batch: 372960**

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.30	J	5.0	1.1	mg/L			05/09/17 14:07	1

# QC Sample Results

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

TestAmerica Job ID: 280-96682-1

## Method: SM 2320B - Alkalinity (Continued)

**Lab Sample ID: LCS 280-372960/30**  
**Matrix: Water**  
**Analysis Batch: 372960**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	200	190		mg/L		95	90 - 110

**Lab Sample ID: 280-96682-1 DU**  
**Matrix: Water**  
**Analysis Batch: 372960**

**Client Sample ID: RQLmw-012-050317-GW**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	28		27.3		mg/L		2	10



# QC Association Summary

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

TestAmerica Job ID: 280-96682-1

## LCMS

### Analysis Batch: 373139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-2	LL3mw-246-050317-GW	Total/NA	Water	6860	
280-96682-3	BKGmw-024-050317-GW	Total/NA	Water	6860	
MB 280-373139/13	Method Blank	Total/NA	Water	6860	
MB 280-373139/36	Method Blank	Total/NA	Water	6860	
DLCK 280-373139/12	Lab Control Sample	Total/NA	Water	6860	
INF 280-373139/39	Lab Control Sample	Total/NA	Water	6860	
LCS 280-373139/14	Lab Control Sample	Total/NA	Water	6860	
LCS 280-373139/37	Lab Control Sample	Total/NA	Water	6860	
LCSD 280-373139/15	Lab Control Sample Dup	Total/NA	Water	6860	
LCSD 280-373139/38	Lab Control Sample Dup	Total/NA	Water	6860	

## General Chemistry

### Analysis Batch: 372161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	9056A	
MB 280-372161/6	Method Blank	Total/NA	Water	9056A	
LCS 280-372161/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-372161/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-372161/3	Lab Control Sample	Total/NA	Water	9056A	
280-96682-1 MS	RQLmw-012-050317-GW	Total/NA	Water	9056A	
280-96682-1 MSD	RQLmw-012-050317-GW	Total/NA	Water	9056A	
280-96682-1 DU	RQLmw-012-050317-GW	Total/NA	Water	9056A	

### Analysis Batch: 372162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	9056A	
MB 280-372162/6	Method Blank	Total/NA	Water	9056A	
LCS 280-372162/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-372162/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-372162/3	Lab Control Sample	Total/NA	Water	9056A	
280-96682-1 MS	RQLmw-012-050317-GW	Total/NA	Water	9056A	
280-96682-1 MSD	RQLmw-012-050317-GW	Total/NA	Water	9056A	
280-96682-1 DU	RQLmw-012-050317-GW	Total/NA	Water	9056A	

### Analysis Batch: 372214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	7196A	
280-96682-4	BKGmw-005-050317-GW	Total/NA	Water	7196A	
280-96682-5	FWGmw-005-050317-GW	Total/NA	Water	7196A	
280-96682-6	FWGmw-021-050317-GW	Total/NA	Water	7196A	
280-96682-7	LL1mw-084-050317-GW	Total/NA	Water	7196A	
MB 280-372214/10	Method Blank	Total/NA	Water	7196A	
LCS 280-372214/8	Lab Control Sample	Total/NA	Water	7196A	
LCSD 280-372214/9	Lab Control Sample Dup	Total/NA	Water	7196A	
280-96682-1 MS	RQLmw-012-050317-GW	Total/NA	Water	7196A	
280-96682-1 MSD	RQLmw-012-050317-GW	Total/NA	Water	7196A	
280-96682-1 DU	RQLmw-012-050317-GW	Total/NA	Water	7196A	

# QC Association Summary

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

TestAmerica Job ID: 280-96682-1

## General Chemistry (Continued)

### Prep Batch: 372881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	9030B	
MB 280-372881/1-A	Method Blank	Total/NA	Water	9030B	
LCS 280-372881/2-A	Lab Control Sample	Total/NA	Water	9030B	

### Analysis Batch: 372887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	9034	372881
MB 280-372881/1-A	Method Blank	Total/NA	Water	9034	372881
LCS 280-372881/2-A	Lab Control Sample	Total/NA	Water	9034	372881

### Analysis Batch: 372960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	SM 2320B	
MB 280-372960/31	Method Blank	Total/NA	Water	SM 2320B	
LCS 280-372960/30	Lab Control Sample	Total/NA	Water	SM 2320B	
280-96682-1 DU	RQLmw-012-050317-GW	Total/NA	Water	SM 2320B	

### Prep Batch: 373272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	9012B	
MB 280-373272/5-A	Method Blank	Total/NA	Water	9012B	
HLCS 280-373272/1-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 280-373272/3-A	Lab Control Sample	Total/NA	Water	9012B	
LCSD 280-373272/4-A	Lab Control Sample Dup	Total/NA	Water	9012B	
LLCS 280-373272/2-A	Lab Control Sample	Total/NA	Water	9012B	

### Analysis Batch: 373406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-96682-1	RQLmw-012-050317-GW	Total/NA	Water	9012B	373272
MB 280-373272/5-A	Method Blank	Total/NA	Water	9012B	373272
HLCS 280-373272/1-A	Lab Control Sample	Total/NA	Water	9012B	373272
LCS 280-373272/3-A	Lab Control Sample	Total/NA	Water	9012B	373272
LCSD 280-373272/4-A	Lab Control Sample Dup	Total/NA	Water	9012B	373272
LLCS 280-373272/2-A	Lab Control Sample	Total/NA	Water	9012B	373272

# Lab Chronicle

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

TestAmerica Job ID: 280-96682-1

**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	Analysis	7196A		1	10 mL	10 mL	372214	05/04/17 12:19	IEU	TAL DEN
Total/NA	Prep	9012B			50 mL	50 mL	373272	05/12/17 07:22	JML	TAL DEN
Total/NA	Analysis	9012B		1	50 mL	50 mL	373406	05/12/17 14:16	JML	TAL DEN
Total/NA	Prep	9030B			50 mL	50 mL	372881	05/09/17 18:50	ALS	TAL DEN
Total/NA	Analysis	9034		1			372887	05/09/17 19:44	ALS	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372161	05/04/17 13:56	AFB	TAL DEN
Total/NA	Analysis	9056A		1	5 mL	5 mL	372162	05/04/17 13:56	AFB	TAL DEN
Total/NA	Analysis	SM 2320B		1			372960	05/09/17 14:11	A1D	TAL DEN

**Client Sample ID: LL3mw-246-050317-GW**

**Lab Sample ID: 280-96682-2**

**Date Collected: 05/03/17 15:30**

**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	Analysis	6860		1			373139	05/11/17 17:03	HKF	TAL DEN

**Client Sample ID: BKGmw-024-050317-GW**

**Lab Sample ID: 280-96682-3**

**Date Collected: 05/03/17 12:30**

**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	Analysis	6860		1			373139	05/11/17 17:08	HKF	TAL DEN

**Client Sample ID: BKGmw-005-050317-GW**

**Lab Sample ID: 280-96682-4**

**Date Collected: 05/03/17 15:37**

**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	Analysis	7196A		1	10 mL	10 mL	372214	05/04/17 12:19	IEU	TAL DEN

**Client Sample ID: FWGmw-005-050317-GW**

**Lab Sample ID: 280-96682-5**

**Date Collected: 05/03/17 14:51**

**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	Analysis	7196A		1	10 mL	10 mL	372214	05/04/17 12:19	IEU	TAL DEN

# Lab Chronicle

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

TestAmerica Job ID: 280-96682-1

**Client Sample ID: FWGmw-021-050317-GW**

**Lab Sample ID: 280-96682-6**

**Date Collected: 05/03/17 14:30**

**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	Analysis	7196A		1	10 mL	10 mL	372214	05/04/17 12:19	IEU	TAL DEN

**Client Sample ID: LL1mw-084-050317-GW**

**Lab Sample ID: 280-96682-7**

**Date Collected: 05/03/17 15:21**

**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	Analysis	7196A		1	10 mL	10 mL	372214	05/04/17 12:19	IEU	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: 280-96682-1

## 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

Analysis Method	Prep Method	Matrix	Analyte
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# Method Summary

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

TestAmerica Job ID: 280-96682-1

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<b>Method</b>	<b>Method Description</b>	<b>Protocol</b>	<b>Laboratory</b>
6860	Perchlorate by IC/MS or IC/MS/MS	EPA	TAL DEN
7196A	Chromium, Hexavalent	SW846	TAL DEN
9012B	Cyanide, Total and/or Amenable	EPA	TAL DEN
9034	Sulfide, Acid Soluble and Insoluble (Titrimetric)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2320B	Alkalinity	SM	TAL DEN

**Protocol References:**

EPA = US Environmental Protection Agency

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**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: 280-96682-1

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
280-96682-2	LL3mw-246-050317-GW	Water	05/03/17 15:30	05/04/17 08:55
280-96682-3	BKGmw-024-050317-GW	Water	05/03/17 12:30	05/04/17 08:55
280-96682-4	BKGmw-005-050317-GW	Water	05/03/17 15:37	05/04/17 08:55
280-96682-5	FWGmw-005-050317-GW	Water	05/03/17 14:51	05/04/17 08:55
280-96682-6	FWGmw-021-050317-GW	Water	05/03/17 14:30	05/04/17 08:55
280-96682-7	LL1mw-084-050317-GW	Water	05/03/17 15:21	05/04/17 08:55

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: LC LCMS2 Analysis Batch Number: 373139

Lab Sample ID: STD020 280-373139/4 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 12:42 Lab File ID: IC217E11002.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.16	Baseline	fiedlerh	05/12/17 08:22

Lab Sample ID: STD050 280-373139/5 IC Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 12:47 Lab File ID: IC217E11003.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.11	Baseline	fiedlerh	05/12/17 08:22

Lab Sample ID: LCS 280-373139/14 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 13:33 Lab File ID: IC217E11012.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.16	Baseline	fiedlerh	05/12/17 08:23

Lab Sample ID: LCSD 280-373139/15 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 13:38 Lab File ID: IC217E11013.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.13	Baseline	fiedlerh	05/12/17 08:23

Lab Sample ID: CCVL 280-373139/24 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 14:25 Lab File ID: IC217E11022.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.16	Baseline	fiedlerh	05/12/17 08:32



LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: LC LCMS2 Analysis Batch Number: 373139

Lab Sample ID: CCVL 280-373139/34 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 15:16 Lab File ID: IC217E11032.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.13	Baseline	fiedlerh	05/12/17 08:33

Lab Sample ID: LCS 280-373139/37 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 15:32 Lab File ID: IC217E11035.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.11	Baseline	fiedlerh	05/12/17 08:34

Lab Sample ID: INF 280-373139/39 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 15:42 Lab File ID: IC217E11037.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.21	Baseline	fiedlerh	05/12/17 08:34

Lab Sample ID: CCVL 280-373139/47 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 16:22 Lab File ID: IC217E11045.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.16	Baseline	fiedlerh	05/12/17 08:35

Lab Sample ID: 280-96682-2 Client Sample ID: LL3mw-246-050317-GW

Date Analyzed: 05/11/17 17:03 Lab File ID: IC217E11053.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.21	Baseline	fiedlerh	05/12/17 08:36

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: LC\_LCMS2 Analysis Batch Number: 373139

Lab Sample ID: CCVL 280-373139/58 Client Sample ID: \_\_\_\_\_

Date Analyzed: 05/11/17 17:18 Lab File ID: IC217E11056.d GC Column: IonPac ID: 2 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perchlorate	2.13	Baseline	fiedlerh	05/12/17 08:36

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
<b>6860-IS-Spike_00066</b>	08/18/17	03/01/17	Di Water, Lot 126136	100 mL	6860-ISStock2_00015	1 mL	Perchlorate-180	0.0204 ug/mL
.6860-ISStock2_00015	10/28/17	10/28/16	H2O, Lot 126536	10 mL	6860-ISStock1_00013	0.2 mL	Perchlorate-180	2.04 ug/mL
..6860-ISStock1_00013	02/27/24		Cambridge, Lot SDDG-013		(Purchased Reagent)		Perchlorate-180	102 ug/mL
<b>6860CalStockW_00082</b>	01/08/18	05/04/17	H2O, Lot 126136	100 mL	6860CalStock3_00022	1 mL	Perchlorate	0.001 ug/mL
.6860CalStock3_00022	01/08/18	01/30/17	H2O, Lot 126136	10 mL	6860CalStock2_00019	0.1 mL	Perchlorate	0.1 ug/mL
..6860CalStock2_00019	01/08/18	01/30/17	H2O, Lot 123136	10 mL	6860StockClO4_00012	0.1 mL	Perchlorate	10 ug/mL
...6860StockClO4_00012	01/08/18		Accustandard, Lot 215015113-01		(Purchased Reagent)		Perchlorate	1000 ug/mL
<b>6860ICVStockW_00037</b>	01/20/18	01/27/17	H2O, Lot 126136	50 mL	6860ICVStock3_00029	0.5 mL	Perchlorate	0.001 ug/mL
.6860ICVStock3_00029	01/20/18	01/27/17	H2O, Lot 126136	10 mL	6860ICVStock2_00020	0.1 mL	Perchlorate	0.1 ug/mL
..6860ICVStock2_00020	01/20/18	01/27/17	H2O, Lot 126136	10 mL	6860ICVStock1_00008	0.1 mL	Perchlorate	10 ug/mL
...6860ICVStock1_00008	04/12/19		Absolute Standards, Lot 041216		(Purchased Reagent)		Perchlorate	1000 ug/mL
<b>6860LCS_00007</b>	10/27/17	04/27/17	HPLC water, Lot 126136	50 mL	6860ICVStock3_00029	2.5 mL	Perchlorate	5 ug/L
.6860ICVStock3_00029	01/20/18	01/27/17	H2O, Lot 126136	10 mL	6860ICVStock2_00020	0.1 mL	Perchlorate	0.1 ug/mL
..6860ICVStock2_00020	01/20/18	01/27/17	H2O, Lot 126136	10 mL	6860ICVStock1_00008	0.1 mL	Perchlorate	10 ug/mL
...6860ICVStock1_00008	04/12/19		Absolute Standards, Lot 041216		(Purchased Reagent)		Perchlorate	1000 ug/mL
<b>Alk daily lcs_00644</b>	05/11/17	05/04/17	Di Water, Lot na	1000 mL	Alk stk std_00011	4 mL	Alkalinity	200 mg/L
.Alk stk std_00011	08/31/17		Fischer, Lot 152782		(Purchased Reagent)		Alkalinity	50 g/L
<b>CN 10ppm_00253</b>	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
<b>CN CAL 1 ppm_01250</b>	05/13/17	05/12/17	1% NaOH, Lot N/A	100 mL	CN 10ppm_00253	10 mL	Cyanide, Total	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, Total	10 mg/L
..CN CAL Std_00054	07/31/17		Ricca, Lot 4701B68		(Purchased Reagent)		Cyanide, Total	1000 mg/L
<b>CN ICV Daily_01015</b>	05/13/17	05/12/17	1% HNO3, Lot N/A	100 mL	CN ICV Int_00435	1 mL	Cyanide, Total	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, Total	10 mg/L
..CN ICV Std_00042	10/26/18		CPI, Lot 1107290		(Purchased Reagent)		Cyanide, Total	1000 mg/L
<b>CN ICV Int_00435</b>	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Cyanide, Total	1000 mg/L
							Cyanide, Weak Acid Dissociable	1000 mg/L
<b>CR6 ICV int 01235</b>	05/05/17	05/04/17	Di Water, Lot na	100 mL	Cr6 ICV Std 00017	0.1 mL	Chromium, hexavalent	1 mg/L
.Cr6 ICV Std 00017	04/30/21		Hach, Lot A6103		(Purchased Reagent)		Chromium, hexavalent	1000 mg/L
<b>CR6 Int cal 00803</b>	05/05/17	05/04/17	Di Water, Lot na	100 mL	CR6 Cal std 00008	0.1 mL	Chromium, hexavalent	1 mg/L
.CR6 Cal std 00008	04/30/19		ERA, Lot 040416		(Purchased Reagent)		Chromium, hexavalent	1000 mg/L
<b>CR6 spike sou 00842</b>	05/05/17	05/04/17	Di Water, Lot na	100 mL	CR6 Cal std 00008	1 mL	Chromium, hexavalent	10 mg/L
.CR6 Cal std 00008	04/30/19		ERA, Lot 040416		(Purchased Reagent)		Chromium, hexavalent	1000 mg/L
<b>IC CAL cl/so4_00145</b>	04/17/17	04/10/17	Di Water, Lot na	100 mL	IC CL cal 00048	25 mL	Chloride	250 mg/L
.IC CL cal 00048	01/30/18		SPEX CertiPrep, Lot 3-170CL-2X		IC sulfatecal 00045	25 mL	Sulfate	250 mg/L
.IC sulfatecal 00045	01/30/18		SPEX CertiPrep, Lot 3-177S04-2X		(Purchased Reagent)		Chloride	1000 mg/L
					(Purchased Reagent)		Sulfate	1000 mg/L
<b>IC CAL cl/so4_00148</b>	05/08/17	05/01/17	Di Water, Lot na	100 mL	IC sulfatecal 00046	25 mL	Sulfate	250 mg/L
.IC sulfatecal 00046	03/30/18		SPEX CertiPrep, Lot 3-177S04-2X		(Purchased Reagent)		Sulfate	1000 mg/L
<b>IC Cal low_00282</b>	04/18/17	04/11/17	Di Water, Lot NA	100 mL	IC Br cal 00013	5 mL	Bromide	50 mg/L
					IC FL cal 00010	5 mL	Fluoride	50 mg/L
					IC N02 CAL 00038	5 mL	Nitrite as N	50 mg/L
					IC N03 cal 00015	5 mL	Nitrate as N	50 mg/L
					IC P04 cal 00016	5 mL	Orthophosphate as P	50 mg/L
.IC Br cal 00013	05/31/18		Ricca, Lot 1611D81		(Purchased Reagent)		Bromide	1000 mg/L
.IC FL cal 00010	09/30/17		Ricca, Lot 4604574		(Purchased Reagent)		Fluoride	1000 mg/L
.IC N02 CAL 00038	04/30/17		RICCA, Lot 1610E23		(Purchased Reagent)		Nitrite as N	1000 ppm
.IC N03 cal 00015	08/31/17		Ricca, Lot 4603653		(Purchased Reagent)		Nitrate as N	1000 mg/L
.IC P04 cal 00016	03/31/18		RICCA, Lot 4604847		(Purchased Reagent)		Orthophosphate as P	1000 mg/L
<b>IC Cal low_00292</b>	05/11/17	05/04/17	Di Water, Lot NA	100 mL	IC N02 CAL 00039	5 mL	Nitrite as N	50 mg/L
					IC N03 cal 00015	5 mL	Nitrate as N	50 mg/L
.IC N02 CAL 00039	09/30/17		RICCA, Lot 1703F88		(Purchased Reagent)		Nitrite as N	1000 ppm
.IC N03 cal 00015	08/31/17		Ricca, Lot 4603653		(Purchased Reagent)		Nitrate as N	1000 mg/L
<b>IC ICV 5_00170</b>	04/19/17	04/12/17	Di Water, Lot na	10 mL	IC N02 ICV 00015	0.5 mL	Nitrite as N	50 mg/L
					IC N03 ICV 00010	0.5 mL	Nitrate as N	50 mg/L
.IC N02 ICV 00015	06/30/18		ERA, Lot 320616		(Purchased Reagent)		Nitrite as N	1000 mg/L
.IC N03 ICV 00010	11/30/17		ERA, Lot 031115		(Purchased Reagent)		Nitrate as N	1000 mg/L
<b>IC LCS_00897</b>	05/05/17	05/04/17	Di Water, Lot 27	200 mL	IC Cal low_00292	20 mL	Nitrite as N	5 mg/L
					IC sulfatecal 00046	20 mL	Sulfate	100 mg/L
.IC Cal low_00292	05/11/17	05/04/17	Di Water, Lot NA	100 mL	IC N02 CAL 00039	5 mL	Nitrite as N	50 mg/L
					IC N03 cal 00015	5 mL	Nitrate as N	50 mg/L
.IC N02 CAL 00039	09/30/17		RICCA, Lot 1703F88		(Purchased Reagent)		Nitrite as N	1000 ppm
.IC N03 cal 00015	08/31/17		Ricca, Lot 4603653		(Purchased Reagent)		Nitrate as N	1000 mg/L
.IC sulfatecal 00046	03/30/18		SPEX CertiPrep, Lot 3-177S04-2X		(Purchased Reagent)		Sulfate	1000 mg/L
<b>IC SO4 ICV 00016</b>	10/31/17		ERA, Lot 211015		(Purchased Reagent)		Sulfate	1000 mg/L
<b>ICMS/MSD WEEK_00468</b>	05/09/17	05/02/17	Di Water, Lot NA	10 mL	IC SPK 6 ANIO_00018	5 mL	Nitrate as N	500.003 mg/L
					IC SPK N02SOL_00010	5 mL	Sulfate	2500.26 mg/L
							Nitrite as N	499.973 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.IC SPK 6 ANIO_00018	09/13/17	09/13/16	Di Water, Lot NA	1000 mL	IC MS/MSD N03_00004	6.068 g	Nitrate as N	1000.01 mg/L
					IC MS/MSD S04_00005	9.0704 g	Sulfate	5000.51 mg/L
..IC MS/MSD N03_00004	10/02/18		FISHER, Lot 035600		(Purchased Reagent)		Nitrate as N	0.1648 g/g
..IC MS/MSD S04_00005	09/29/20		FISHER, Lot 147276		(Purchased Reagent)		Sulfate	0.5513 g/g
.IC SPK N02SOL_00010	06/09/17	12/22/16	Di Water, Lot na	500 mL	IC MS/MSD N02_00001	2.4628 g	Nitrite as N	999.946 mg/L
..IC MS/MSD N02_00001	06/09/17		fisher, Lot 041304		(Purchased Reagent)		Nitrite as N	0.20301 g/g
<b>SFD CAL INT_01358</b>	08/09/17	05/09/17	Di Water, Lot NA	500 mL	50% NaOH_00011	2 mL	Sodium Hydroxide	2000 mg/L
					SFD CAL STK_00003	4.11985 g	Sulfide	1100 mg/L
.50% NaOH_00011	05/31/18		Fisher, Lot 162734		(Purchased Reagent)		Sodium Hydroxide	50 %
.SFD CAL STK_00003	12/31/17		FISHER, Lot 127305		(Purchased Reagent)		Sulfide	0.1335 g/g

Reagent

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**6860-ISStock1\_00013**



Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

Lot Number: SDDG-013

Catalog Number: OLM-7310-S



3956404
ID: 6860-ISSStock1\_00013
Desc: Cat#OLM-7310-S, 100ug/mL Cl18O4
Exp: 2/27/2024 Prpd/Rcvd: 6/20/2016
Sol: Prpd: fiederh
Cat#OLM-7310-S, 100ug/mL Cl18O4

Product Information

Chemical Purity Specification: >= 98%
Labeled CAS Number: NA
Unlabeled CAS Number: 7601-89-0
MW\*: 130.4
Chemical Formula: NaCl\*O4
Storage: Store at room temperature away from light and moisture.
Stability: See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

\* For isotopically labeled compounds, MW listed is for the fully enriched product.

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

Table with 2 columns: Test Name and Result. Rows include QC Release Date (2/27/2014), Expiration Date (2/27/2024), Concentration Based on Gravimetry (102 µg/mL), Chemical Purity of Neat Material(s) (98%), and LC/MS for Concentration (109.4 ± 2.8 µg/mL (k=2)).

Reagent

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**6860ICVStock1\_00008**





**CERTIFIED WEIGHT REPORT:**

Part Number: **57001** Lot # **041216**  
 Description: **Perchlorate (ClO<sub>4</sub>)** Solvent: **041216** ASTM Type **1** Water

Expiration Date: **041219**  
 Recommended Storage: **Refrigerate (4 °C)**  
 Nominal Concentration (µg/mL): **1000**  
 NIST Test Number: **822-275872-11**  
 Weight shown below was diluted to (mL): **999.86** 0.116 Flask Uncertainty

Formulated By:	Lawrence Barry	041216
Reviewed By:	Pedro L. Rentas	041216

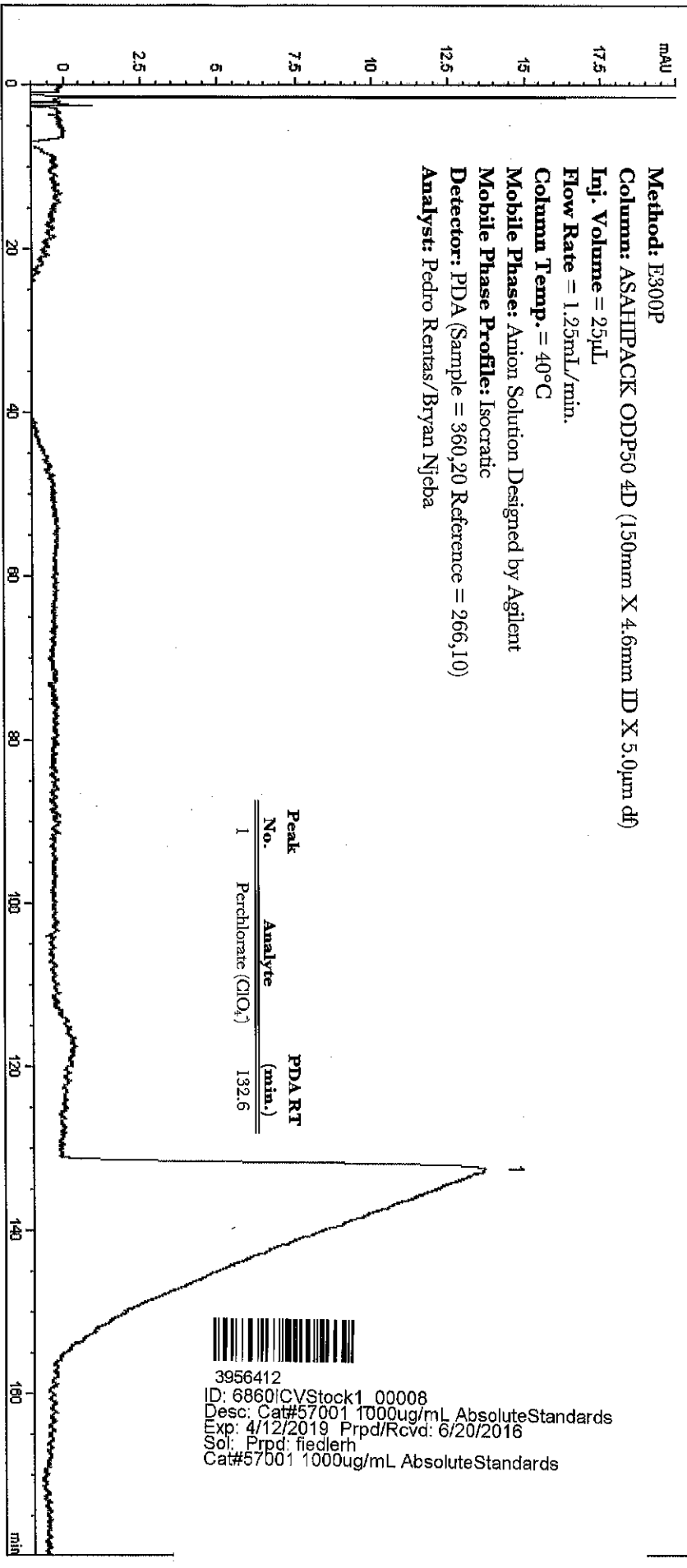
Compound	Lot	Number	Conc. (µg/mL)	Purity	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM	
1. Sodium Perchlorate (ClO <sub>4</sub> )	IN119	MKGN1540V	1000.0	98.0	0.10	81.2	1.25612	1.25616	1000.0	2.1	07601-89-0	N/A	N/A	3152a

**MSDS Information**

Expanded Uncertainty (Solvent Safety Info. On Attached pg.)

**Method:** E300P  
**Column:** ASAHIPACK ODP50 4D (150mm X 4.6mm ID X 5.0µm df)  
**Inj. Volume =** 25µL  
**Flow Rate =** 1.25mL/min.  
**Column Temp. =** 40°C  
**Mobile Phase:** Anion Solution Designed by Agilent  
**Mobile Phase Profile:** Isocratic  
**Detector:** PDA (Sample = 360,20 Reference = 266,10)  
**Analyst:** Pedro Rentas/Bryan Nieba

Peak No.	Analyte	PDA RT (min.)
1	Perchlorate (ClO <sub>4</sub> )	132.6



3956412  
 ID: 6860iCVStock1\_00008  
 Desc: Cat#57001 1000ug/mL AbsoluteStandards  
 Exp: 4/12/2019 Prpd/Rcvd: 6/20/2016  
 Sol: Prpd: fiedlerh  
 Cat#57001 1000ug/mL AbsoluteStandards



Reagent

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**6860StockC104\_00012**



# CERTIFICATE OF ANALYSIS

## AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1  
Description: Perchlorate Standard  
Element: Perchlorate (ClO<sub>4</sub>)  
SRM: Ind. Std.  
Lot: 215015113-01  
Matrix: Water  
Hazards: POSSIBLE IRRITANT - Refer to SDS for safety info

Date Certified: Jan 8, 2016  
Expiration: Jan 8, 2018  
Concentration: 1000 µg/mL

Sample Size: 100 mL  
Components: 1  
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes  
Included on ISO Guide 34 Scope of Accreditation: Yes



Warning 5

Component	SRM #	Prepared Concentration (µg/mL)
ClO <sub>4</sub> Perchlorate	Ind. Std.	1000



3956413  
ID: 6860StockClO4\_00012  
Desc: Accustandard IC-PER-10X-1 1000ug/mL ClO4  
Exp: 1/8/2018 Prpd/Rcvd: 6/20/2016  
Sol: Prpd: fiedlern  
Accustandard IC-PER-10X-1 1000ug/mL ClO4

The gravimetric uncertainty for this product is ±0.24%. The CRM uncertainty is ±5%. See reverse side for details.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Use good laboratory procedure when diluting this product. Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By:

*Lydia Snyder*

Lydia Snyder, Inorganic QC Manager

Reagent

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**Alk stk std\_00011**



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 lot number below 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>	<b>SS148</b>	<b>Quality Test / Release Date</b>	<b>8/4/2015</b>
<b>Lot Number</b>	<b>152782</b>	<b>Expiration Date</b>	<b>Aug/17</b>
<b>Description</b>	<b>SODIUM CARBONATE SOLUTION, 1N</b>		
<b>Country of Origin</b>	<b>United States</b>		

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	CLEAR COLORLESS LIQUID
COLOR	APHA	<= 5	<5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
NORMALITY		Inclusive Between 0.995 - 1.000	0.998



**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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**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:

Z-G34-4400-IC9M

### Lot No:

1107290

### Expiration Date:

26-Oct-2018

### Matrix:

0.179% NaOH

### Description:

ISO Guide 34 - Cyanide, 100 mL  
1,000 mg/L in H<sub>2</sub>O

## 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:**

<b>Catalog No:</b> Z-G34-4400-IC9M	<b>Lot No:</b> 1107290	<b>Expiration Date:</b> 26-Oct-2018	<b>Matrix:</b> 0.179% NaOH	<b>Description:</b> ISO Guide 34 - Cyanide, 100 mL 1,000 mg/L in H <sub>2</sub> O
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## Calculation of Uncertainty

The following equations are used to calculate the value of the expanded uncertainty:  
 $U = k u_c$  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



Reagent

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**CR6 Cal std\_00008**

# Certificate of Analysis

**PRODUCT:** 1000 mg/L Hexavalent Chromium  
**CATALOG NUMBER:** 019  
**LOT NUMBER:** 040416  
**ISSUE DATE:** April 14, 2016  
**REVISION DATE:** Original

**STARTING MATERIAL:** Potassium Dichromate ( $K_2Cr_2O_7$ )  
**CERTIFIED CONCENTRATION<sup>1</sup>:** 1000 mg/L  
**UNCERTAINTY<sup>2</sup>:** 0.6%  
**MATRIX:** 18 megohm deionized water  
**DENSITY:** 1.0001 ± 0.0008 g/mL at 21.5°C and 758 mm Hg

**TRACEABILITY<sup>3</sup>:** 101%  
**NIST/SRM:** SRM 136f Potassium Dichromate  
**VERIFICATION METHOD:** Spectrophotometry  
**STORAGE:** Store at 20-25°C

1. The **Certified Concentration** is the actual made-to concentration confirmed by ERA analytical verification.
2. The stated **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor which is equal to the student t factor at a 95% confidence interval at n-1 degrees of freedom. The uncertainty applies to the product as supplied and does not take into account any required or optional dilutions and/or preparations the laboratory may perform while using this product.
3. Traceability Recovery = ((% Recovery certified standard)/(% Recovery NIST SRM))\*100.

The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

This standard **expires 4/2019**. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

This product is intended to be used as either a calibration standard or a quality control check of the entire analytical process for the analytes/matrix included in the standard.

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or email to [info@eraqc.com](mailto:info@eraqc.com)

Certifying Officer: Brian Miller

ISO/IEC GUIDE 34:2009



REFERENCE MATERIAL PRODUCER  
CERTIFICATE NO. 1539.03

ISO/IEC 17025:2005



CHEMICAL TESTING LABORATORY  
CERTIFICATE NO. 1539.02

Reagent

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**Cr6 ICV Std\_00017**

# Certificate of Analysis List

For request number 806710

<b>Catalog Number Entered</b>	<b>Lot Number Entered</b>	<b>Related Catalog Number</b>	<b>Related Lot Code</b>	<b>Description</b>
1466442 1000	6103	N/A	N/A	Chromium Reference Standard Solution

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Total Enclosures: 1



An ISO 9001 Certified Company

*Certificate of Analysis*

Page 1

COMMODITY: **Chromium Reference Standard Solution 1000**COMMODITY NUMBER: **14664-42**

MANUFACTURE DATE:

DATE OF ANALYSIS:

LOT NUMBER: **A6103****4/12/2016****4/12/2016**

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<i>TEST</i>	<i>SPECIFICATIONS</i>	<i>RESULTS</i>
Hexavalent Chromium Concentration	995 to 1005 ppm	1000.0 ppm
pH of the solution	12 to 14	12.4

The expiration date is Apr 2021

The item 1466442 is traceable to NIST standards SRM 136f Potassium Dichromate LOT N/A.

A handwritten signature in cursive script that reads "Scott Als".

Certified by \_\_\_\_\_

Scott Als  
Analytical Services Chemist

Reagent

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**IC Br cal\_00013**

# Certificate of Analysis

**Bromide Standard, 1000 ppm Br<sup>-</sup>**
**Lot Number:** 1611D81

**Product Number:** 1180

**Manufacture Date:** NOV 10, 2016

**Expiration Date:** MAY 2018

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Bromide	7647-15-6	High Purity

Test	Specification	Result
Appearance	Colorless liquid	Passed
Bromide (Br)	995-1005 ppm	1000 ppm

Specification	Reference
Bromide Solution, Standard (1 mL = 1 mg Br <sup>-</sup> )	ASTM (D 3869 D)
Standard Bromide Solution, 1000 mg/L	APHA (4110 B)
Bromide Stock Solution (1.00 mL = 1.00 mg Br <sup>-</sup> )	EPA (SW-846) (9056)
Sodium Bromide Standard Solution, 1000 mg/L	ASTM (D 1246)
Bromide Stock Solution (1.00 mL = 1.00 mg Br <sup>-</sup> )	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1180-16	500 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)



Katie Schnur  
Quality Control Manager

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Reagent

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**IC CL cal\_00048**





# SPEXertificate®

## Certificate of Reference Material

**Catalog Number:** AS-CL9-2X

**Lot No.** 3-170CL-2X

**Description:** 1000 µg/mL Chloride

**Matrix:** H<sub>2</sub>O

This **Ion Chromatography** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for ion chromatography instrumentation. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

**Certified Value:** 1003 µg/mL ±5 µg/mL

**Certified Value is Traceable to:** 3182\*

\* - indicates NIST SRM      † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)      ‡ - prepared gravimetrically

The CRM is prepared gravimetrically using high purity Sodium Chloride, Lot# 07131A. The certified value listed is the average of values obtained by classical wet assay and ion chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

**Classical Wet Assay:** 1002 µg/mL

**Method:** Precipitation using Silver Nitrate. Filter, dry and weigh as AgCl.

**Instrumental Analysis by Ion Chromatography:** 1003 µg/mL

**Uncertified Properties**

**Trace Ionic Impurities in the Actual Solution via IC Analysis:**

Element	µg/mL	Element	µg/mL
Br <sup>-</sup>	<0.05	NO <sub>3</sub> <sup>-</sup>	<0.04
F <sup>-</sup>	<0.006	PO <sub>4</sub> <sup>-3</sup>	<0.06
NO <sub>2</sub> <sup>-</sup>	<0.03	SO <sub>4</sub> <sup>-2</sup>	<0.05

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, and short-term and long-term stability. This guarantee is valid for a period of one year from the date of certification only when the material is unopened and stored under ambient laboratory conditions.

Date of Certification:     JAN    2017    

Certifying Officer:     *Larry Ruffalo*

Reagent

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**IC FL cal\_00010**

# Certificate of Analysis

**Fluoride Standard, 1000 ppm F<sup>-</sup>**
**Lot Number:** 4604574

**Product Number:** 3173

**Manufacture Date:** APR 04, 2016

**Expiration Date:** SEP 2017

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

The concentration is confirmed by Fluoride ISE and is certified traceable to NIST SRM 2203.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Fluoride	7681-49-4	High Purity

Test	Specification	Result
Appearance	Colorless liquid	Passed
Fluoride (F)	995-1005 ppm	1000 ppm

Specification	Reference
Fluoride Solution, Stock (1.00 mL = 1.00 mg F)	ASTM (D 5542)
Fluoride Stock Solution (1.00 mL = 1.00 mg F)	EPA (SW-846) (9056)
Fluoride Calibration Stock Solution (1,000 mg/L F)	EPA (SW-846) (9214)
Stock Solution, 1.0 mL = 1.0 mg F	EPA (340.3)
Fluoride Solution, Stock (1.00 mL = 1.00 mg F)	ASTM (D 5996)
Fluoride Stock Solution (1.00 mL = 1.00 mg F)	ASTM (D 4327)
Fluoride Stock Standard Solution (1 mg of F in 1 mL)	ACS (N/A)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
3173-4	120 mL natural poly	18 months
3173-32	1 L natural poly	18 months
3173-8	250 mL natural poly	18 months
3173-16	500 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)



Katie Schnur  
Quality Control Manager

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Reagent

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**IC MS/MSD N02\_00001**



1 Reagent Lane  
 Fairlawn, 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 ISO9001:2000 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:

Catalog Number	S347	Mfg. Date	4/13/2004 0:0:0
Lot Number	041304	Sample Id	S347..041304.100
Product Description	SODIUM NITRITE, A.C.S.		

Result Name	Units	Specifications	Test Value
INSOLUBLE MATTER	%	0.01 Maximum	0.0010
IDENTIFICATION	PASS/FAIL	Pass test	PASS
HEAVY METALS(AS Pb)	%	0.001 Maximum	0.0004
CHLORIDE	%	0.005 Maximum	0.0040
SULFATE (SO4)	%	0.01 Maximum	0.0060
POTASSIUM	%	0.005 Maximum	0.00040
ASSAY	%	97 Minimum	99.7000
APPEARANCE	REPORT	Yellow-white crystals	YELLOWISH WHITE FINE CRYSTALS
IRON	%	0.001 Maximum	0.00020
CALCIUM IN %	%	0.01 Maximum	0.0002

CERTIFIED BY

*Sidgar E. H...*  
 Lab Manager Fair Lawn

*Joel Boland*  
 Lab Manager BPF

Note: The date listed is valid for all package sizes of this lot of product, expressed as an extension of the catalog number listed above. If there are any questions with this certificate, please contact your account manager.

Reagent

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**IC MS/MSD S04\_00005**



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

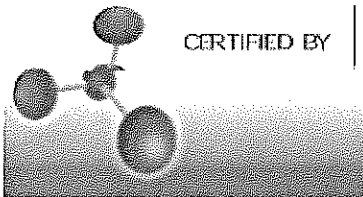
### Certificate of Analysis

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 lot number below 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:

Catalog Number	P304	Quality Test / Release Date	3/2/2015
Lot Number	147276		
Description	POTASSIUM SULFATE, CRYSTAL, CERTIFIED, A.C.S.		
Country of Origin	India	* Suggested Retest Date	Feb-2020
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	This product is not manufactured from, or with, any type of animal product, nor any derivative of an animal product. As such, this product should not be considered a vector for BSE or TSE.		

Result name	Units	Specifications	Test Value
APPEARANCE		REPORT	FINE WHITE CRYSTALS
ASSAY	%	>= 99	99.4
CALCIUM	%	<= 0.01	<0.010
CHLORIDE	%	<= 0.001	<0.0010
HEAVY METALS (as Pb)	ppm	<= 5	<5.0
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
INSOLUBLE MATTER	%	<= 0.01	<0.010
IRON (Fe)	ppm	<= 5	<5.0
MAGNESIUM	%	<= 0.005	<0.0050
NITROGEN COMPOUNDS	ppm	<= 5	<5
PH 5% SOLUTION @ 25 DEG C		Inclusive Between 5.5 - 8.5	5.5
SODIUM (Na)	%	<= 0.02	<0.020



CERTIFIED BY

*Edgar E. Hane*

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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**IC N02 CAL\_00038**



# Certificate of Analysis

**Nitrite Nitrogen Standard, 1000 ppm N (3285 ppm NO<sub>2</sub>)**
**Lot Number:** 1610E23

**Product Number:** R5444900

**Manufacture Date:** OCT 11, 2016

**Expiration Date:** APR 2017

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Nitrite	7758-09-0	ACS

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	Passed	
Assay (vs. Potassium Permanganate)	995-1005 ppm N	1002 ppm N	40

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
R5444900-500C	500 mL amber glass	6 months

**Recommended Storage:** 2°C - 8°C (36°F - 46°F)



Katie Schnur  
Quality Control Manager

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Reagent

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**IC N02 CAL\_00039**

# Certificate of Analysis

**Nitrite Nitrogen Standard, 1000 ppm N (3285 ppm NO<sub>2</sub>)**
**Lot Number:** 1703F88

**Product Number:** R5444900

**Manufacture Date:** MAR 22, 2017

**Expiration Date:** SEP 2017

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Nitrite	7758-09-0	ACS

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	Passed	
Assay (vs. Potassium Permanganate)	995-1005 ppm N	1004 ppm N	40

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
R5444900-120C	120 mL amber glass	6 months
R5444900-500C	500 mL amber glass	6 months

**Recommended Storage:** 2°C - 8°C (36°F - 46°F)


**Israel Alamudun**
**Quality Control Supervisor**

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

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**IC N03 cal\_00015**

# Certificate of Analysis

## Nitrate Nitrogen Standard, 1000 ppm N (4427 ppm NO<sub>3</sub>)

**Lot Number:** 4603653

**Product Number:** 5459

**Manufacture Date:** MAR 02, 2016

**Expiration Date:** AUG 2017

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Nitrate	7757-79-1	High Purity
Chloroform	67-66-3	

Test	Specification	Result
Appearance	Colorless liquid	Passed
Nitrogen (N)	995-1005 ppm	1000 ppm

Specification	Reference
Nitrate Solution, Stock (1.0 mL = 1.0 mg NO <sub>3</sub> -N)	ASTM (D 3867 A)
Nitrate Solution, Stock (1.0 mL = 1.0 mg NO <sub>3</sub> -N)	ASTM (D 3867 B)
Stock Nitrate Solution: 1 mL = 1.0 mg NO <sub>3</sub> -N	EPA (353.2)
Stock Nitrate Solution: 1.0 mL = 1.00 mg NO <sub>3</sub> -N	EPA (353.3)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
5459-4	120 mL natural poly	18 months
5459-16	500 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)



Katie Schnur  
Quality Control Manager

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

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**IC NO2 ICV\_00015**

# Certificate of Analysis

PRODUCT:	1000 mg/L Nitrite as N (NO <sub>2</sub> -N)
CATALOG NUMBER:	053 -125 mL; 990 - 500 mL
LOT NUMBER:	320616
ISSUE DATE:	July 7, 2016
REVISION DATE:	Original
STARTING MATERIAL:	Sodium Nitrite (NaNO <sub>2</sub> )
CERTIFIED CONCENTRATION <sup>1</sup> :	1000 mg/L
UNCERTAINTY <sup>2</sup> :	0.9%
MATRIX:	18 megohm deionized water
DENSITY:	1.0001 ± 0.0016 g/mL at 20.0°C and 761 mm Hg
TRACEABILITY <sup>3</sup> :	NA
NIST/SRM:	SRM not available
VERIFICATION METHOD:	Ion Chromatography
STORAGE:	Store at 20-25°C

1. The **Certified Concentration** is the actual made-to concentration confirmed by ERA analytical verification.
2. The stated **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor which is equal to the student t factor at a 95% confidence interval at n-1 degrees of freedom. The uncertainty applies to the product as supplied and does not take into account any required or optional dilutions and/or preparations the laboratory may perform while using this product.
3. Traceability Recovery = ((% Recovery certified standard)/(% Recovery NIST SRM))\*100.

The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

This standard **expires 6/2018**. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

This product is intended to be used as either a calibration standard or a quality control check of the entire analytical process for the analytes/matrix included in the standard.

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or email to [info@eraqc.com](mailto:info@eraqc.com)

Certifying Officer: Brian Miller

ISO/IEC GUIDE 34:2009



REFERENCE MATERIAL PRODUCER  
CERTIFICATE NO. 1539.03

ISO/IEC 17025:2005



CHEMICAL TESTING LABORATORY  
CERTIFICATE NO. 1539.02

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**IC NO3 ICV\_00010**



# Certificate of Analysis

<b>PRODUCT:</b>	1000 mg/L Nitrate as N (NO <sub>3</sub> -N)
<b>CATALOG NUMBER:</b>	052 -125 mL; 991 - 500 mL
<b>LOT NUMBER:</b>	031115
<b>ISSUE DATE:</b>	November 18, 2015
<b>REVISION DATE:</b>	Original
<b>STARTING MATERIAL:</b>	Potassium Nitrate (KNO <sub>3</sub> )
<b>CERTIFIED CONCENTRATION<sup>1</sup>:</b>	1000 mg/L
<b>UNCERTAINTY<sup>2</sup>:</b>	0.6%
<b>MATRIX:</b>	18 megohm deionized water
<b>DENSITY:</b>	1.0006 ± 0.0008 g/mL at 23.0°C and 757 mm Hg
<b>TRACEABILITY<sup>3</sup>:</b>	97.4%
<b>NIST/SRM:</b>	3185 Nitrate
<b>VERIFICATION METHOD:</b>	Ion Chromatography
<b>STORAGE:</b>	Store at 20-25°C

1. The **Certified Concentration** is the actual made-to concentration confirmed by ERA analytical verification.

2. The stated **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor which is equal to the student t factor at a 95% confidence interval at n-1 degrees of freedom. The uncertainty applies to the product as supplied and does not take into account any required or optional dilutions and/or preparations the laboratory may perform while using this product.

3. Traceability Recovery = ((% Recovery certified standard)/(% Recovery NIST SRM))\*100.

The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

This standard **expires 11/2017**. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

This product is intended to be used as either a calibration standard or a quality control check of the entire analytical process for the analytes/matrix included in the standard.

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or email to [info@eraqc.com](mailto:info@eraqc.com)

Certifying Officer: Brian Miller

ISO/IEC GUIDE 34:2009



REFERENCE MATERIAL PRODUCER  
CERTIFICATE NO. 1539.03

ISO/IEC 17025:2005



CHEMICAL TESTING LABORATORY  
CERTIFICATE NO. 1539.02

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**IC P04 cal\_00016**

# Certificate of Analysis

**Phosphorus AA Standard, 1000 ppm P in H<sub>2</sub>O****Lot Number:** 4604847**Product Number:** AP1KW**Manufacture Date:** APR 12, 2016**Expiration Date:** MAR 2018

This is a single element solution that was prepared volumetrically to contain the certified value reported. The uncertainty associated with the certified value is the sum of the estimated errors due to the purity of the raw material, the volumetric preparation of the solution, and transpiration of the solution through the container wall.

The final solution concentration is confirmed by AA, ICP, or ICP-MS, and is traceable to NIST Standard Reference Material 3139.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Ammonium Dihydrogen Phosphate	7722-76-1	High Purity

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	Passed	
Phosphorus (P)	995-1005 ppm	1000 ppm	3139

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
AP1KW-100	100 mL natural LDPE	24 months
AP1KW-500	500 mL natural poly	24 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)Katie Schnur  
Quality Control Manager

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Reagent

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**IC SO4 ICV\_00016**

# Certificate of Analysis

<b>PRODUCT:</b>	1000 mg/L Sulfate (SO <sub>4</sub> )
<b>CATALOG NUMBER:</b>	062 -125 mL; 995 - 500 mL
<b>LOT NUMBER:</b>	211015
<b>ISSUE DATE:</b>	November 2, 2015
<b>REVISION DATE:</b>	Original
<b>STARTING MATERIAL:</b>	Potassium Sulfate (K <sub>2</sub> SO <sub>4</sub> )
<b>CERTIFIED CONCENTRATION<sup>1</sup>:</b>	1000 mg/L
<b>UNCERTAINTY<sup>2</sup>:</b>	0.6%
<b>MATRIX:</b>	18 megohm deionized water
<b>DENSITY:</b>	0.9983 ± 0.0008 g/mL at 21.5°C and 758 mm Hg
<b>TRACEABILITY<sup>3</sup>:</b>	100%
<b>NIST/SRM:</b>	3181 Sulfate
<b>VERIFICATION METHOD:</b>	Ion Chromatography
<b>STORAGE:</b>	Store at 20-25°C

1. The **Certified Concentration** is the actual made-to concentration confirmed by ERA analytical verification.
2. The stated **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor which is equal to the student t factor at a 95% confidence interval at n-1 degrees of freedom. The uncertainty applies to the product as supplied and does not take into account any required or optional dilutions and/or preparations the laboratory may perform while using this product.
3. Traceability Recovery = ((% Recovery certified standard)/(% Recovery NIST SRM))\*100.

The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

This standard **expires 10/2017**. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

This product is intended to be used as either a calibration standard or a quality control check of the entire analytical process for the analytes/matrix included in the standard.

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or email to [info@eraqc.com](mailto:info@eraqc.com)

Certifying Officer: Brian Miller

ISO/IEC GUIDE 34:2009



REFERENCE MATERIAL PRODUCER  
CERTIFICATE NO. 1539.03

ISO/IEC 17025:2005



CHEMICAL TESTING LABORATORY  
CERTIFICATE NO. 1539.02

Reagent

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**IC sulfatocal\_00045**



# SPEXertificate®

## Certificate of Reference Material



**Catalog Number:** AS-SO49-2X

**Lot No.** 3-177SO4-2X

**Description:** 1000 µg/mL Sulfate

**Matrix:** H<sub>2</sub>O

This **Ion Chromatography** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for ion chromatography instrumentation. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

**Certified Value:** 999 µg/mL ±5 µg/mL

**Certified Value is Traceable to:** 3181\*

\* - indicates NIST SRM    † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)    ‡ - prepared gravimetrically

The CRM is prepared gravimetrically using high purity Potassium Sulfate, Lot# 0713D. The certified value listed is the average of values obtained by classical wet assay and ion chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

**Classical Wet Assay:** 997 µg/mL

**Method:** Precipitation using Barium Chloride. Filter, ignite, and weigh as BaSO<sub>4</sub>.

**Instrumental Analysis by Ion Chromatography:** 1000 µg/mL

### Uncertified Properties

### Trace Ionic Impurities in the Actual Solution via IC Analysis:

Element	µg/mL	Element	µg/mL
Br <sup>-</sup>	<0.04	NO <sub>2</sub> <sup>-</sup>	<0.03
Cl <sup>-</sup>	<0.5	NO <sub>3</sub> <sup>-</sup>	<0.03
F <sup>-</sup>	<0.006	PO <sub>4</sub> <sup>-3</sup>	<0.06

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, and short-term and long-term stability. This guarantee is valid for a period of one year from the date of certification only when the material is unopened and stored under ambient laboratory conditions.

Date of Certification:     JAN    2017    

Certifying Officer:     *Larry Hickey*

Reagent

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**IC sulfatocal\_00046**





# SPEXertificate®

## Certificate of Reference Material



**Catalog Number:** AS-SO49-2X

**Lot No.** 3-177SO4-2X

**Description:** 1000 µg/mL Sulfate

**Matrix:** H<sub>2</sub>O

This **Ion Chromatography** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for ion chromatography instrumentation. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

**Certified Value:** 999 µg/mL ±5 µg/mL

**Certified Value is Traceable to:** 3181\*

\* - indicates NIST SRM    † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)    ‡ - prepared gravimetrically

The CRM is prepared gravimetrically using high purity Potassium Sulfate, Lot# 0713D. The certified value listed is the average of values obtained by classical wet assay and ion chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

**Classical Wet Assay:** 997 µg/mL

**Method:** Precipitation using Barium Chloride. Filter, ignite, and weigh as BaSO<sub>4</sub>.

**Instrumental Analysis by Ion Chromatography:** 1000 µg/mL

**Uncertified Properties**

**Trace Ionic Impurities in the Actual Solution via IC Analysis:**

Element	µg/mL	Element	µg/mL
Br <sup>-</sup>	<0.04	NO <sub>2</sub> <sup>-</sup>	<0.03
Cl <sup>-</sup>	<0.5	NO <sub>3</sub> <sup>-</sup>	<0.03
F <sup>-</sup>	<0.006	PO <sub>4</sub> <sup>-3</sup>	<0.06

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, and short-term and long-term stability. This guarantee is valid for a period of one year from the date of certification only when the material is unopened and stored under ambient laboratory conditions.

Date of Certification:     MAR - - 2017    

Certifying Officer:     *Larry Hinfay*

Reagent

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**SFD CAL STK\_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 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>	S425	<b>Mfg. Date</b>	12/14/2012
<b>Lot Number</b>	127305		
<b>Description</b>	SODIUM SULFIDE, NONAHYDRATE, CERTIFIED ACS		
<b>Country of Origin</b>	United States	<b>Recommended Retest Date</b>	Dec-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	Colorless crystals
AMMONIUM	%	<= 0.01	0.0030
ASSAY	%	>= 98.0	101.2
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	PASS/FAIL	= PASS TEST	PASS TEST
SULFITE OR THIOSULFATE	%	<= 0.1	<0.01



Edgar E. Hase

**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.

# Method 6860

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Perchlorate (IC/MS) by Method 6860

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: IC217E11012.d  
 Lab ID: LCS 280-373139/14 Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perchlorate	0.0500	0.0462 J	92	84-119	M

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: IC217E11035.d  
 Lab ID: LCS 280-373139/37 Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perchlorate	0.0500	0.0470 J	94	84-119	M

FORM III  
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water Level: Low Lab File ID: IC217E11013.d

Lab ID: LCSD 280-373139/15 Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perchlorate	0.0500	0.0467 J	93	1	20	84-119	M

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water Level: Low Lab File ID: IC217E11036.d

Lab ID: LCSD 280-373139/38 Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perchlorate	0.0500	0.0500	100	6	20	84-119	

# Column to be used to flag recovery and RPD values



FORM III  
LCMS DETECTION LIMIT CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water Level: Low Lab File ID: IC217E11010.d

Lab ID: DLCK 280-373139/12 Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	DLCK CONCENTRATION (ug/L)	DLCK % REC	QC LIMITS REC	#
Perchlorate	0.0500	0.0497 J	99	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LC INTERFERENCE CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water Level: Low Lab File ID: IC217E11037.d

Lab ID: INF 280-373139/39 Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ug/L)	INF CONCENTRATION (ug/L)	INF % REC	QC LIMITS REC	#
Perchlorate	0.0500	0.0465 J	93	70-130	M

# Column to be used to flag recovery and RPD values

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: IC217E11011.d Lab Sample ID: MB 280-373139/13  
 Matrix: Water Date Extracted: \_\_\_\_\_  
 Instrument ID: LC\_LCMS2 Date Analyzed: 05/11/2017 13:28  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	ICB 280-373139/10	IC217E11008 .d	05/11/2017 13:12
	DLCK 280-373139/12	IC217E11010 .d	05/11/2017 13:23
	LCS 280-373139/14	IC217E11012 .d	05/11/2017 13:33
	LCSD 280-373139/15	IC217E11013 .d	05/11/2017 13:38
	CCB 280-373139/25	IC217E11023 .d	05/11/2017 14:30
	CCB 280-373139/35	IC217E11033 .d	05/11/2017 15:21
	CCB 280-373139/48	IC217E11046 .d	05/11/2017 16:27
	CCB 280-373139/59	IC217E11057 .d	05/11/2017 17:24

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: IC217E11034.d Lab Sample ID: MB 280-373139/36  
 Matrix: Water Date Extracted: \_\_\_\_\_  
 Instrument ID: LC\_LCMS2 Date Analyzed: 05/11/2017 15:27  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-373139/37	IC217E11035 .d	05/11/2017 15:32
	LCSD 280-373139/38	IC217E11036 .d	05/11/2017 15:37
LL3mw-246-050317-GW	280-96682-2	IC217E11053 .d	05/11/2017 17:03
BKGmw-024-050317-GW	280-96682-3	IC217E11054 .d	05/11/2017 17:08

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: LC\_LCMS2 Calibration Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2 (mm) Calibration End Date: 05/11/2017 13:07  
 Calibration ID: 29140

		C10418					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2913002	2.12				
UPPER LIMIT		4369503	7.12				
LOWER LIMIT		1456501	-2.88				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-373139/10		3066929	2.11				
ICV 280-373139/11		3093730	2.13				
DLCK 280-373139/12		3043123	2.13				
MB 280-373139/13		2834085	2.11				
LCS 280-373139/14		3050264	2.13				
LCSD 280-373139/15		3099141	2.13				
CCV 280-373139/23		3280313	2.13				
CCVL 280-373139/24		3125787	2.11				
CCB 280-373139/25		2978160	2.13				
CCV 280-373139/33		3125581	2.13				
CCVL 280-373139/34		3155098	2.13				
CCB 280-373139/35		3103838	2.11				
MB 280-373139/36		3021087	2.11				
LCS 280-373139/37		2998551	2.11				
LCSD 280-373139/38		2995554	2.13				
INF 280-373139/39		1576173	2.23				
CCV 280-373139/46		3236431	2.13				
CCVL 280-373139/47		3062013	2.14				
CCB 280-373139/48		3074930	2.13				
280-96682-2	LL3mw-246-050317-GW	2569898	2.19				
280-96682-3	BKGmw-024-050317-GW	2787612	2.24				
CCV 280-373139/57		3125664	2.13				
CCVL 280-373139/58		3135645	2.13				
CCB 280-373139/59		3143536	2.13				

C10418 = Perchlorate-180

Area Limit = 50%-150% of internal standard area  
 RT Limit = ± 5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: LL3mw-246-050317-GW Lab Sample ID: 280-96682-2  
 Matrix: Water Lab File ID: IC217E11053.d  
 Analysis Method: 6860 Date Collected: 05/03/2017 15:30  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 17:03  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.073	M	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11053.d  
 Lims ID: 280-96682-A-2  
 Client ID: LL3mw-246-050317-GW  
 Sample Type: Client  
 Inject. Date: 11-May-2017 17:03:36 ALS Bottle#: 0 Worklist Smp#: 55  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-96682-a-2  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:48:28 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:36:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.185	2.135	0.050		2569898	204.0		794	
2 Perchlorate									
98.8 > 82.9	2.210	2.160	0.050	1.011	1641907	73.2		14.9	M
100.8 > 84.9	2.185	2.160	0.025	1.000	477265		3.44(2.30-3.80)	9.9	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11053.d

Injection Date: 11-May-2017 17:03:36

Instrument ID: LC\_LCMS2

Lims ID: 280-96682-A-2

Lab Sample ID: 280-96682-2

Client ID: LL3mw-246-050317-GW

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 55

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

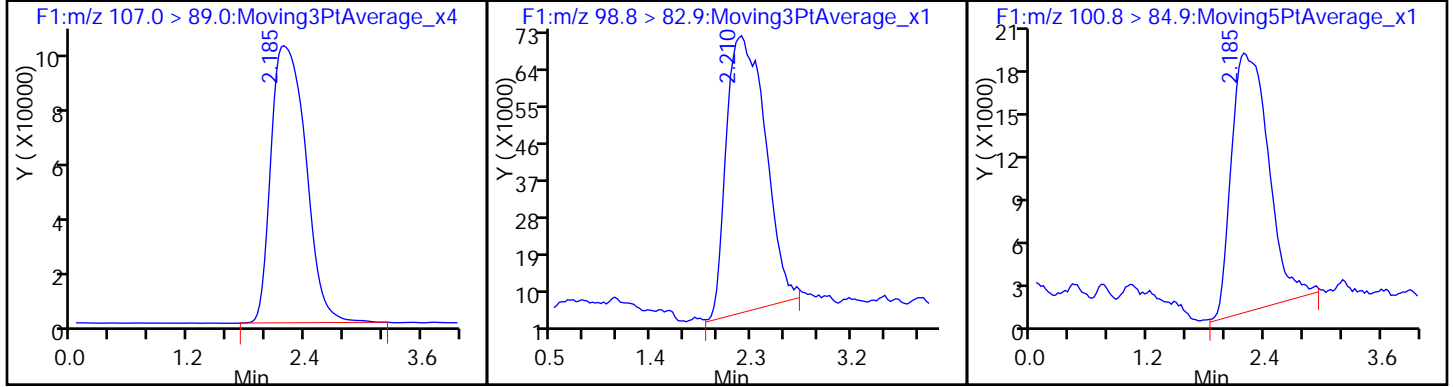
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate (M)





TestAmerica Denver

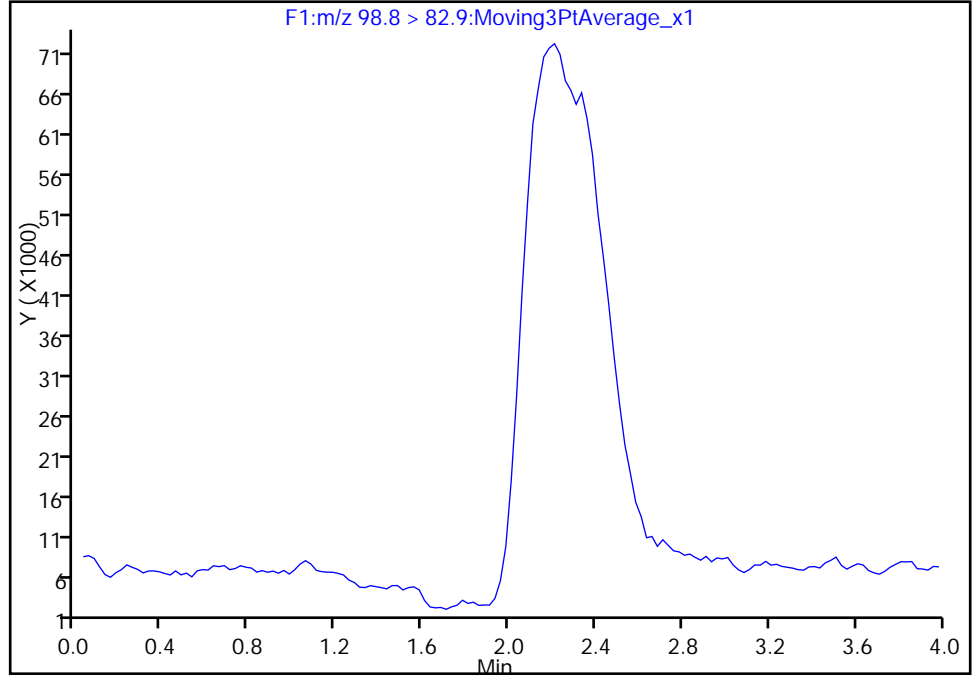
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11053.d  
Injection Date: 11-May-2017 17:03:36 Instrument ID: LC\_LCMS2  
Lims ID: 280-96682-A-2 Lab Sample ID: 280-96682-2  
Client ID: LL3mw-246-050317-GW  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 55  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:M/RM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

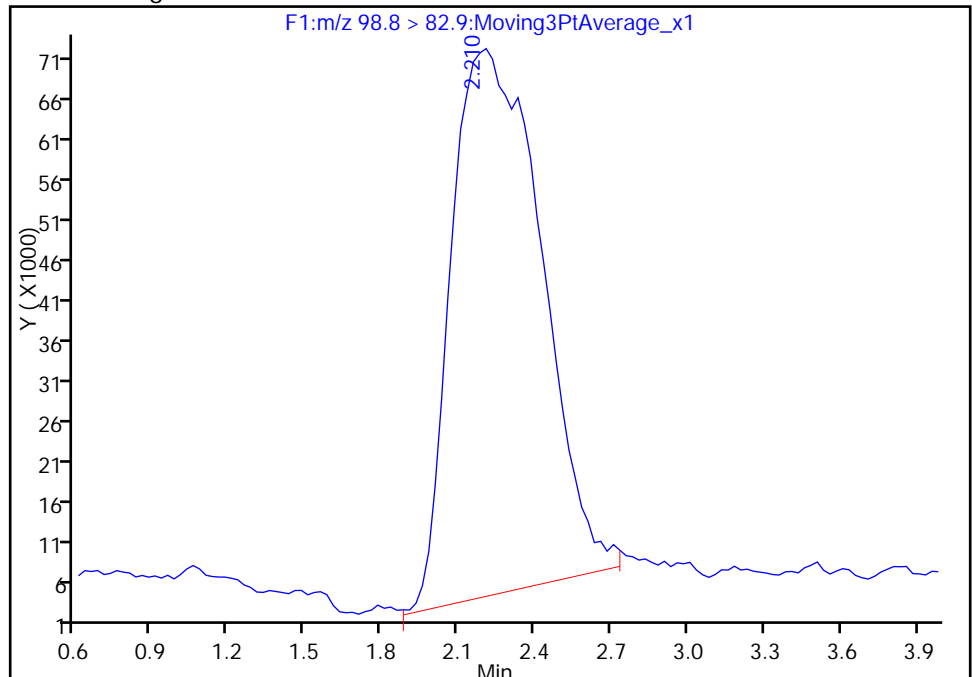
Not Detected  
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.21  
Area: 1641907  
Amount: 73.201405  
Amount Units: ng/l



TestAmerica Denver

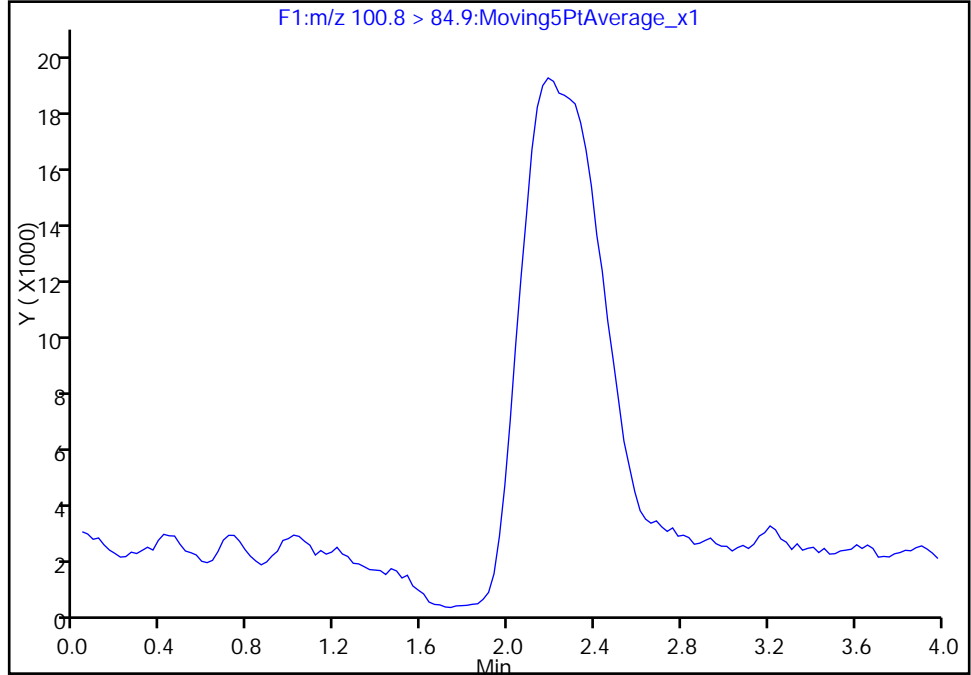
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11053.d  
Injection Date: 11-May-2017 17:03:36 Instrument ID: LC\_LCMS2  
Lims ID: 280-96682-A-2 Lab Sample ID: 280-96682-2  
Client ID: LL3mw-246-050317-GW  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 55  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

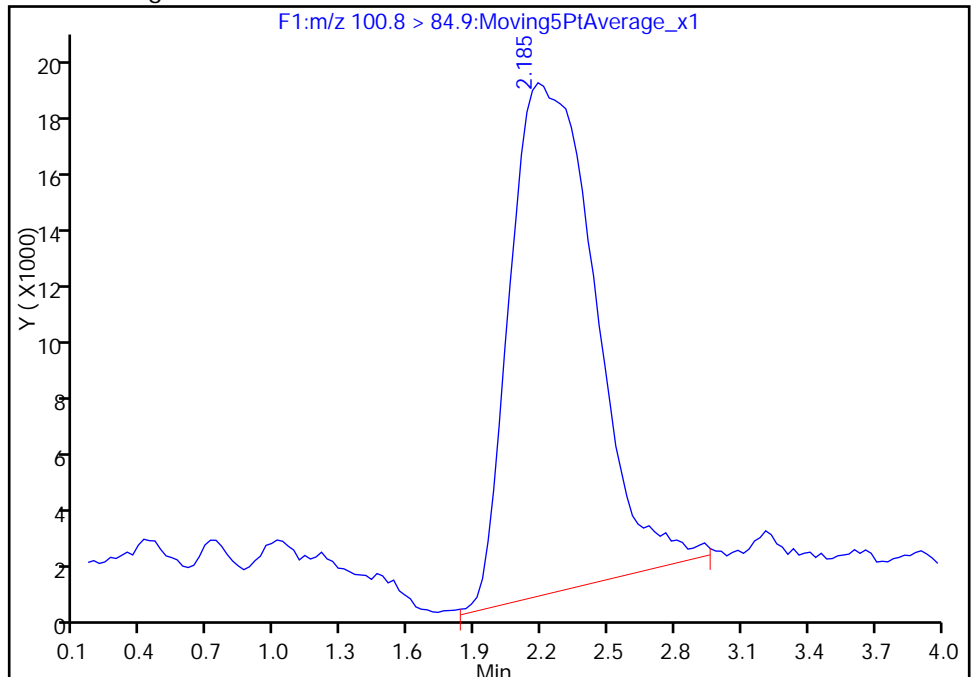
Not Detected  
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.18  
Area: 477265  
Amount: 73.201405  
Amount Units: ng/l



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: BKGmw-024-050317-GW Lab Sample ID: 280-96682-3  
 Matrix: Water Lab File ID: IC217E11054.d  
 Analysis Method: 6860 Date Collected: 05/03/2017 12:30  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 17:08  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11054.d  
 Lims ID: 280-96682-A-3  
 Client ID: BKGmw-024-050317-GW  
 Sample Type: Client  
 Inject. Date: 11-May-2017 17:08:43 ALS Bottle#: 0 Worklist Smp#: 56  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-96682-a-3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:48:28 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.236 2.135 0.101 2787612 204.0 587

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11054.d

Injection Date: 11-May-2017 17:08:43

Instrument ID: LC\_LCMS2

Lims ID: 280-96682-A-3

Lab Sample ID: 280-96682-3

Client ID: BKGmw-024-050317-GW

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 56

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

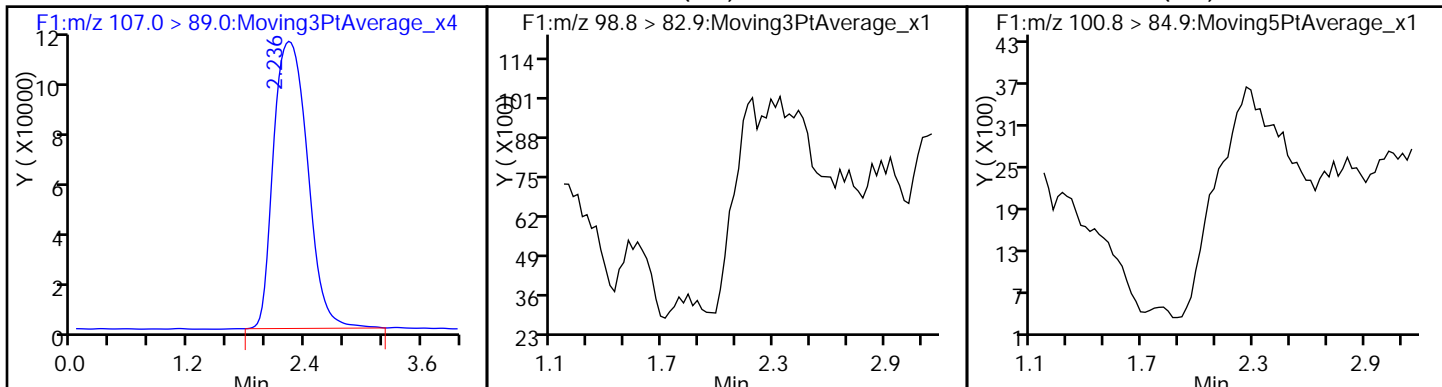
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM VI  
 LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
 CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-96682-1 Analy Batch No.: 373139

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

Instrument ID: LC\_LCMS2 GC Column: IonPac ID: 2 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/11/2017 12:42 Calibration End Date: 05/11/2017 13:07 Calibration ID: 29140

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD020 280-373139/4	IC217E11002.d
Level 2	STD050 280-373139/5	IC217E11003.d
Level 3	STD100 280-373139/6	IC217E11004.d
Level 4	STD200 280-373139/7	IC217E11005.d
Level 5	STD500 280-373139/8	IC217E11006.d
Level 6	STD1000 280-373139/9	IC217E11007.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perchlorate	1.9469 1.7876	1.7534	1.7501	1.6774	1.7733	Lin1	0.9321	1.7678						0.9990		0.9900	

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI  
 LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
 RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-96682-1 Analy Batch No.: 373139

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

Instrument ID: LC\_LCMS2 GC Column: IonPac ID: 2 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/11/2017 12:42 Calibration End Date: 05/11/2017 13:07 Calibration ID: 29140

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD020 280-373139/4	IC217E11002.d
Level 2	STD050 280-373139/5	IC217E11003.d
Level 3	STD100 280-373139/6	IC217E11004.d
Level 4	STD200 280-373139/7	IC217E11005.d
Level 5	STD500 280-373139/8	IC217E11006.d
Level 6	STD1000 280-373139/9	IC217E11007.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perchlorate	C104 18	Lin1	517321 25992927	1218476	2462192	5102112	13010718	20.0 1000	50.0	100	200	500

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11002.d  
 Lims ID: STD020  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 11-May-2017 12:42:31 ALS Bottle#: 0 Worklist Smp#: 4  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 20 prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:34 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:22:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.108	2.108	0.0		2710301	204.0		767	
2 Perchlorate									
98.8 > 82.9	2.158	2.133	0.025	1.024	517321	21.5		7.3	M
100.8 > 84.9	2.083	2.133	-0.050	0.988	159777		3.24(2.30-3.80)	7.6	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

6860CalStockW\_00082 Amount Added: 100.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL



TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11002.d

Injection Date: 11-May-2017 12:42:31

Instrument ID: LC\_LCMS2

Lims ID: STD020

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 4

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

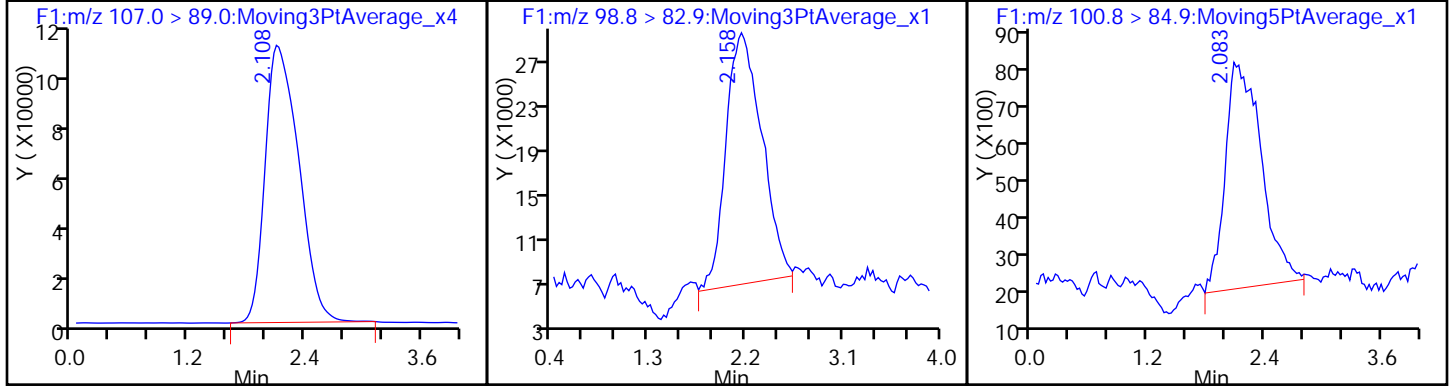
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate (M)



TestAmerica Denver

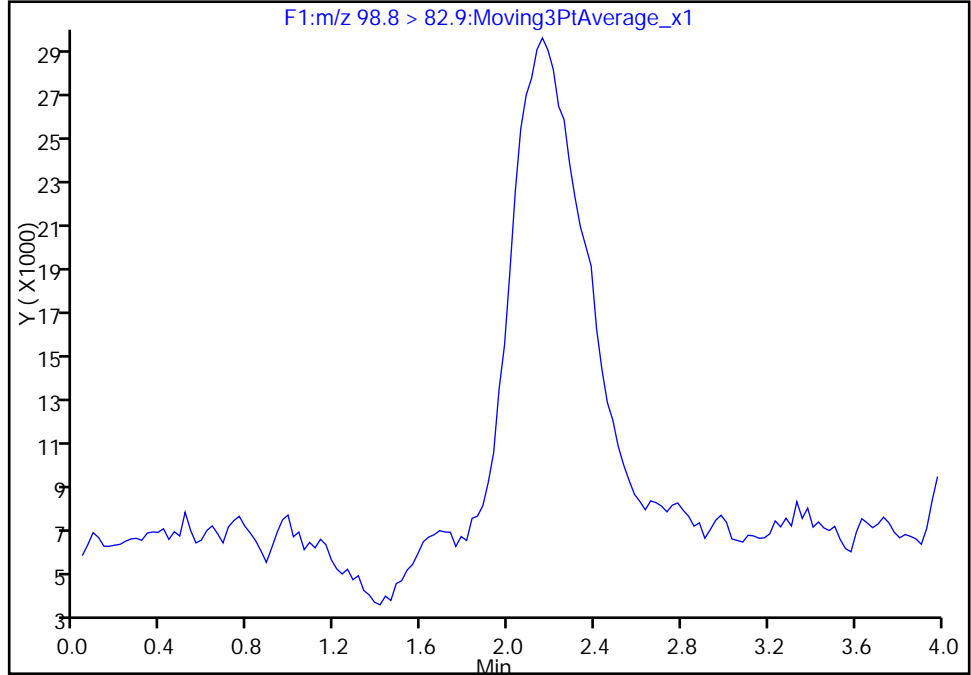
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11002.d  
Injection Date: 11-May-2017 12:42:31 Instrument ID: LC\_LCMS2  
Lims ID: STD020  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 4  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

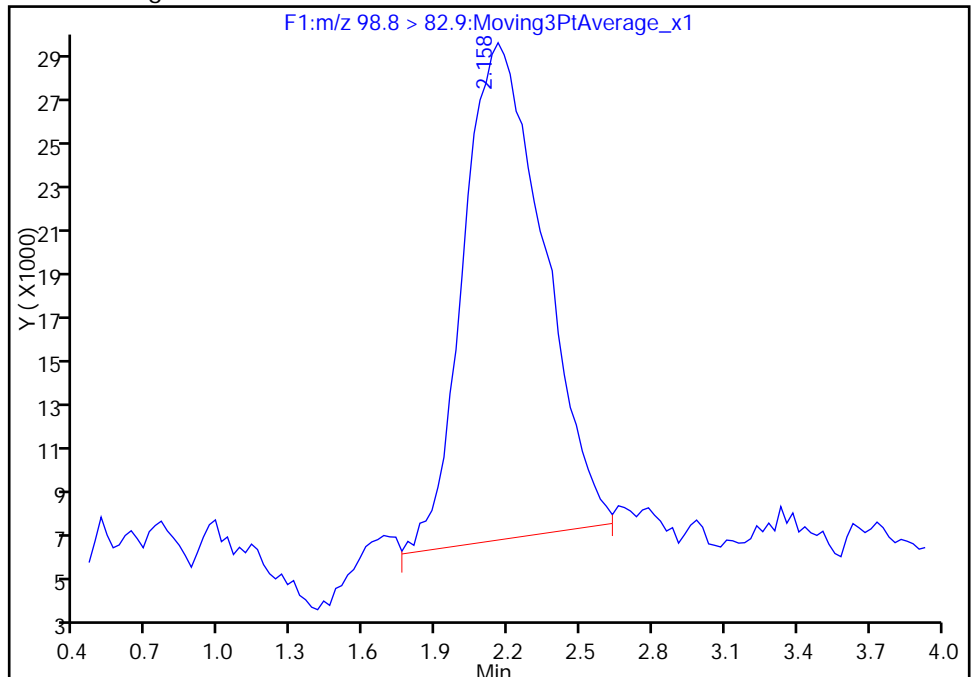
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.16  
Area: 517321  
Amount: 21.499266  
Amount Units: ng/l



TestAmerica Denver

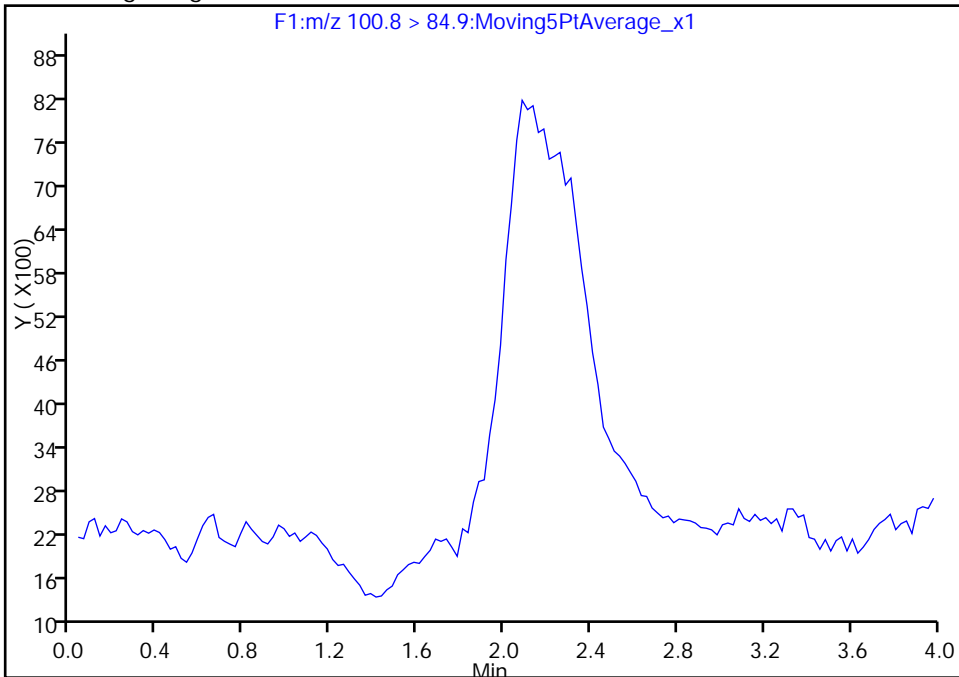
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11002.d  
Injection Date: 11-May-2017 12:42:31 Instrument ID: LC\_LCMS2  
Lims ID: STD020  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 4  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

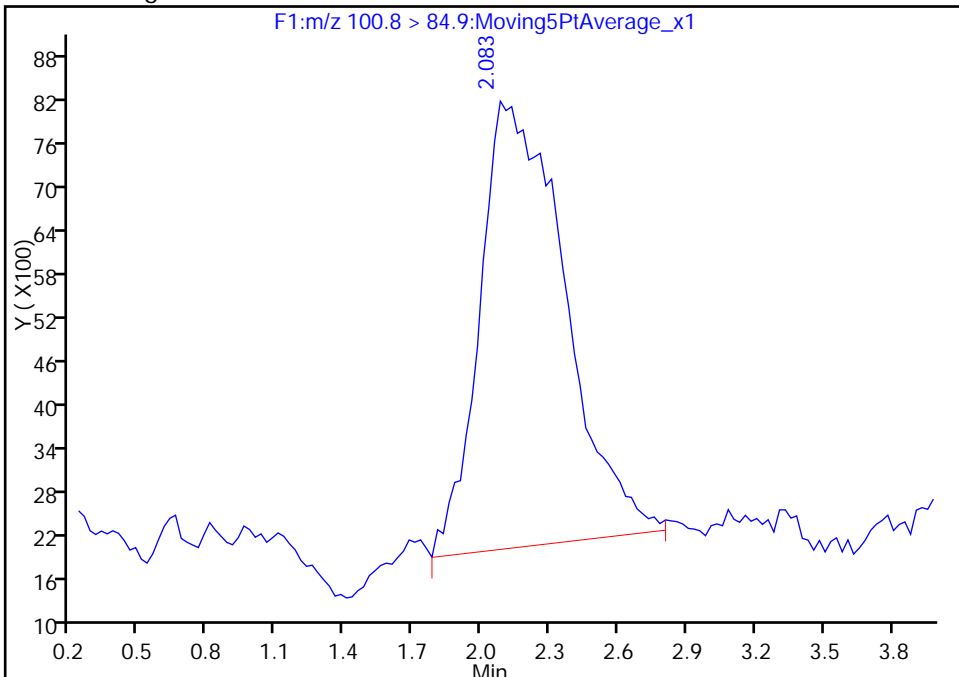
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.08  
Area: 159777  
Amount: 21.499266  
Amount Units: ng/l



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11003.d  
 Lims ID: STD050  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 11-May-2017 12:47:34 ALS Bottle#: 0 Worklist Smp#: 5  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 50 prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:39 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:22:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-180									
107.0 > 89.0	2.133	2.108	0.025		2835204	204.0		628	
2 Perchlorate									
98.8 > 82.9	2.108	2.133	-0.025	0.988	1218476	49.1		18.1	M
100.8 > 84.9	2.133	2.133	0.0	1.000	352483		3.46(2.30-3.80)	15.3	M

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

6860CalStockW\_00082 Amount Added: 250.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11003.d

Injection Date: 11-May-2017 12:47:34

Instrument ID: LC\_LCMS2

Lims ID: STD050

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 5

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

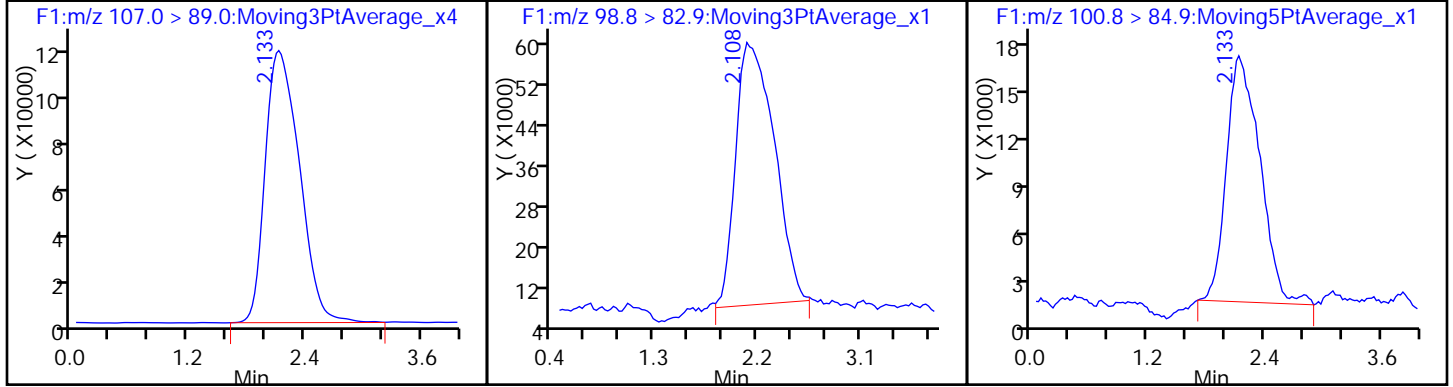
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate



TestAmerica Denver

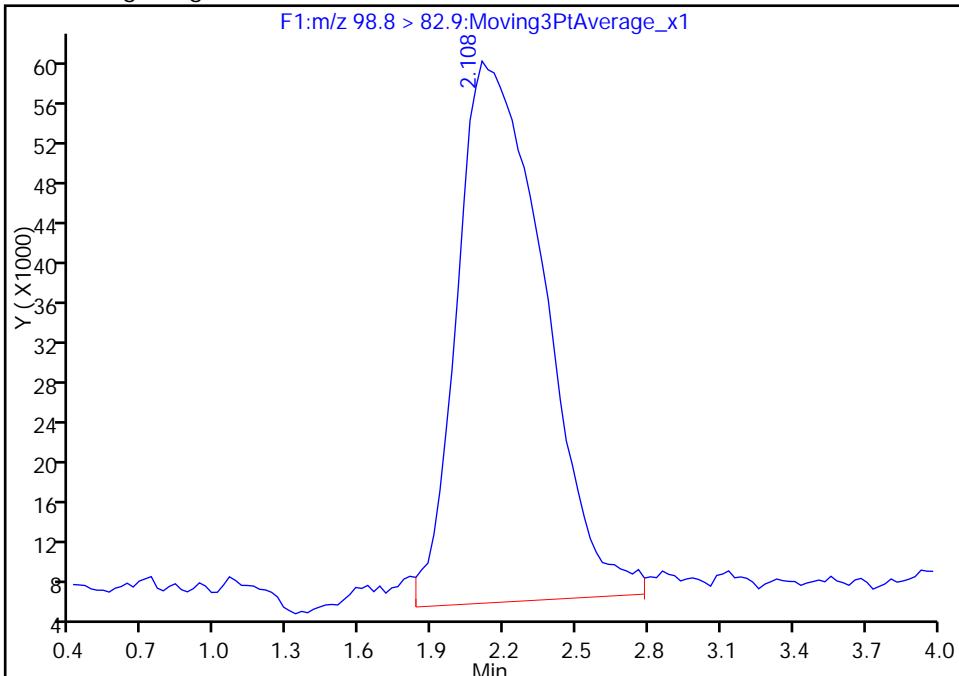
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11003.d  
Injection Date: 11-May-2017 12:47:34 Instrument ID: LC\_LCMS2  
Lims ID: STD050  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 5  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector: F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

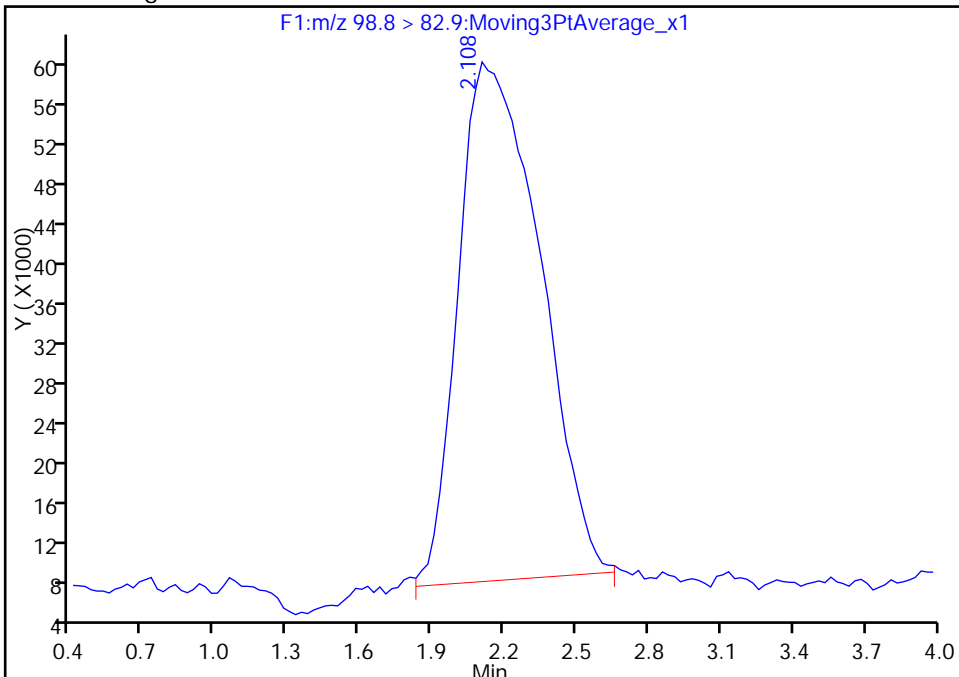
RT: 2.11  
Area: 1349037  
Amount: 53.154062  
Amount Units: ng/l

Processing Integration Results



RT: 2.11  
Area: 1218476  
Amount: 49.067559  
Amount Units: ng/l

Manual Integration Results



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11004.d  
 Lims ID: STD100  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 11-May-2017 12:52:36 ALS Bottle#: 0 Worklist Smp#: 6  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 100 prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:44 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.109	2.108	0.001		2870121	204.0		707	
2 Perchlorate									
98.8 > 82.9	2.159	2.133	0.026	1.024	2462192	98.5		39.0	
100.8 > 84.9	2.134	2.133	0.001	1.012	708308		3.48(2.30-3.80)	34.1	

Reagents:

6860CalStockW\_00082 Amount Added: 500.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11004.d

Injection Date: 11-May-2017 12:52:36

Instrument ID: LC\_LCMS2

Lims ID: STD100

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

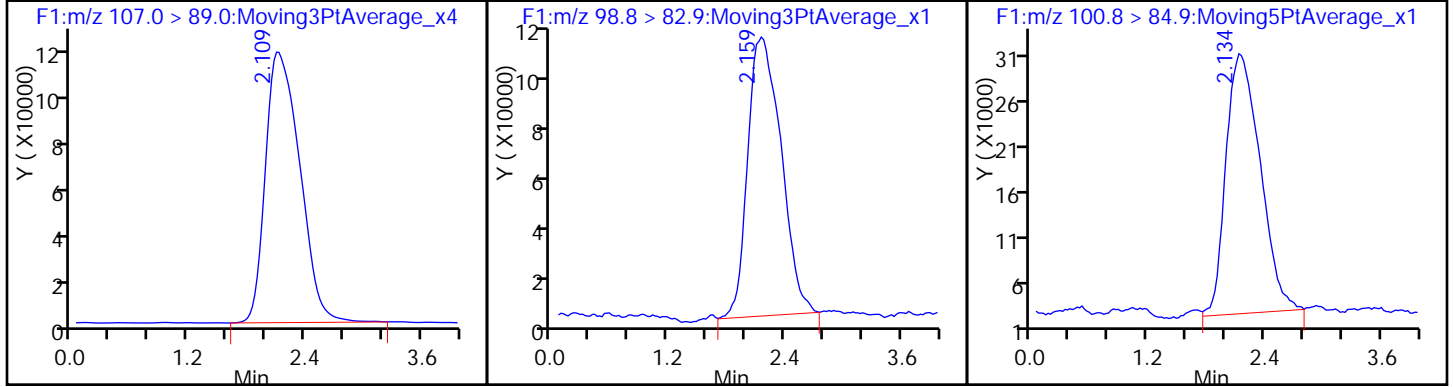
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11005.d  
 Lims ID: STD200  
 Client ID:  
 Sample Type: ICISAV Calib Level: 4  
 Inject. Date: 11-May-2017 12:57:40 ALS Bottle#: 0 Worklist Smp#: 7  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 200 prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:49 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.108	2.108	0.0		3102587	204.0		855	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.012	5102112	189.2		75.5	
100.8 > 84.9	2.133	2.133	0.0	1.012	1388306		3.68(2.30-3.80)	64.8	

Reagents:

6860CalStockW\_00082 Amount Added: 1000.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11005.d

Injection Date: 11-May-2017 12:57:40

Instrument ID: LC\_LCMS2

Lims ID: STD200

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

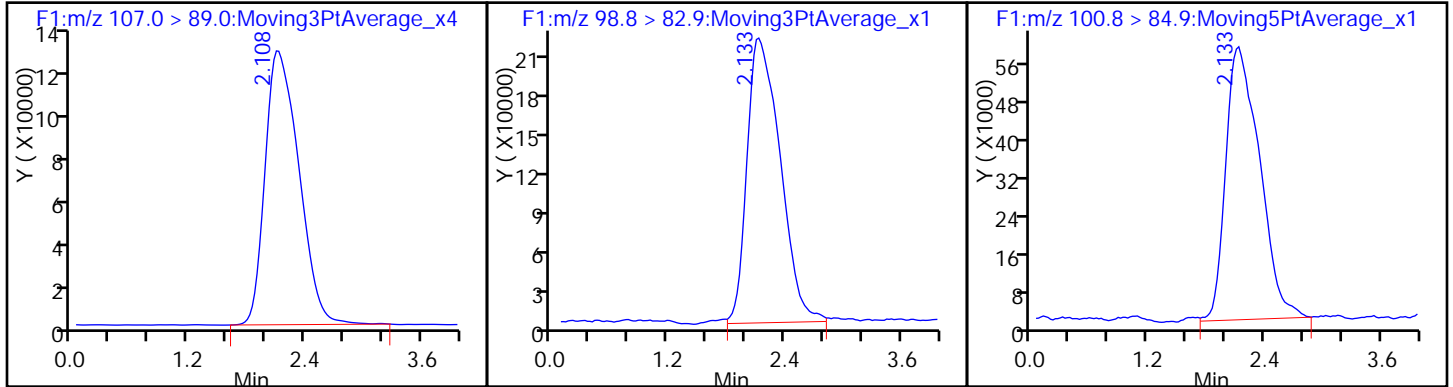
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11006.d  
 Lims ID: STD500  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 11-May-2017 13:02:43 ALS Bottle#: 0 Worklist Smp#: 8  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 500 prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:54 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.134	2.108	0.026		2993460	204.0		717	
2 Perchlorate									
98.8 > 82.9	2.134	2.133	0.001	1.000	13010718	501.0		150	
100.8 > 84.9	2.159	2.133	0.026	1.012	3565053		3.65(2.30-3.80)	125	

Reagents:

6860CalStockW\_00082 Amount Added: 2500.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11006.d

Injection Date: 11-May-2017 13:02:43

Instrument ID: LC\_LCMS2

Lims ID: STD500

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 8

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

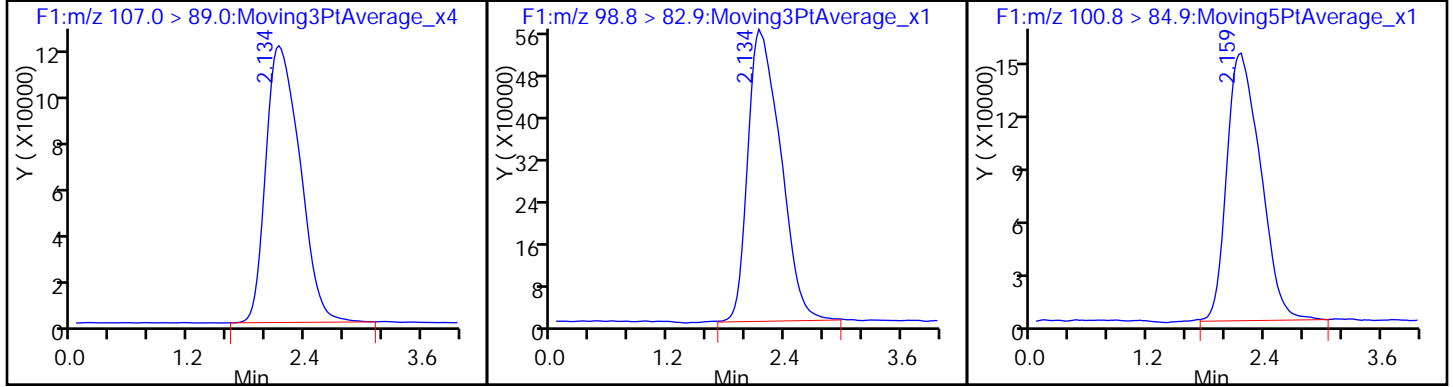
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Lims ID: STD1000  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 11-May-2017 13:07:48 ALS Bottle#: 0 Worklist Smp#: 9  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: 1000 prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:58 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.108	0.025		2966337	204.0		448	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.000	25992927	1010.7		281	
100.8 > 84.9	2.133	2.133	0.0	1.000	7175819		3.62(2.30-3.80)	224	

Reagents:

6860CalStockW\_00082 Amount Added: 5000.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d

Injection Date: 11-May-2017 13:07:48

Instrument ID: LC\_LCMS2

Lims ID: STD1000

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 9

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

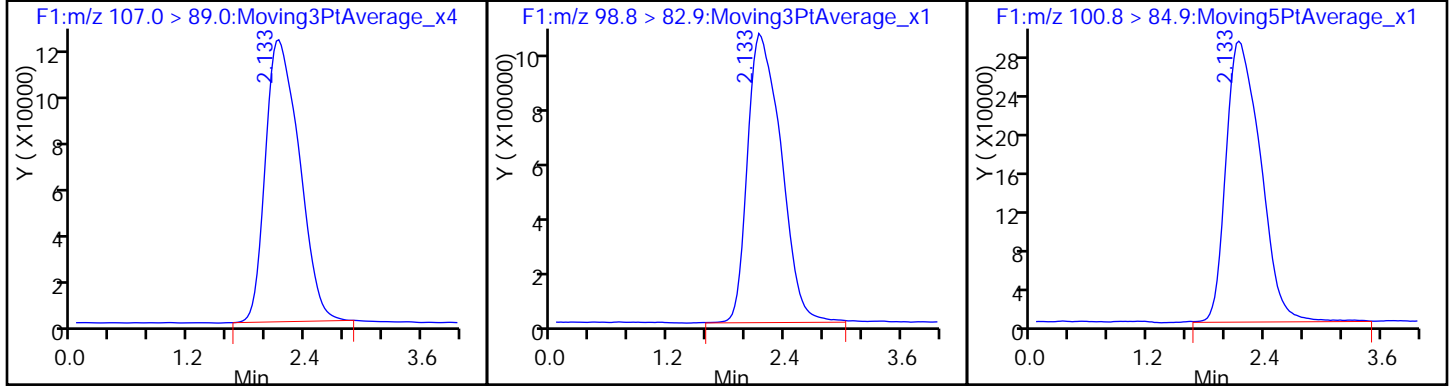
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 280-373139/11 Calibration Date: 05/11/2017 13:18  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11009.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.770		0.200	0.200	-0.1	20.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11009.d  
 Lims ID: ICV  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 11-May-2017 13:18:01 ALS Bottle#: 0 Worklist Smp#: 11  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: ICV prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist:

Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:46:09 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d

Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3093730	204.0		922	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.000	5369510	199.8		64.8	
100.8 > 84.9	2.133	2.133	0.0	1.000	1435824		3.74(2.30-3.80)	58.7	

Reagents:

6860ICVStockW\_00037 Amount Added: 1000.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL



TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11009.d

Injection Date: 11-May-2017 13:18:01

Instrument ID: LC\_LCMS2

Lims ID: ICV

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 11

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

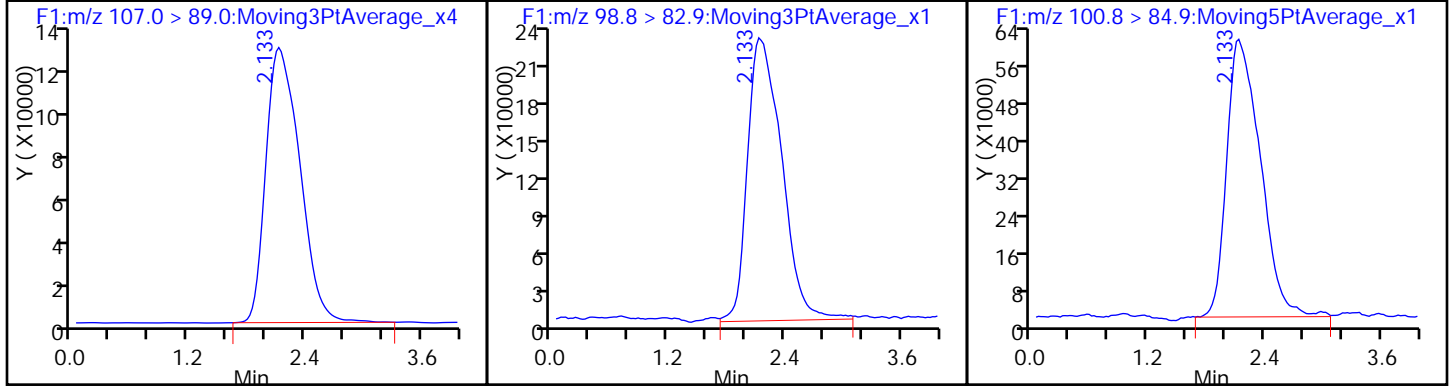
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 280-373139/23 Calibration Date: 05/11/2017 14:20  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11021.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.634		0.184	0.200	-7.8	20.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11021.d  
 Lims ID: CCV  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 11-May-2017 14:20:15 ALS Bottle#: 0 Worklist Smp#: 23  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV prep 05/10/17 exp 05/17/17 #1 inj 3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:46:56 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3280313	204.0		766	
2 Perchlorate									
98.8 > 82.9	2.158	2.158	0.0	1.012	5256084	184.4		92.6	
100.8 > 84.9	2.133	2.158	-0.025	1.000	1464043		3.59(2.30-3.80)	70.5	

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 1000.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11021.d

Injection Date: 11-May-2017 14:20:15

Instrument ID: LC\_LCMS2

Lims ID: CCV

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 23

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

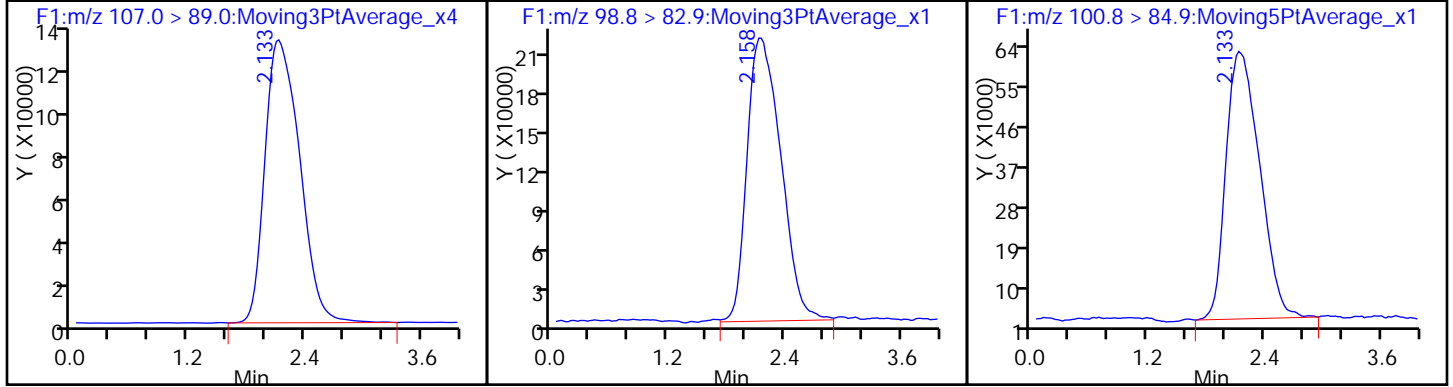
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 280-373139/24 Calibration Date: 05/11/2017 14:25  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11022.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.747		0.0192	0.0200	-3.8	30.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11022.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 11-May-2017 14:25:23 ALS Bottle#: 0 Worklist Smp#: 24  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL prep 05/10/17 exp 05/17/17 #1 inj 3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:01 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:32:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
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* 1 Perchlorate-180									
107.0 > 89.0	2.108	2.108	0.0		3125787	204.0		508	
2 Perchlorate									
98.8 > 82.9	2.158	2.158	0.0	1.024	535474	19.2		8.5	M
100.8 > 84.9	2.283	2.158	0.125	1.083	170925		3.13(2.30-3.80)	5.8	M

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 100.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11022.d

Injection Date: 11-May-2017 14:25:23

Instrument ID: LC\_LCMS2

Lims ID: CCVL

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 24

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

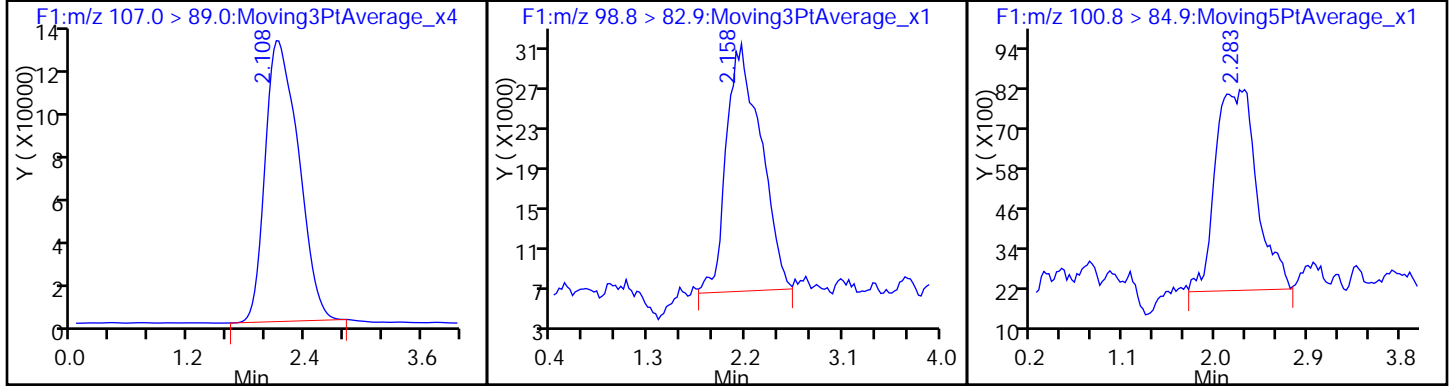
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate (M)



TestAmerica Denver

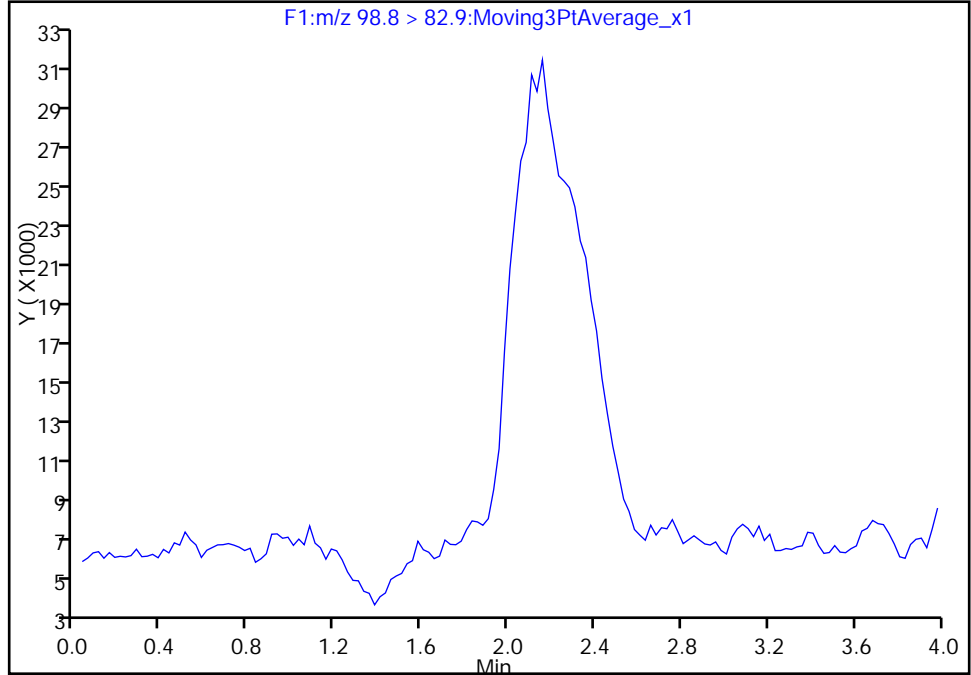
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11022.d  
Injection Date: 11-May-2017 14:25:23 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 24  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

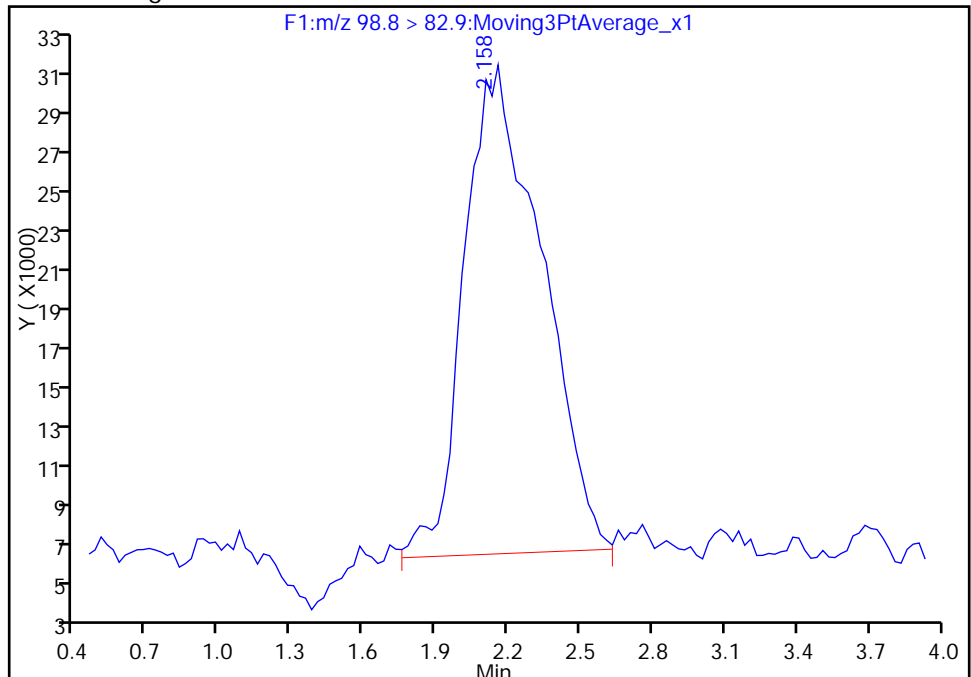
Not Detected  
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.16  
Area: 535474  
Amount: 19.241634  
Amount Units: ng/l





TestAmerica Denver

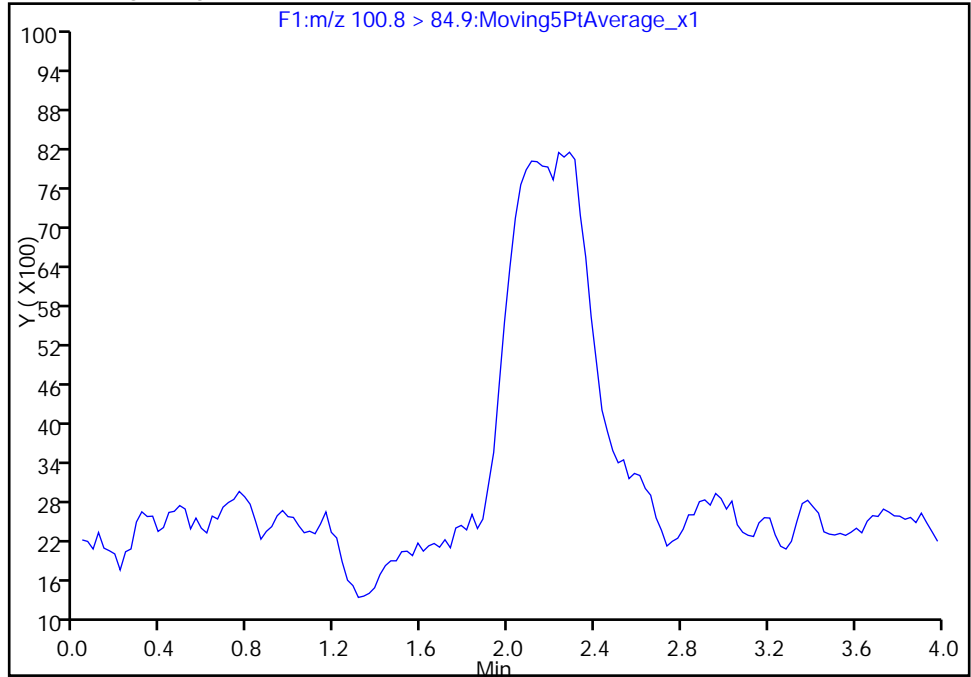
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11022.d  
Injection Date: 11-May-2017 14:25:23 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 24  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

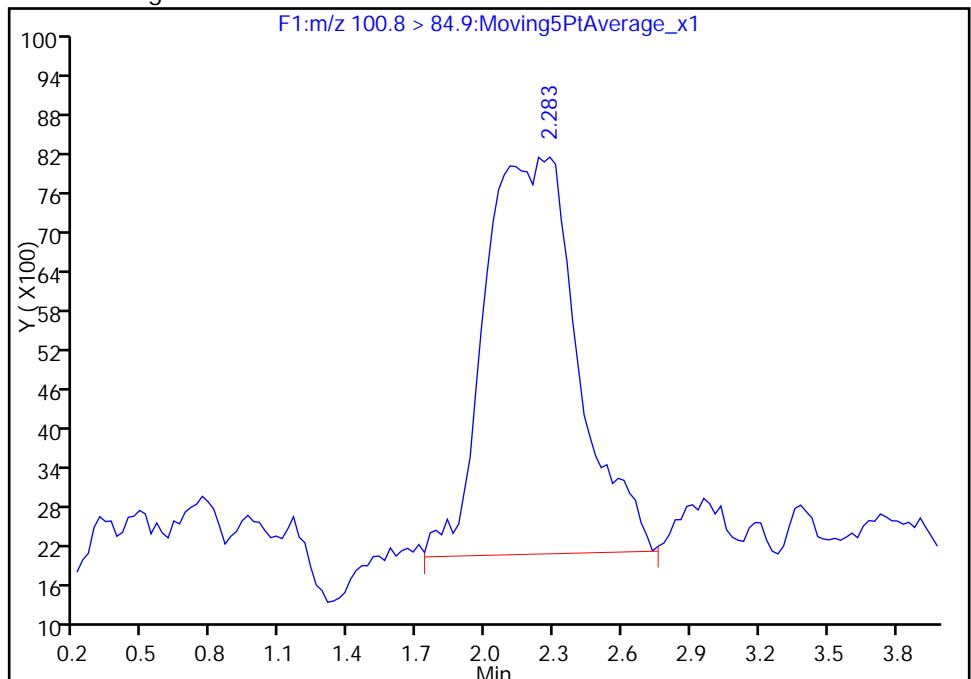
Not Detected  
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.28  
Area: 170925  
Amount: 19.241634  
Amount Units: ng/l



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 280-373139/33 Calibration Date: 05/11/2017 15:11  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11031.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.687		0.190	0.200	-4.9	20.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11031.d  
 Lims ID: CCV  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 11-May-2017 15:11:40 ALS Bottle#: 0 Worklist Smp#: 33  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV prep 05/10/17 exp 05/17/17 #2 inj 1  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:33 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3125581	204.0		496	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.000	5168248	190.3		90.7	
100.8 > 84.9	2.133	2.133	0.0	1.000	1389684		3.72(2.30-3.80)	82.2	

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 1000.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11031.d

Injection Date: 11-May-2017 15:11:40

Instrument ID: LC\_LCMS2

Lims ID: CCV

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 33

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

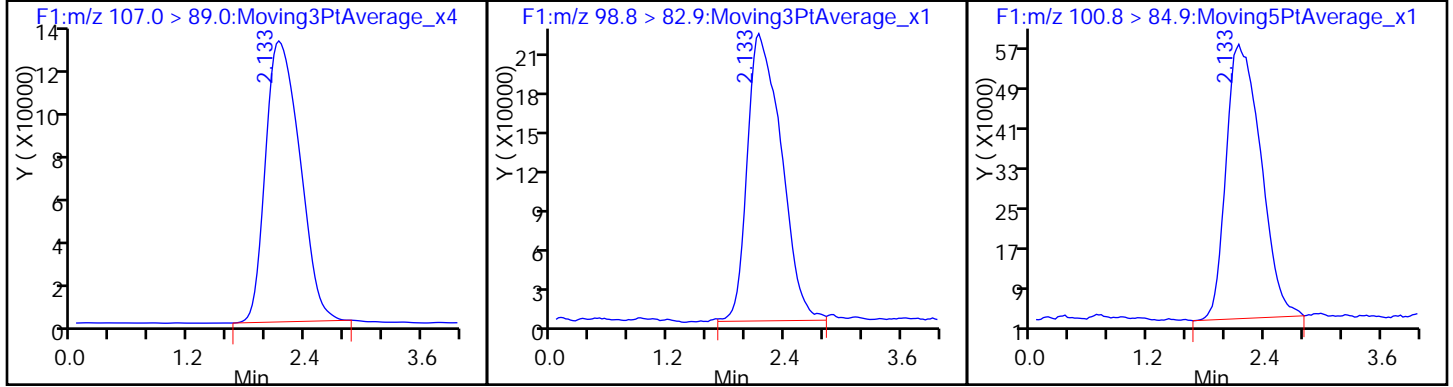
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 280-373139/34 Calibration Date: 05/11/2017 15:16  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11032.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.776		0.0196	0.0200	-2.2	30.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11032.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 11-May-2017 15:16:45 ALS Bottle#: 0 Worklist Smp#: 34  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL prep 05/10/17 exp 05/17/17 #2 inj 1  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:37 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:33:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
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* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3155098	204.0		814	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.000	549321	19.6		8.7	M
100.8 > 84.9	2.133	2.133	0.0	1.000	157882		3.48(2.30-3.80)	5.7	M

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 100.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11032.d

Injection Date: 11-May-2017 15:16:45

Instrument ID: LC\_LCMS2

Lims ID: CCVL

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 34

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

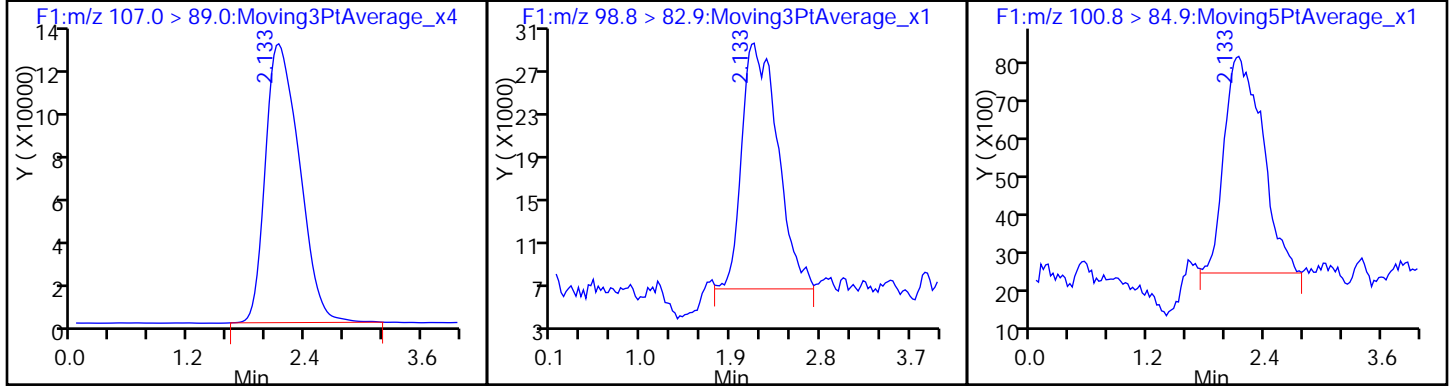
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate (M)



TestAmerica Denver

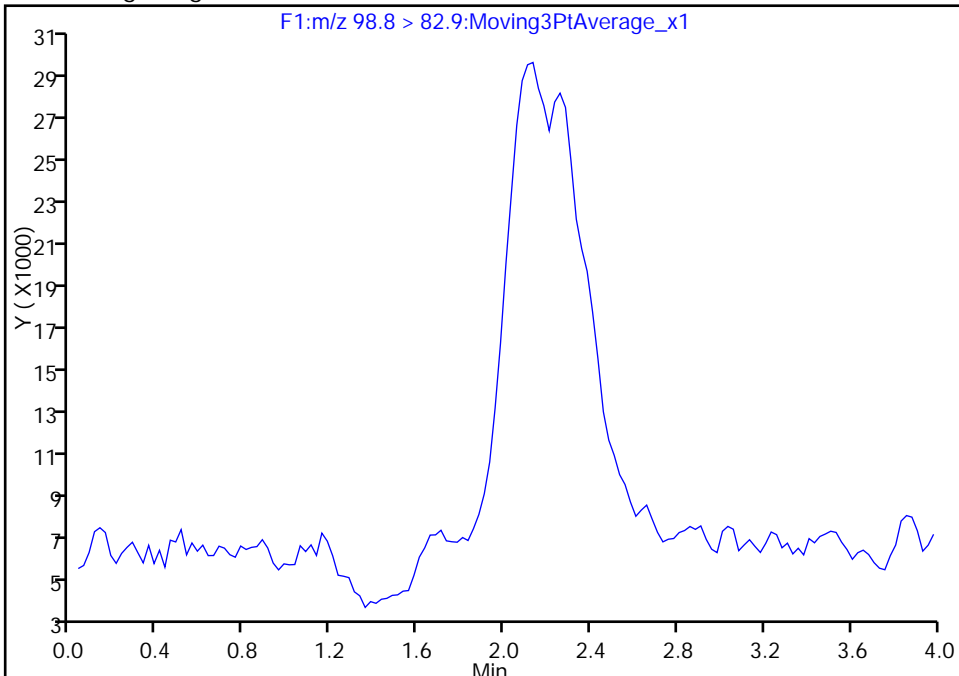
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11032.d  
Injection Date: 11-May-2017 15:16:45 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 34  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

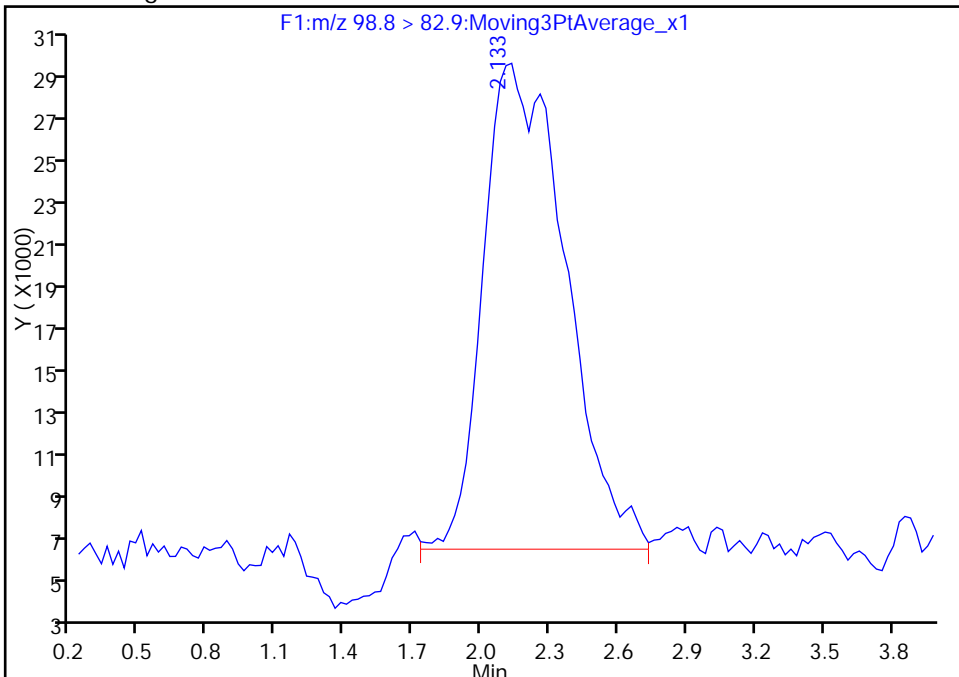
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.13  
Area: 549321  
Amount: 19.564442  
Amount Units: ng/l



Reviewer: fiedlerh, 12-May-2017 08:33:52  
Audit Action: Manually Integrated



TestAmerica Denver

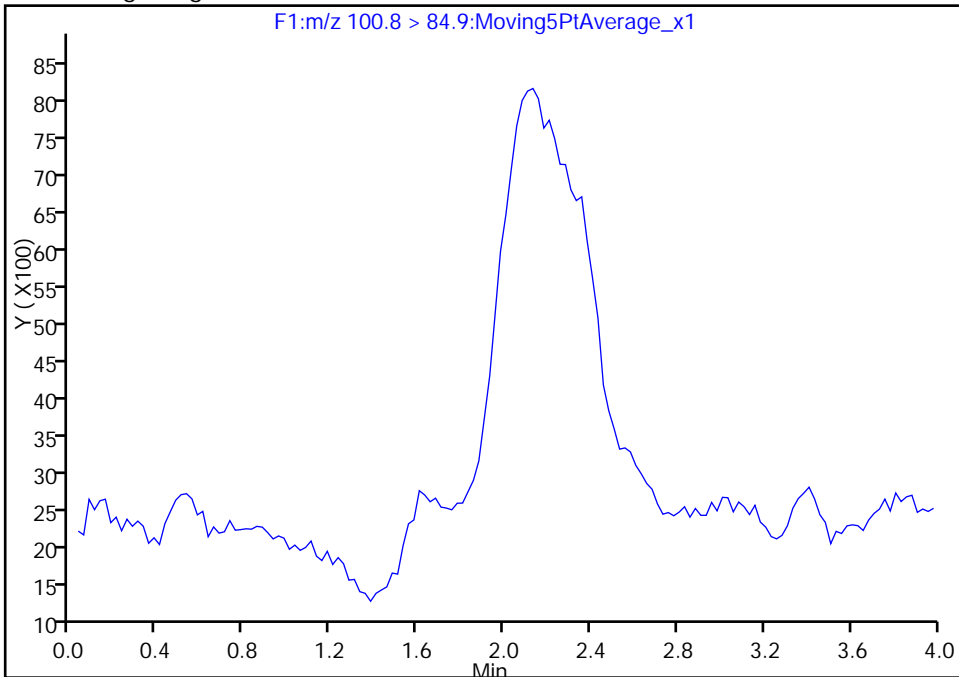
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11032.d  
Injection Date: 11-May-2017 15:16:45 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 34  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

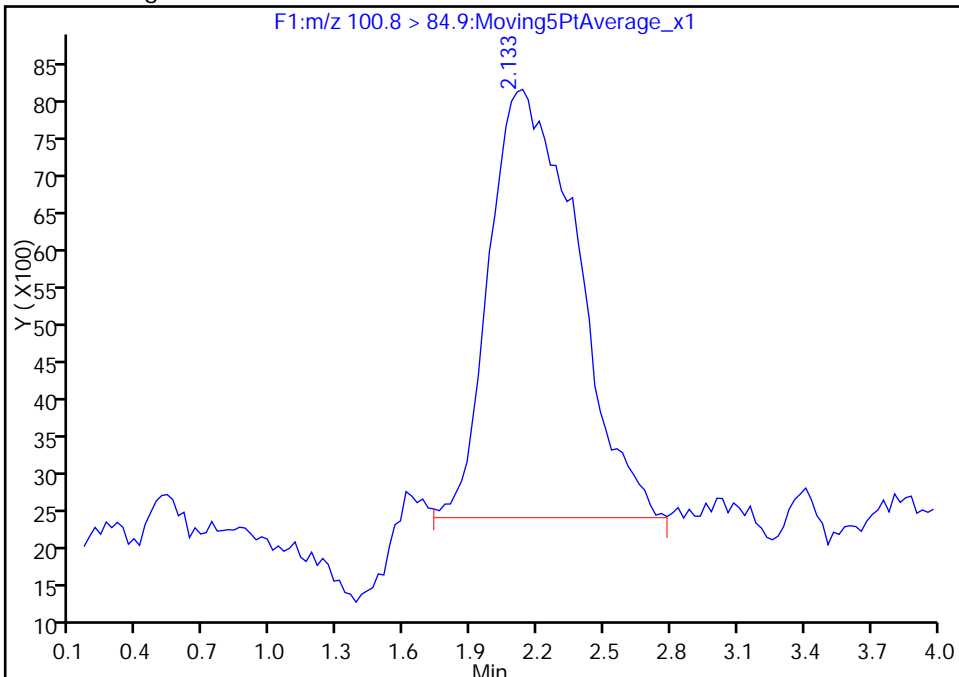
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.13  
Area: 157882  
Amount: 19.564442  
Amount Units: ng/l



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 280-373139/46 Calibration Date: 05/11/2017 16:17  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11044.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.668		0.188	0.200	-5.9	20.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11044.d  
 Lims ID: CCV  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 11-May-2017 16:17:40 ALS Bottle#: 0 Worklist Smp#: 46  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV prep 05/10/17 exp 05/17/17 #2 inj 2  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:48:23 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3236431	204.0		1042	
2 Perchlorate									
98.8 > 82.9	2.108	2.108	0.0	0.988	5293387	188.2		94.8	
100.8 > 84.9	2.133	2.108	0.025	1.000	1471731		3.60(2.30-3.80)	69.6	

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 1000.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11044.d

Injection Date: 11-May-2017 16:17:40

Instrument ID: LC\_LCMS2

Lims ID: CCV

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 46

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

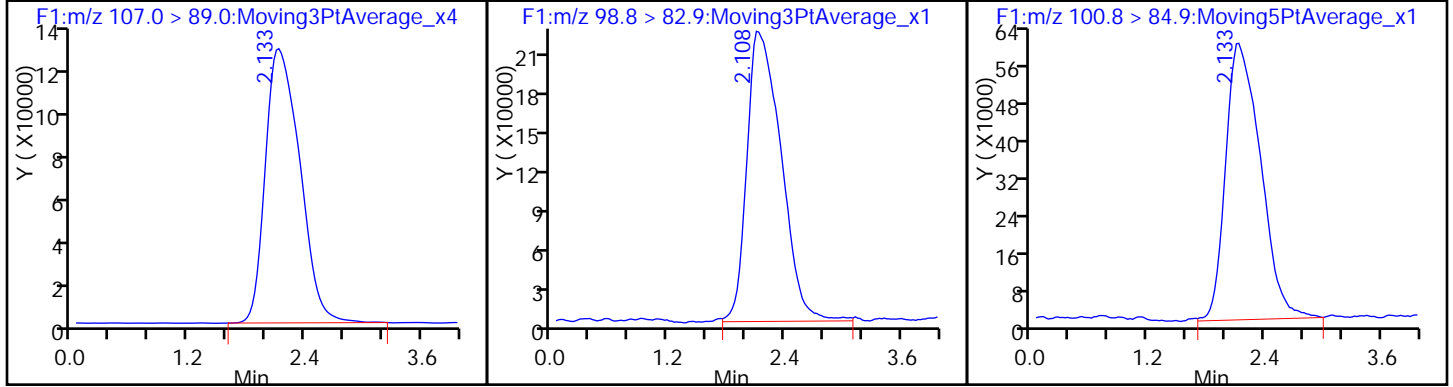
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 280-373139/47 Calibration Date: 05/11/2017 16:22  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11045.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.785		0.0197	0.0200	-1.6	30.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11045.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 11-May-2017 16:22:46 ALS Bottle#: 0 Worklist Smp#: 47  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL prep 05/10/17 exp 05/17/17 #2 inj 2  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:48:28 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:35:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
2 Perchlorate									
98.8 > 82.9	2.160	2.160	0.0	1.012	535983	19.7		7.8	M
100.8 > 84.9	2.185	2.160	0.025	1.023	164276		3.26(2.30-3.80)	7.4	M
* 1 Perchlorate-18O									
107.0 > 89.0	2.135	2.135	0.0		3062013	204.0		538	

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 100.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11045.d

Injection Date: 11-May-2017 16:22:46

Instrument ID: LC\_LCMS2

Lims ID: CCVL

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 47

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

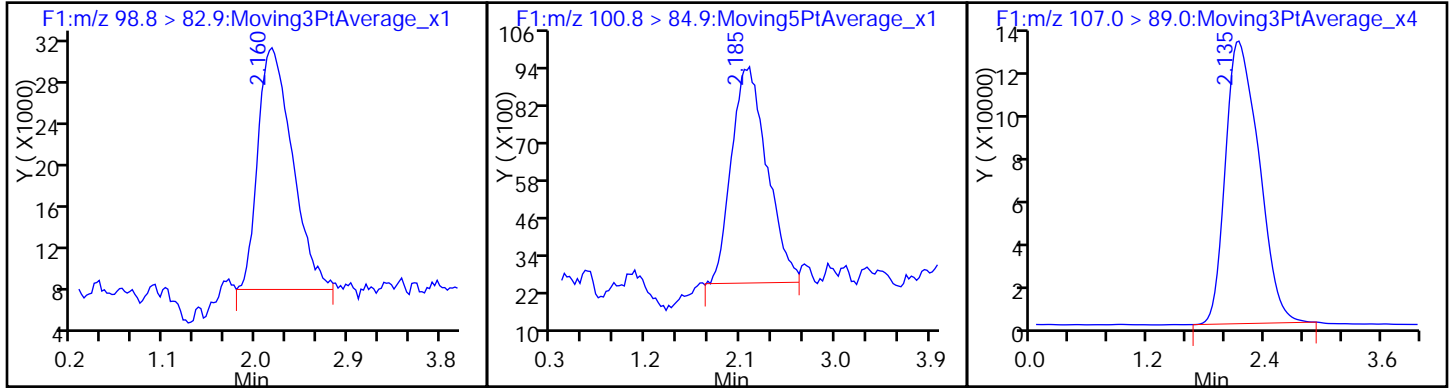
Method: 6860

Limit Group: LC - 6860 Perchlorate

2 Perchlorate (M)

2 Perchlorate (M)

\* 1 Perchlorate-18O



TestAmerica Denver

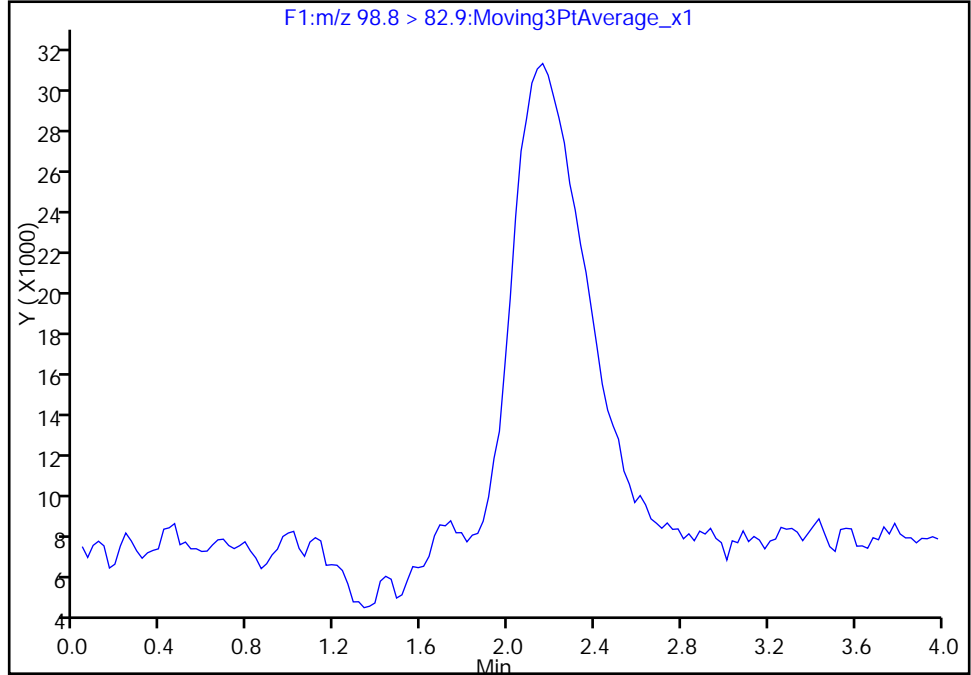
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11045.d  
Injection Date: 11-May-2017 16:22:46 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 47  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

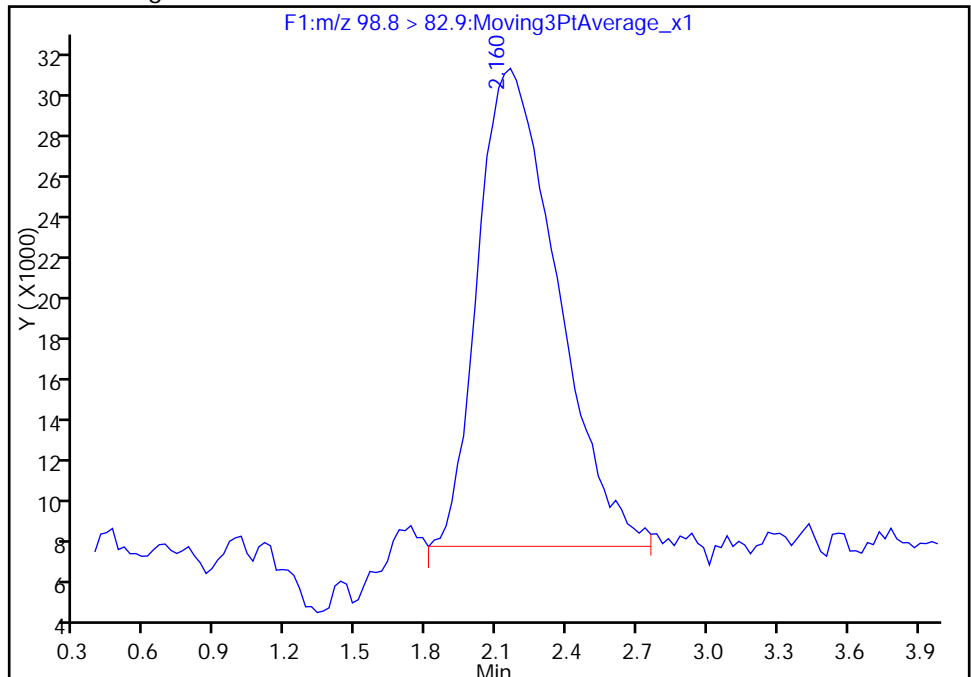
Not Detected  
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.16  
Area: 535983  
Amount: 19.672554  
Amount Units: ng/l





TestAmerica Denver

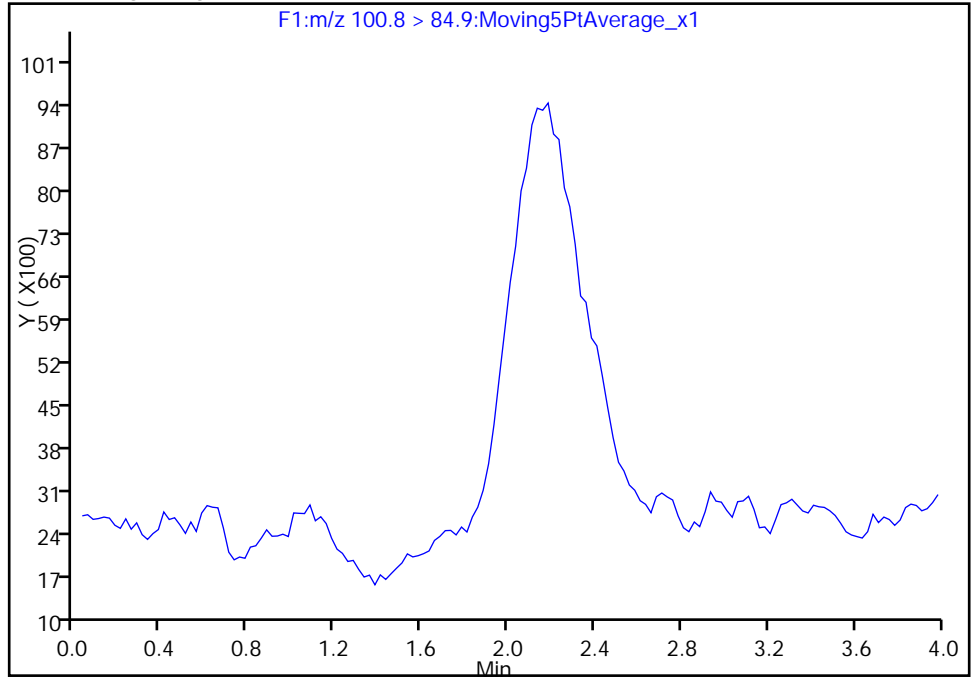
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11045.d  
Injection Date: 11-May-2017 16:22:46 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 47  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

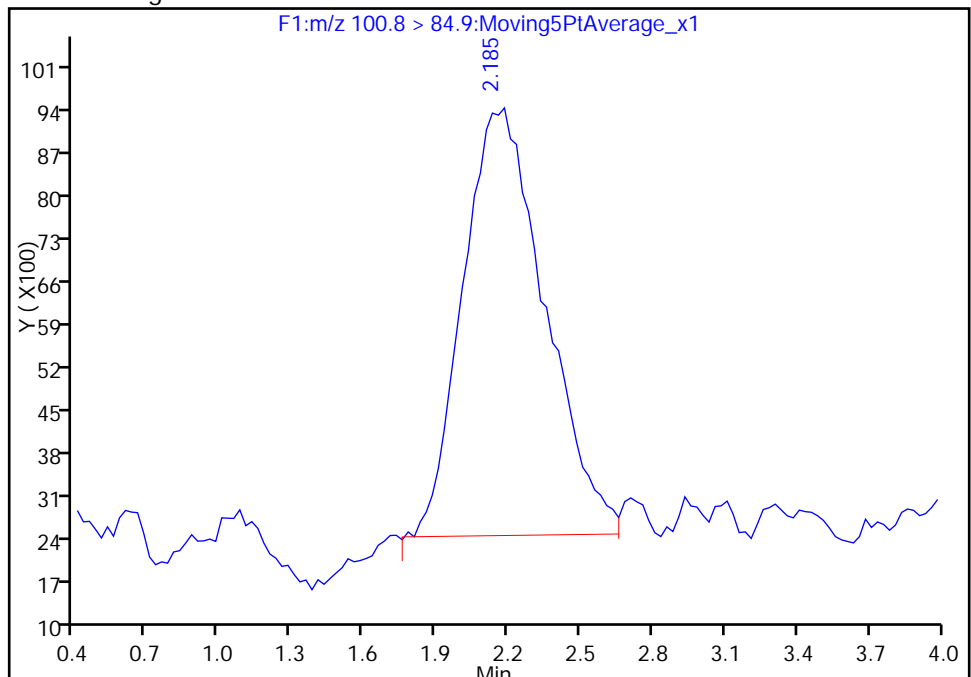
Not Detected  
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.18  
Area: 164276  
Amount: 19.672554  
Amount Units: ng/l



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 280-373139/57 Calibration Date: 05/11/2017 17:13  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11055.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.675		0.189	0.200	-5.5	20.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11055.d  
 Lims ID: CCV  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 11-May-2017 17:13:50 ALS Bottle#: 0 Worklist Smp#: 57  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV prep 05/10/17 exp 05/17/17 #2 inj 3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:49:11 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.134	2.134	0.0		3125664	204.0		472	
2 Perchlorate									
98.8 > 82.9	2.134	2.134	0.0	1.000	5133096	189.0		71.0	
100.8 > 84.9	2.159	2.134	0.025	1.012	1403592		3.66(2.30-3.80)	63.3	

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 1000.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11055.d

Injection Date: 11-May-2017 17:13:50

Instrument ID: LC\_LCMS2

Lims ID: CCV

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 57

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

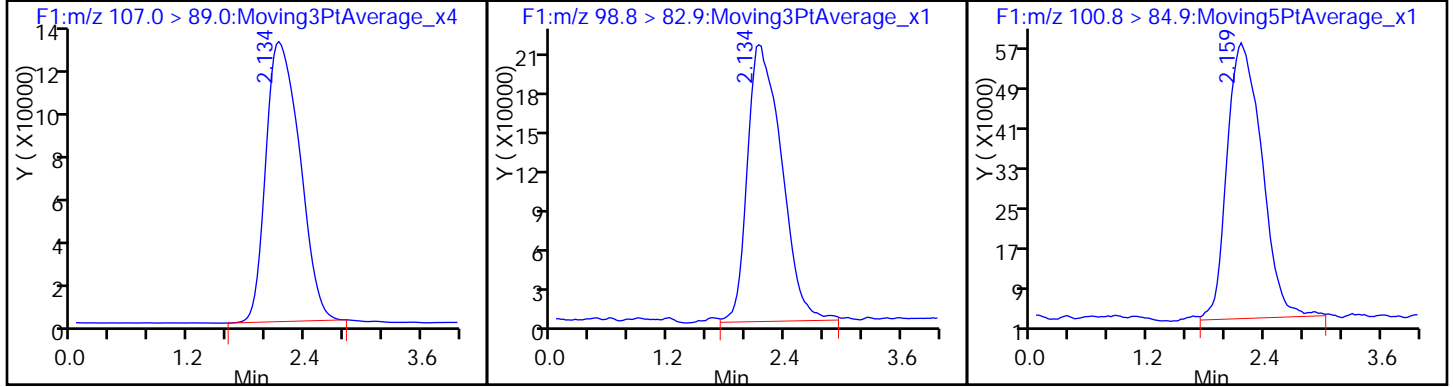
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 280-373139/58 Calibration Date: 05/11/2017 17:18  
 Instrument ID: LC\_LCMS2 Calib Start Date: 05/11/2017 12:42  
 GC Column: IonPac ID: 2.00 (mm) Calib End Date: 05/11/2017 13:07  
 Lab File ID: IC217E11056.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perchlorate	Lin1		1.733		0.0191	0.0200	-4.6	30.0

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11056.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 11-May-2017 17:18:58 ALS Bottle#: 0 Worklist Smp#: 58  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL prep 05/10/17 exp 05/17/17 #2 inj 3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist: chrom-6860\*sub1  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:49:18 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:36:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.134	2.134	0.0		3135645	204.0		900	
2 Perchlorate									
98.8 > 82.9	2.134	2.134	0.0	1.000	532828	19.1		9.5	M
100.8 > 84.9	2.134	2.134	0.0	1.000	146535		3.64(2.30-3.80)	7.5	M

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL  
 6860CalStockW\_00082 Amount Added: 100.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11056.d

Injection Date: 11-May-2017 17:18:58

Instrument ID: LC\_LCMS2

Lims ID: CCVL

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 58

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

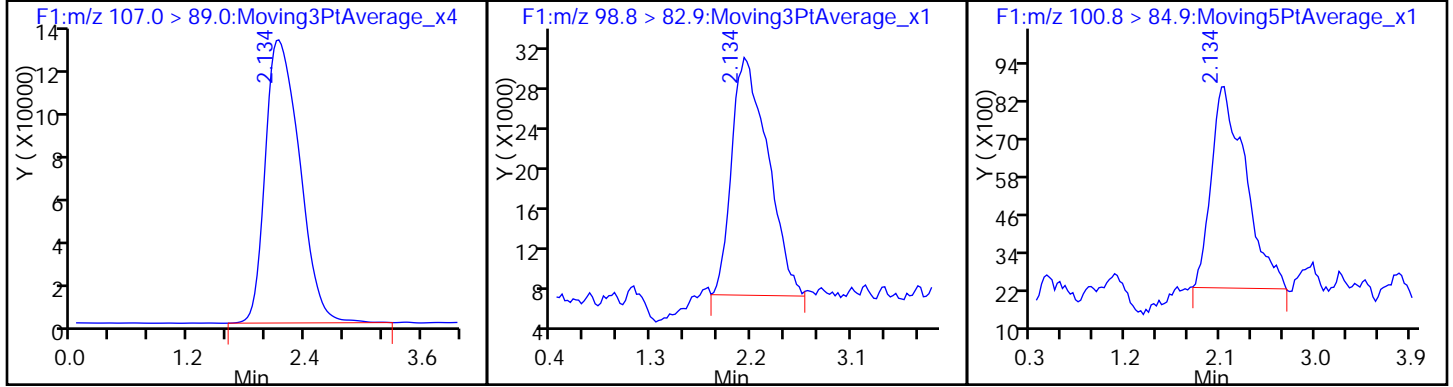
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate (M)



TestAmerica Denver

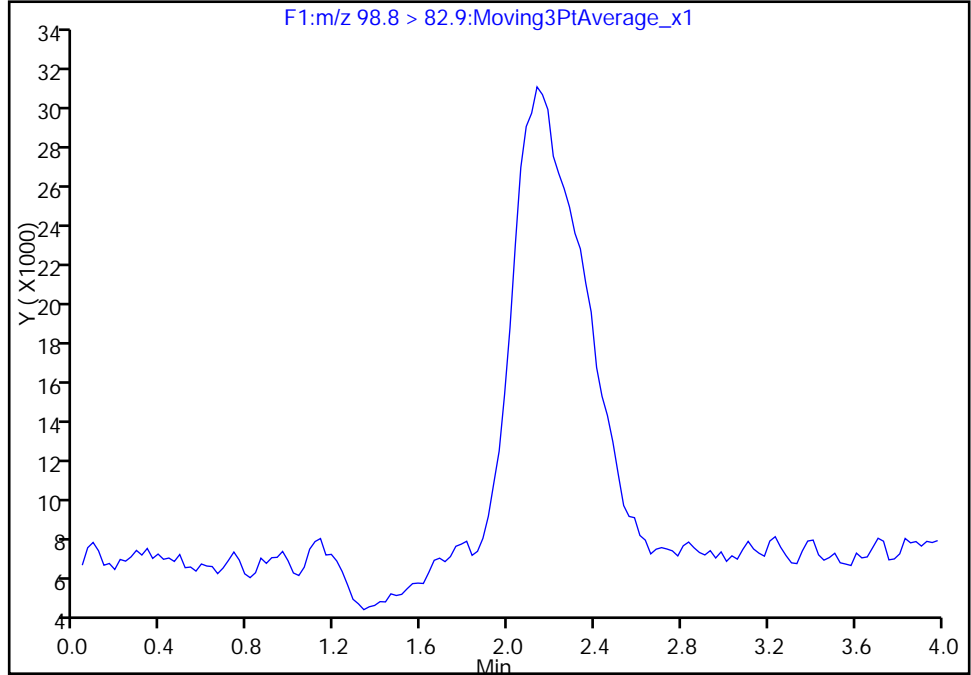
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11056.d  
Injection Date: 11-May-2017 17:18:58 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 58  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:M/RM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

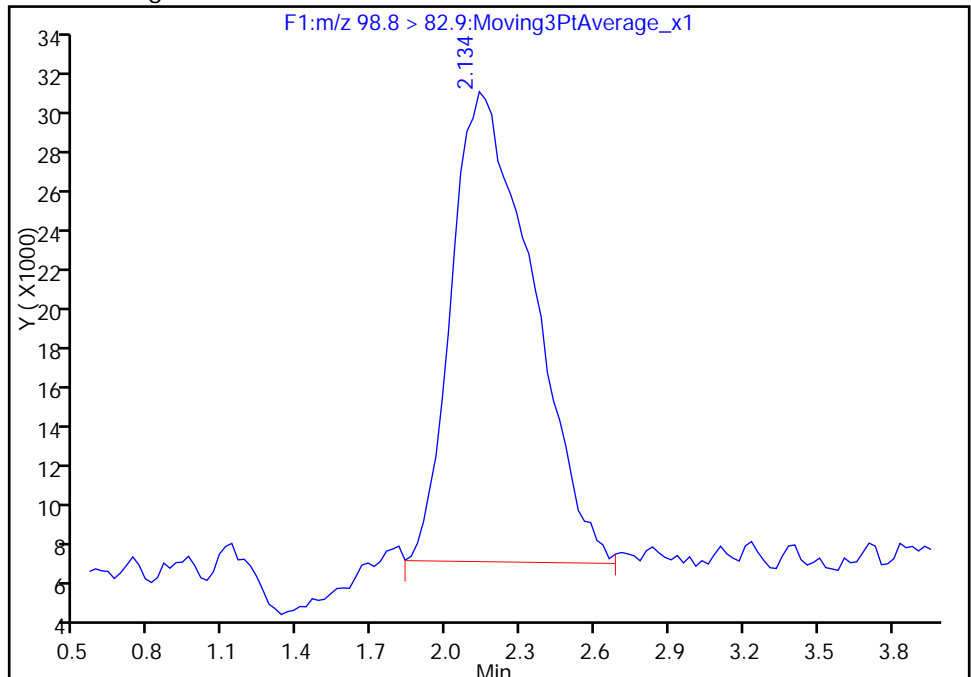
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.13  
Area: 532828  
Amount: 19.082105  
Amount Units: ng/l



Reviewer: fiedlerh, 12-May-2017 08:36:29  
Audit Action: Manually Integrated

Audit Reason: Baseline



TestAmerica Denver

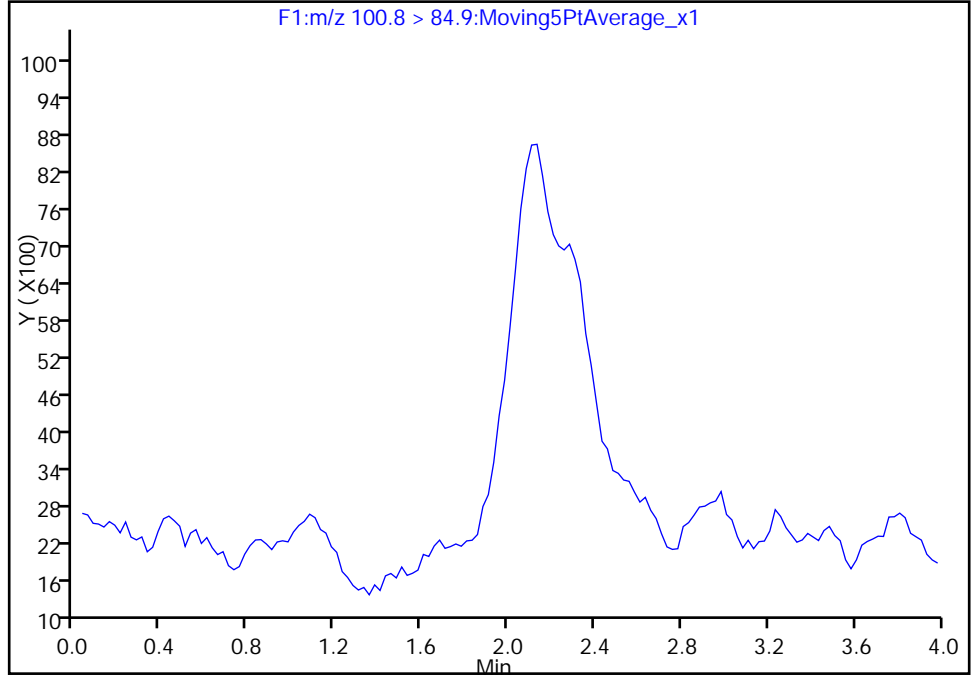
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11056.d  
Injection Date: 11-May-2017 17:18:58 Instrument ID: LC\_LCMS2  
Lims ID: CCVL  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 58  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

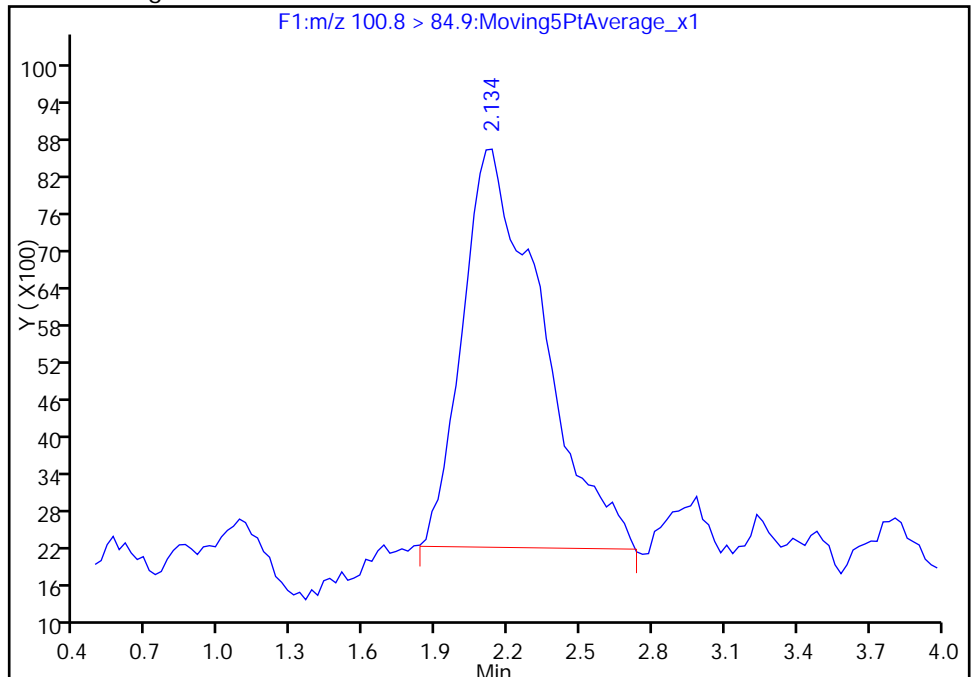
Not Detected  
Expected RT: 2.13

Processing Integration Results



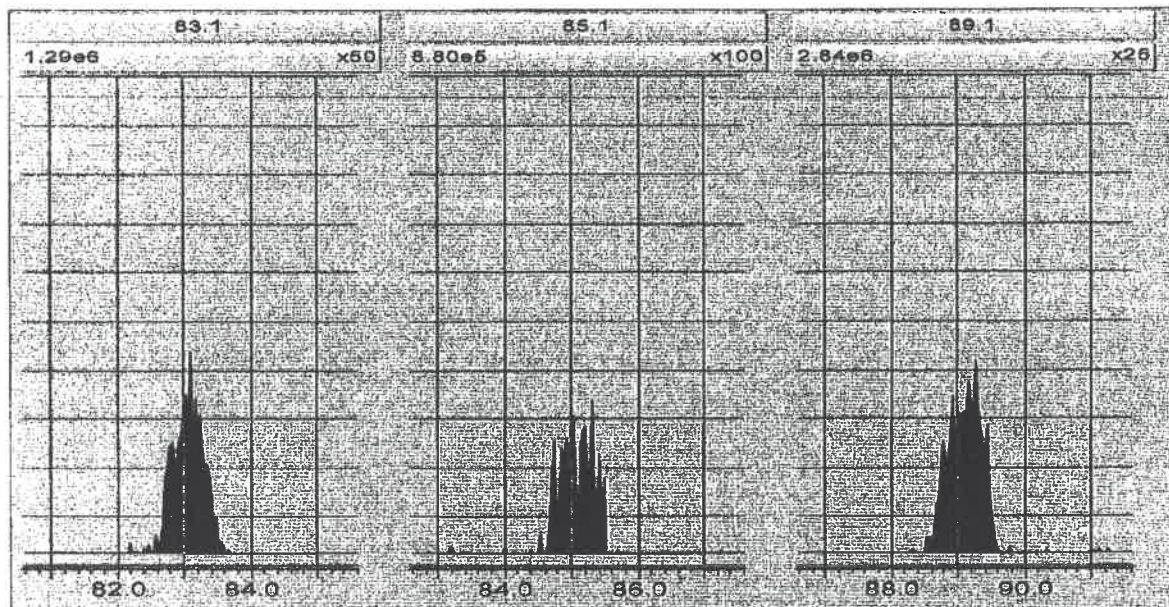
Manual Integration Results

RT: 2.13  
Area: 146535  
Amount: 19.082105  
Amount Units: ng/l



File: C:\MassLynx\ICPerchlorate.PROVACQUDB\ICPerchlorate.IPR

Printed: Thursday, May 11, 2017 08:38:52 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
Daughter Scan	81	86	99
Daughter Scan	83	88	101
Daughter Scan	87	92	107

Source (ES-)	Settings	Readbacks
Capillary (kV)	0.50	-0.45
Cone (V)	30	-31
Hex 1 (V)	0.5	
Aperture (V)	0.1	
Hex 2 (V)	0.5	
Source Temperature (°C)	120	124
Desolvation Temperature (°C)	450	445
Cone Gas Flow (L/Hr)	91	
Desolvation Gas Flow (L/Hr)	949	

Analyser	Settings	Readbacks
LM 1 Resolution	7.0	
HM 1 Resolution	5.0	
Ion Energy 1	3.0	
Entrance	-1	24
Collision	25	24
Exit	0	25
LM 2 Resolution	12.0	
HM 2 Resolution	14.0	
Ion Energy 2	4.0	
Multiplier (V)	650	-655

Pressure Gauges	Settings
Collision Cell Pressure(mbar)	4.58e-3
Analyser Pressure (mbar)	OFF

MUX Configuration	Settings
Probe	Standard

Thaneesh P.  
05/15/17

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 280-373139/13  
 Matrix: Water Lab File ID: IC217E11011.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 13:28  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11011.d  
 Lims ID: mb  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 11-May-2017 13:28:13 ALS Bottle#: 0 Worklist Smp#: 13  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: MB  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:46:09 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.112 2.133 -0.021 2834085 204.0 607

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11011.d

Injection Date: 11-May-2017 13:28:13

Instrument ID: LC\_LCMS2

Lims ID: mb

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

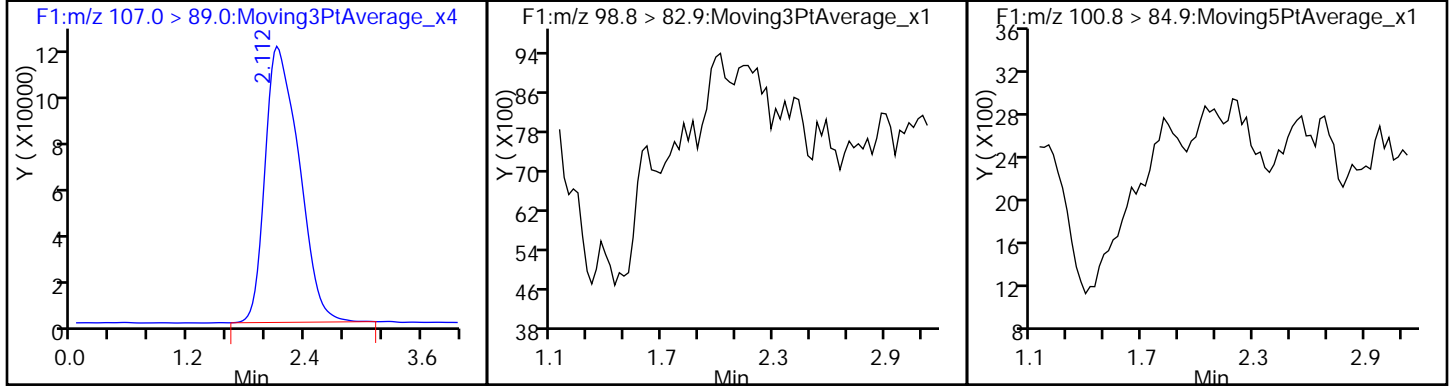
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 280-373139/36  
 Matrix: Water Lab File ID: IC217E11034.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 15:27  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11034.d  
 Lims ID: mb  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 11-May-2017 15:27:08 ALS Bottle#: 0 Worklist Smp#: 36  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: mb  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:37 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.108 2.133 -0.025 3021087 204.0 627

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11034.d

Injection Date: 11-May-2017 15:27:08

Instrument ID: LC\_LCMS2

Lims ID: mb

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 36

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

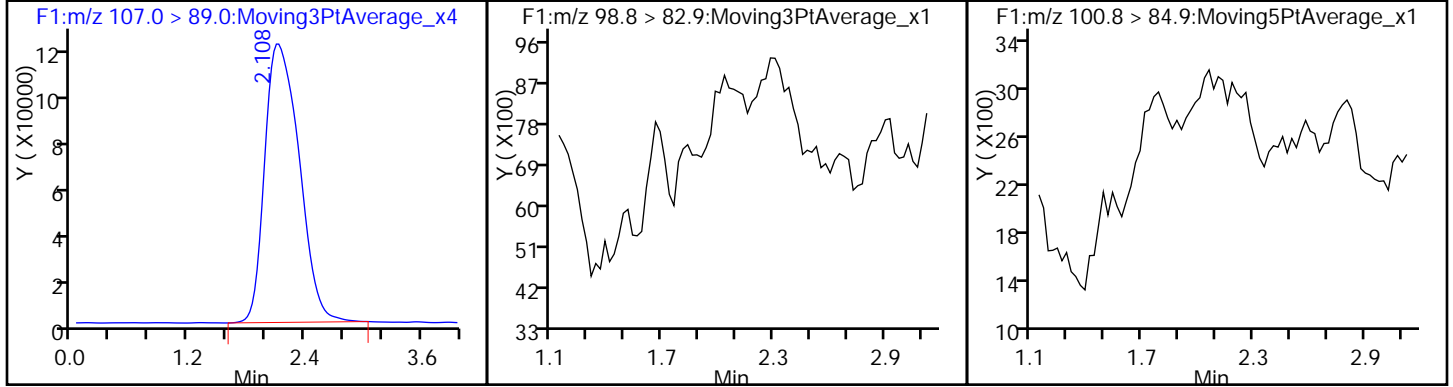
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)





FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: CCB 280-373139/25  
 Matrix: Water Lab File ID: IC217E11023.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 14:30  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11023.d  
 Lims ID: CCB  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 11-May-2017 14:30:30 ALS Bottle#: 0 Worklist Smp#: 25  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCB prep 05/10/17 exp 05/17/17 #1 inj 3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:01 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.133 2.108 0.025 2978160 204.0 456

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11023.d

Injection Date: 11-May-2017 14:30:30

Instrument ID: LC\_LCMS2

Lims ID: CCB

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 25

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

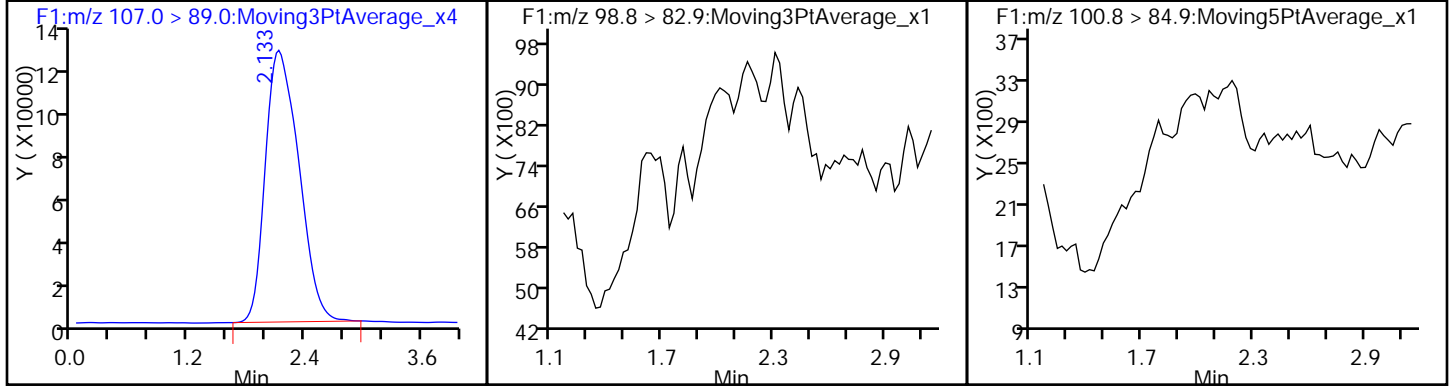
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: CCB 280-373139/35  
 Matrix: Water Lab File ID: IC217E11033.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 15:21  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11033.d  
 Lims ID: CCB  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 11-May-2017 15:21:55 ALS Bottle#: 0 Worklist Smp#: 35  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCB prep 05/10/17 exp 05/17/17 #2 inj 1  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:37 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.108 2.133 -0.025 3103838 204.0 763

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11033.d

Injection Date: 11-May-2017 15:21:55

Instrument ID: LC\_LCMS2

Lims ID: CCB

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 35

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

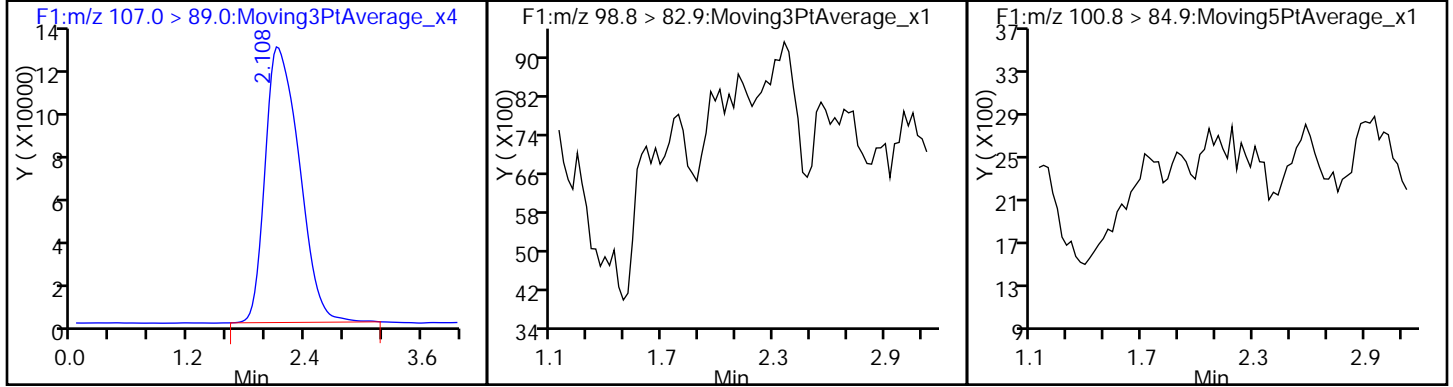
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: CCB 280-373139/48  
 Matrix: Water Lab File ID: IC217E11046.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 16:27  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11046.d  
 Lims ID: CCB  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 11-May-2017 16:27:57 ALS Bottle#: 0 Worklist Smp#: 48  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCB prep 05/10/17 exp 05/17/17 #2 inj 2  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:48:28 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.133 2.135 -0.002 3074930 204.0 505

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL



TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11046.d

Injection Date: 11-May-2017 16:27:57

Instrument ID: LC\_LCMS2

Lims ID: CCB

Client ID:

Operator ID:

ALS Bottle#:

0

Worklist Smp#:

48

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

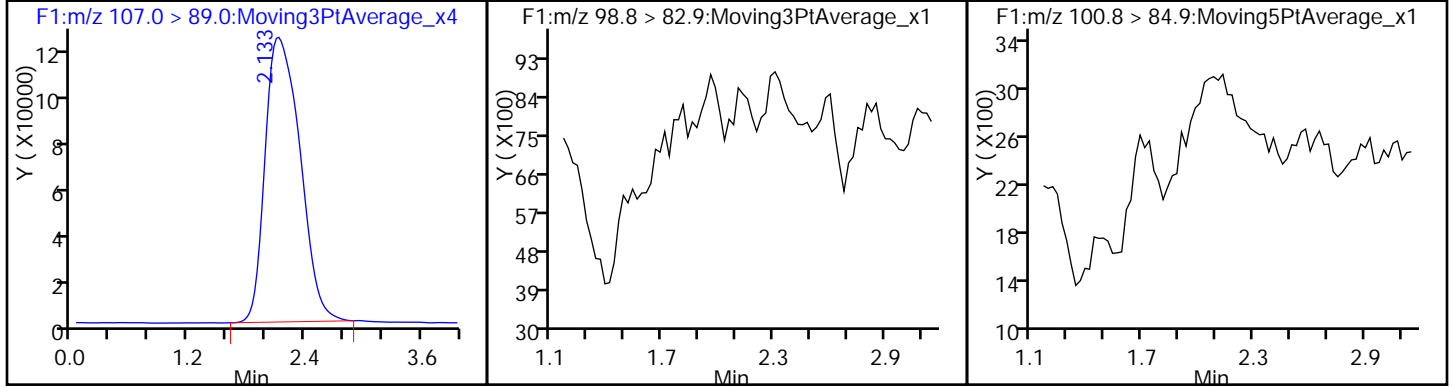
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: CCB 280-373139/59  
 Matrix: Water Lab File ID: IC217E11057.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 17:24  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11057.d  
 Lims ID: CCB  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 11-May-2017 17:24:09 ALS Bottle#: 0 Worklist Smp#: 59  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: CCB prep 05/10/17 exp 05/17/17 #2 inj 3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:49:18 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.133 2.134 -0.001 3143536 204.0 525

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11057.d

Injection Date: 11-May-2017 17:24:09

Instrument ID: LC\_LCMS2

Lims ID: CCB

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 59

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

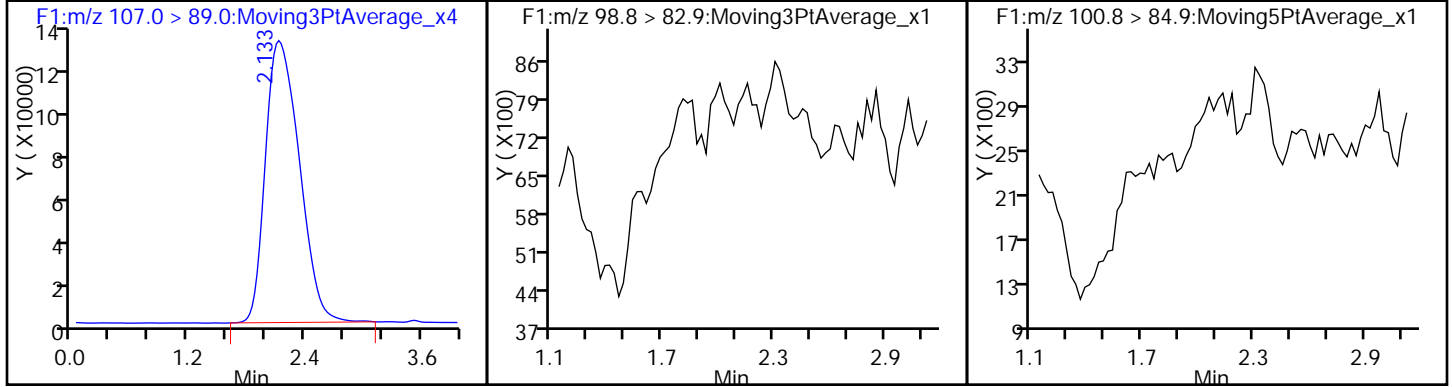
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: ICB 280-373139/10  
 Matrix: Water Lab File ID: IC217E11008.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 13:12  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.010	U	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11008.d  
 Lims ID: ICB  
 Client ID:  
 Sample Type: ICB  
 Inject. Date: 11-May-2017 13:12:53 ALS Bottle#: 0 Worklist Smp#: 10  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: ICB prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:45:58 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

\* 1 Perchlorate-18O  
 107.0 > 89.0 2.109 2.108 0.001 3066929 204.0 560

Reagents:

6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11008.d

Injection Date: 11-May-2017 13:12:53

Instrument ID: LC\_LCMS2

Lims ID: ICB

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 10

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

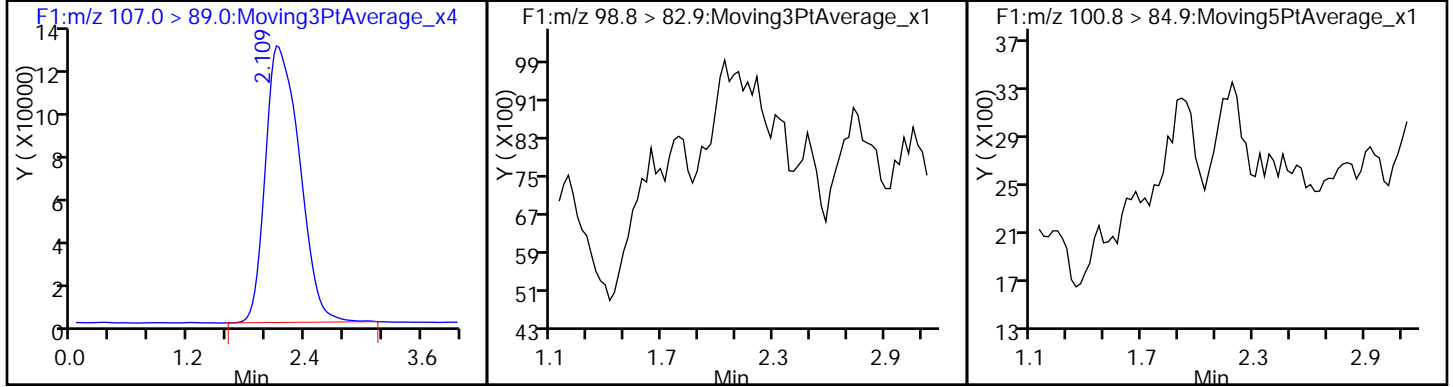
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (ND)

2 Perchlorate (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 280-373139/14  
 Matrix: Water Lab File ID: IC217E11012.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 13:33  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.0462	J M	0.050	0.010	0.0040



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11012.d  
 Lims ID: lcs  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 11-May-2017 13:33:24 ALS Bottle#: 0 Worklist Smp#: 14  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: LCS  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:46:09 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:23:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3050264	204.0		658	
2 Perchlorate									M
98.8 > 82.9	2.158	2.133	0.025	1.012	1235242	46.2		17.2	M
100.8 > 84.9	2.133	2.133	0.0	1.000	332883		3.71(2.30-3.80)	19.4	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

6860LCS\_00007 Amount Added: 50.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11012.d

Injection Date: 11-May-2017 13:33:24

Instrument ID: LC\_LCMS2

Lims ID: lcs

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 14

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

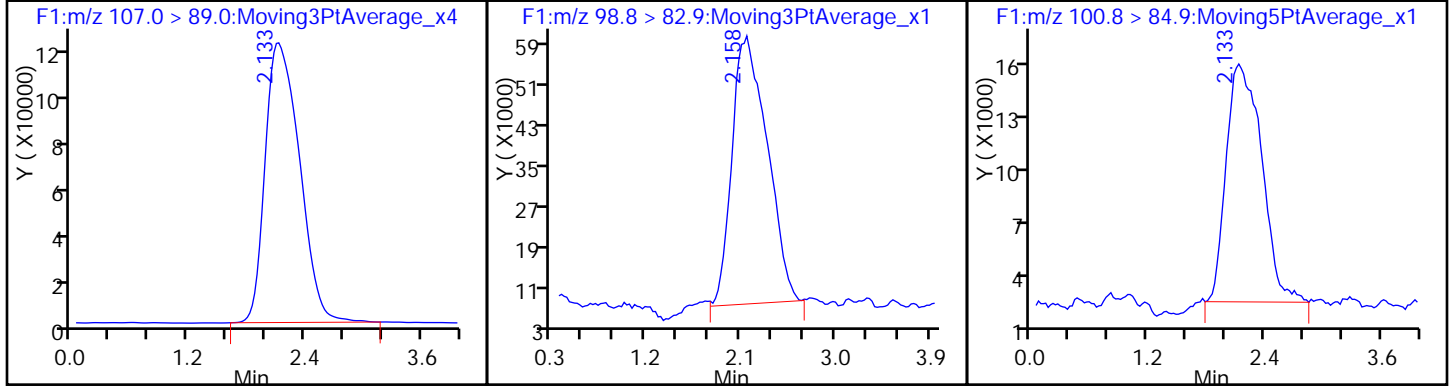
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate



TestAmerica Denver

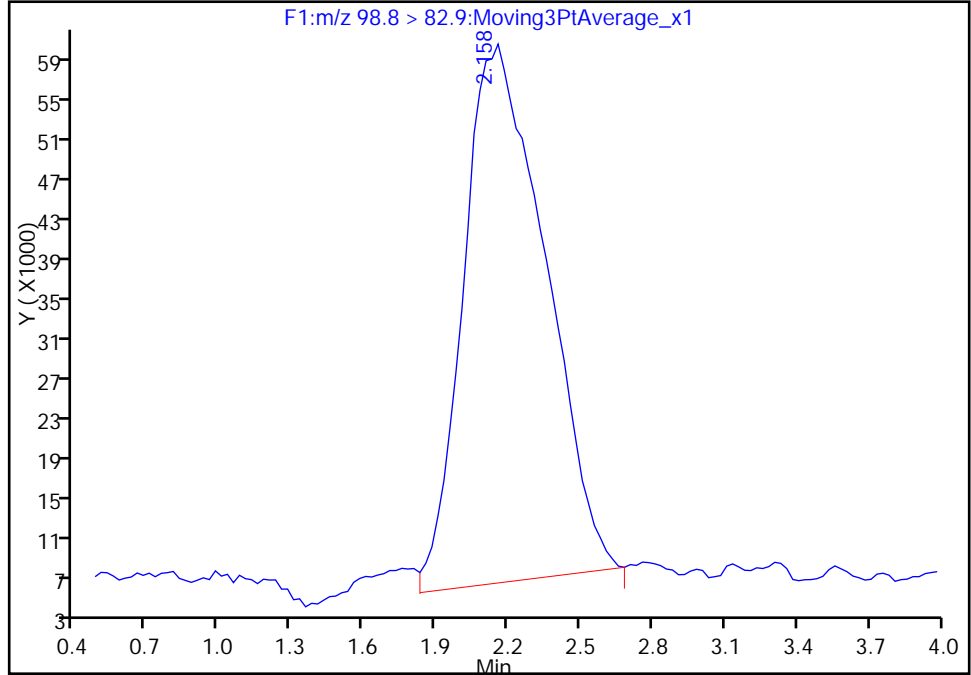
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11012.d  
Injection Date: 11-May-2017 13:33:24 Instrument ID: LC\_LCMS2  
Lims ID: lcs  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 14  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

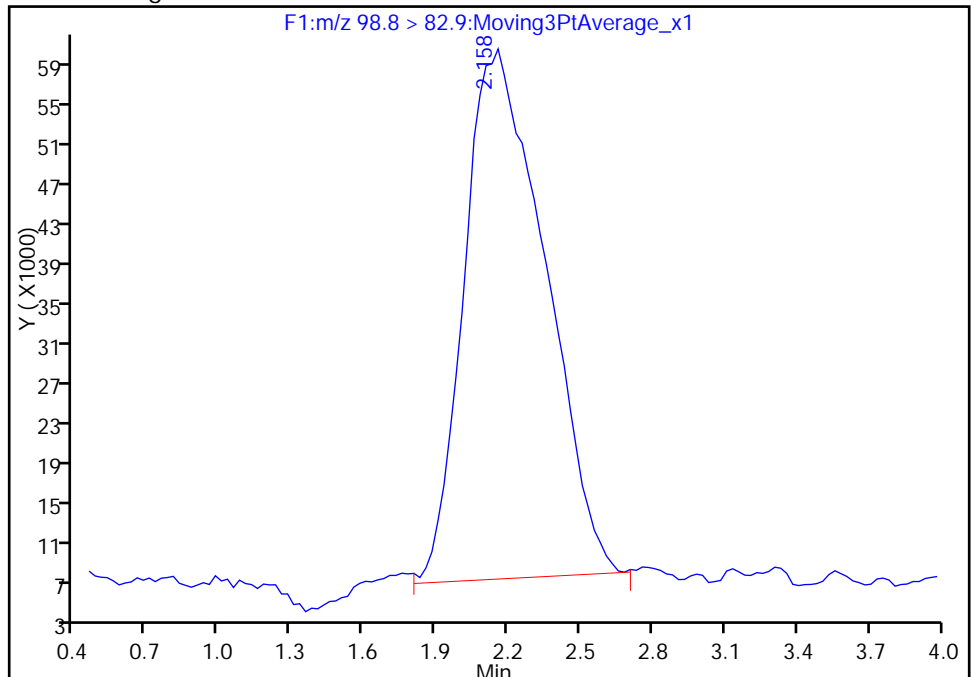
RT: 2.16  
Area: 1268843  
Amount: 47.476372  
Amount Units: ng/l

Processing Integration Results



RT: 2.16  
Area: 1235242  
Amount: 46.205158  
Amount Units: ng/l

Manual Integration Results



Reviewer: fiedlerh, 12-May-2017 08:23:00

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 280-373139/37  
 Matrix: Water Lab File ID: IC217E11035.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 15:32  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.0470	J M	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11035.d  
 Lims ID: lcs  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 11-May-2017 15:32:18 ALS Bottle#: 0 Worklist Smp#: 37  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:37 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:34:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.108	2.133	-0.025		2998551	204.0		871	
2 Perchlorate									M
98.8 > 82.9	2.108	2.133	-0.025	1.000	1235632	47.0		16.0	M
100.8 > 84.9	2.133	2.133	0.0	1.012	368633		3.35(2.30-3.80)	16.0	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

6860LCS\_00007 Amount Added: 50.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11035.d

Injection Date: 11-May-2017 15:32:18

Instrument ID: LC\_LCMS2

Lims ID: lcs

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 37

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

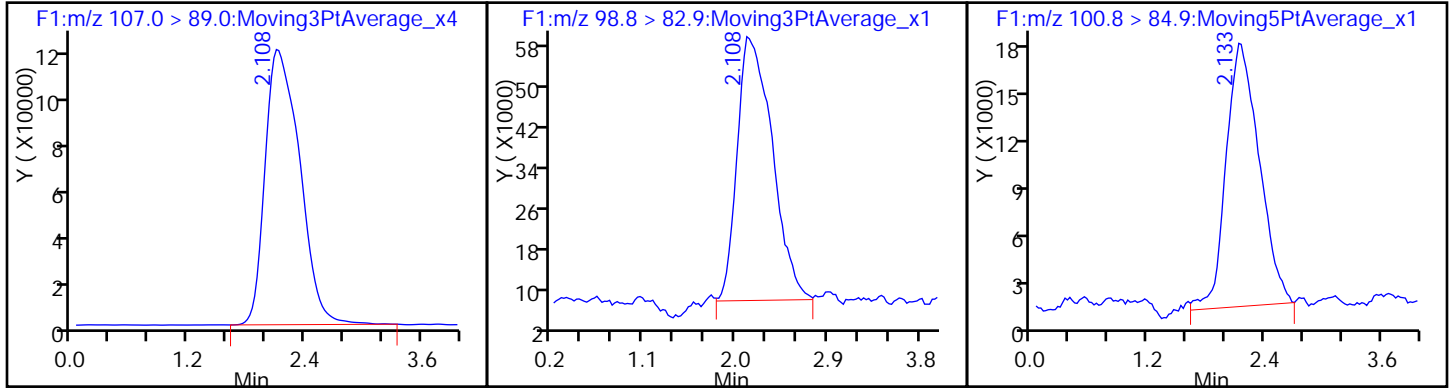
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate



TestAmerica Denver

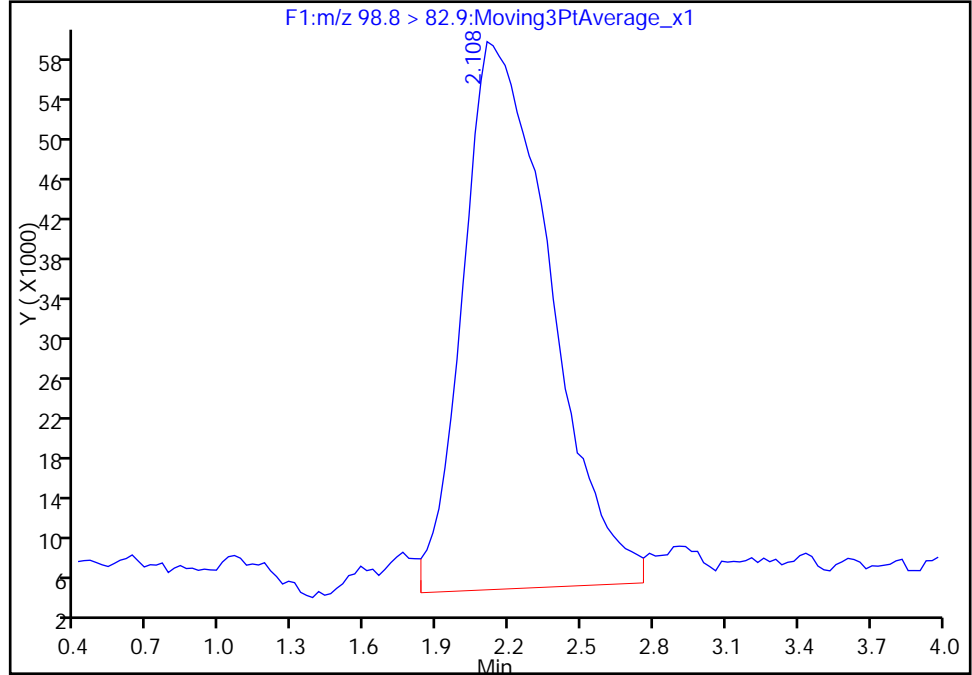
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11035.d  
Injection Date: 11-May-2017 15:32:18 Instrument ID: LC\_LCMS2  
Lims ID: lcs  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 37  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector: F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

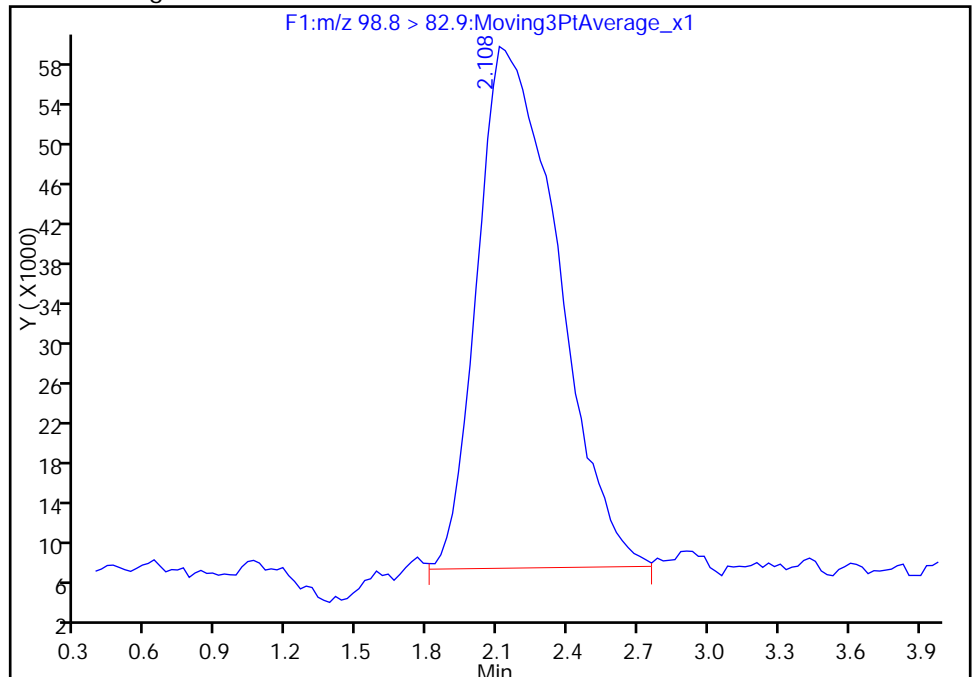
RT: 2.11  
Area: 1371386  
Amount: 52.250618  
Amount Units: ng/l

Processing Integration Results



RT: 2.11  
Area: 1235632  
Amount: 47.026115  
Amount Units: ng/l

Manual Integration Results



Reviewer: fiedlerh, 12-May-2017 08:34:14  
Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCSD 280-373139/15  
 Matrix: Water Lab File ID: IC217E11013.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 13:38  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.0467	J M	0.050	0.010	0.0040



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11013.d  
 Lims ID: lcsd  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 11-May-2017 13:38:36 ALS Bottle#: 0 Worklist Smp#: 15  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: LCSD  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:46:09 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:23:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3099141	204.0		660	
2 Perchlorate									M
98.8 > 82.9	2.133	2.133	0.0	1.000	1267206	46.7		19.4	M
100.8 > 84.9	2.133	2.133	0.0	1.000	364275		3.48(2.30-3.80)	15.9	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

6860LCS\_00007 Amount Added: 50.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11013.d

Injection Date: 11-May-2017 13:38:36

Instrument ID: LC\_LCMS2

Lims ID: lcsd

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 15

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

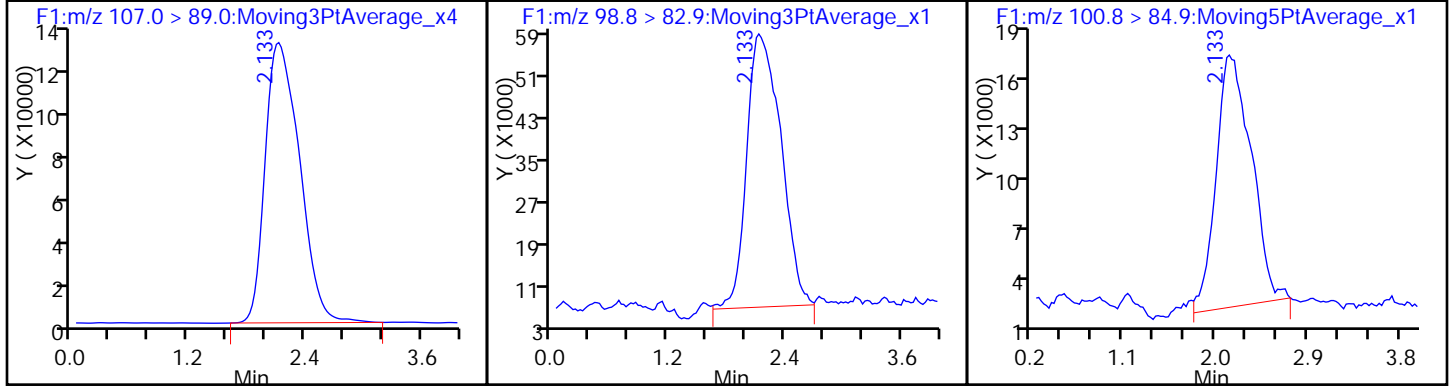
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate



TestAmerica Denver

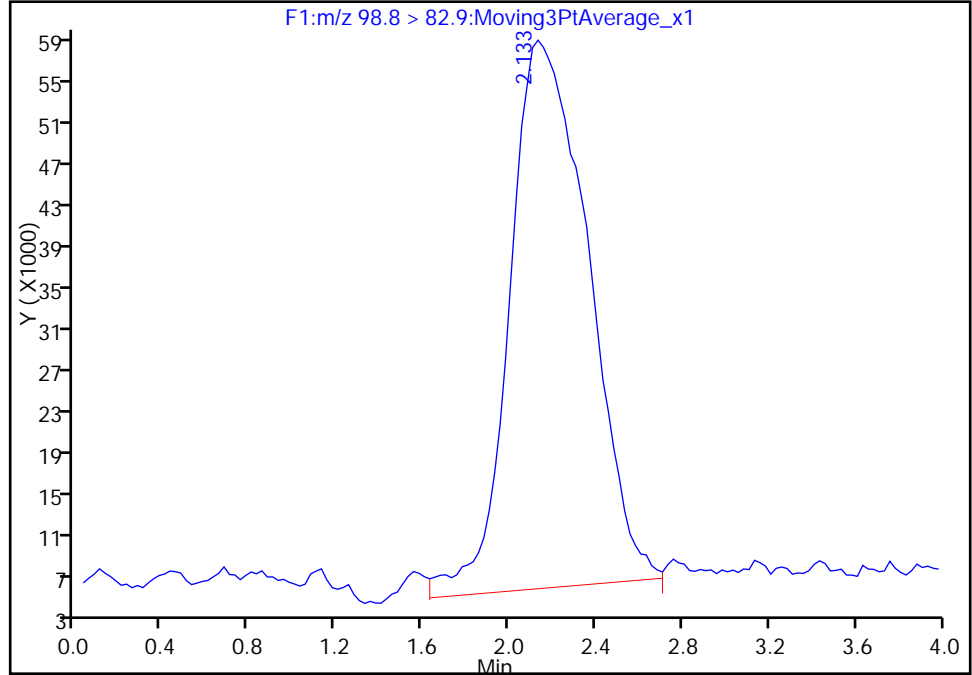
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11013.d  
Injection Date: 11-May-2017 13:38:36 Instrument ID: LC\_LCMS2  
Lims ID: lcsd  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 15  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

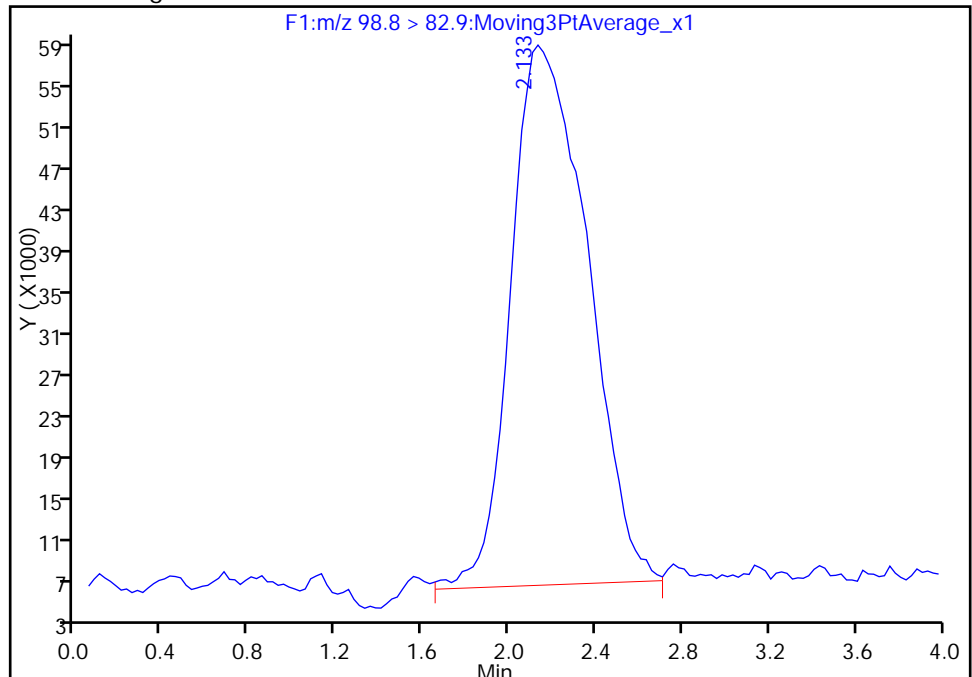
RT: 2.13  
Area: 1315809  
Amount: 48.468123  
Amount Units: ng/l

Processing Integration Results



RT: 2.13  
Area: 1267206  
Amount: 46.658344  
Amount Units: ng/l

Manual Integration Results



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCSD 280-373139/38  
 Matrix: Water Lab File ID: IC217E11036.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 15:37  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.0500		0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11036.d  
 Lims ID: lcsd  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 11-May-2017 15:37:22 ALS Bottle#: 0 Worklist Smp#: 38  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: lcsd  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:37 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		2995554	204.0		426	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.000	1310594	50.0		26.3	
100.8 > 84.9	2.158	2.133	0.025	1.012	378204		3.47(2.30-3.80)	14.7	

Reagents:

6860LCS\_00007 Amount Added: 50.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11036.d

Injection Date: 11-May-2017 15:37:22

Instrument ID: LC\_LCMS2

Lims ID: lcsd

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 38

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

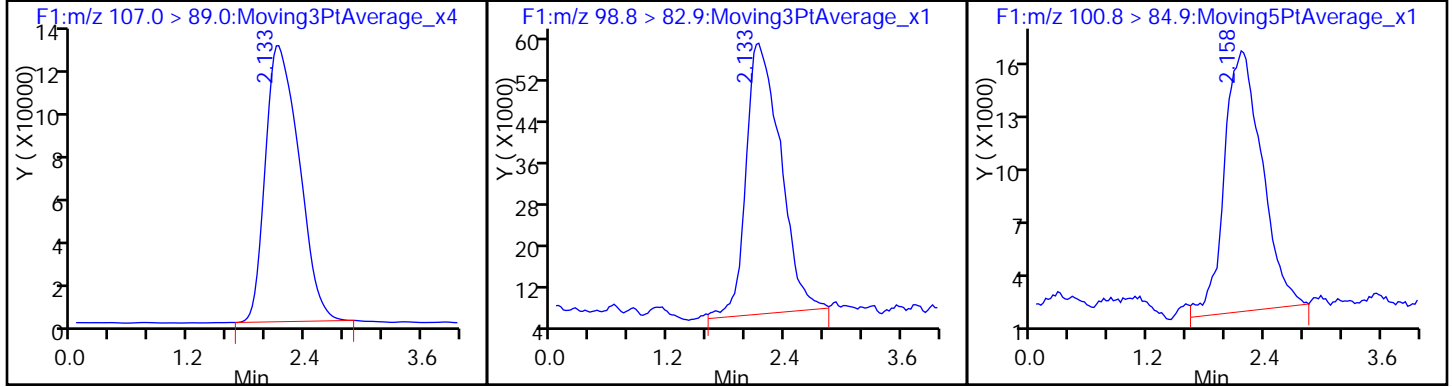
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: DLCK 280-373139/12  
 Matrix: Water Lab File ID: IC217E11010.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 13:23  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.0497	J	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11010.d  
 Lims ID: DLCK  
 Client ID:  
 Sample Type: DLCK  
 Inject. Date: 11-May-2017 13:23:06 ALS Bottle#: 0 Worklist Smp#: 12  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: DLCK prep 05/09/17exp 05/16/17 #3  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:46:09 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
* 1 Perchlorate-18O									
107.0 > 89.0	2.133	2.133	0.0		3043123	204.0		961	
2 Perchlorate									
98.8 > 82.9	2.133	2.133	0.0	1.000	1324916	49.7		20.5	
100.8 > 84.9	2.108	2.133	-0.025	0.988	361876		3.66(2.30-3.80)	15.8	

Reagents:

6860CalStockW\_00082 Amount Added: 250.00 Units: uL  
 6860-IS-Spike\_00066 Amount Added: 50.00 Units: uL



TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11010.d

Injection Date: 11-May-2017 13:23:06

Instrument ID: LC\_LCMS2

Lims ID: DLCK

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 12

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

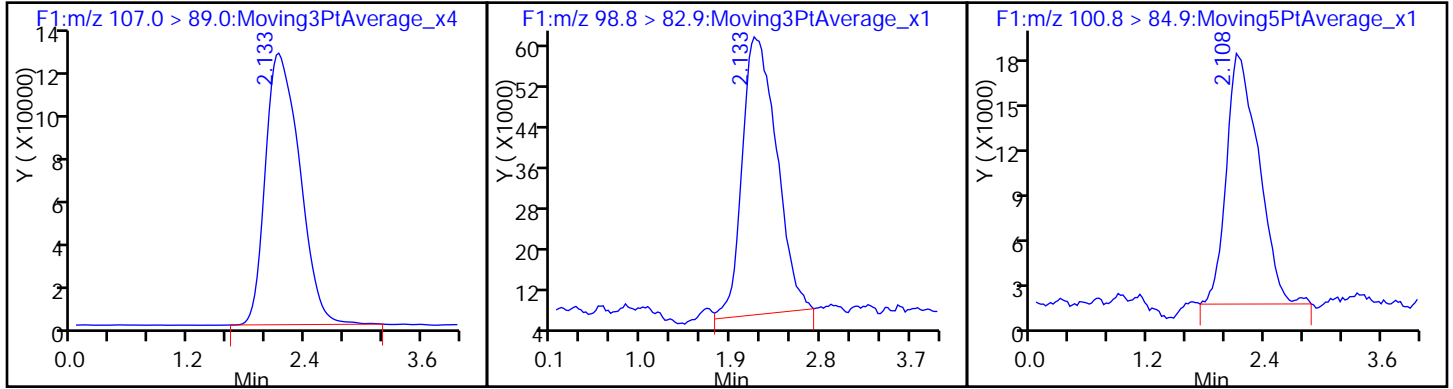
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate

2 Perchlorate



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: INF 280-373139/39  
 Matrix: Water Lab File ID: IC217E11037.d  
 Analysis Method: 6860 Date Collected: \_\_\_\_\_  
 Extraction Method: \_\_\_\_\_ Date Extracted: \_\_\_\_\_  
 Sample wt/vol: 5 (mL) Date Analyzed: 05/11/2017 15:42  
 Con. Extract Vol.: \_\_\_\_\_ Dilution Factor: 1  
 Injection Volume: 250 (uL) GC Column: IonPac ID: 2 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 373139 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.0465	J M	0.050	0.010	0.0040

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11037.d  
 Lims ID: inf  
 Client ID:  
 Sample Type: INF  
 Inject. Date: 11-May-2017 15:42:27 ALS Bottle#: 0 Worklist Smp#: 39  
 Injection Vol: 250.0 ul Dil. Factor: 1.0000  
 Sample Info: inf  
 Misc. Info.: IC217E11  
 Operator ID: Instrument ID: LC\_LCMS2  
 Sublist:  
 Method: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\6860.m  
 Limit Group: LC - 6860 Perchlorate  
 Last Update: 12-May-2017 09:47:37 Calib Date: 11-May-2017 13:07:48  
 Integrator: RTE  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11007.d  
 Column 1 : Ion PAC AS-16 ( 2.00 mm) Det: F1:MRM  
 Process Host: XAWRK020

First Level Reviewer: fiedlerh Date: 12-May-2017 08:34:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/l	Ratio(Limits)	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	---------------	-----	-------

* 1 Perchlorate-18O									
107.0 > 89.0	2.233	2.133	0.100		1576173	204.0		423	
2 Perchlorate									
98.8 > 82.9	2.208	2.133	0.075	0.989	642637	46.5		7.6	M
100.8 > 84.9	2.233	2.133	0.100	1.000	225038		2.86(2.30-3.80)	5.3	M

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

6860LCS_00007	Amount Added: 50.00	Units: uL
6860-IS-Spike_00066	Amount Added: 50.00	Units: uL
6860_INF_Soln_00012	Amount Added: 4950.00	Units: uL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11037.d

Injection Date: 11-May-2017 15:42:27

Instrument ID: LC\_LCMS2

Lims ID: inf

Client ID:

Operator ID:

ALS Bottle#: 0

Worklist Smp#: 39

Injection Vol: 250.0 ul

Dil. Factor: 1.0000

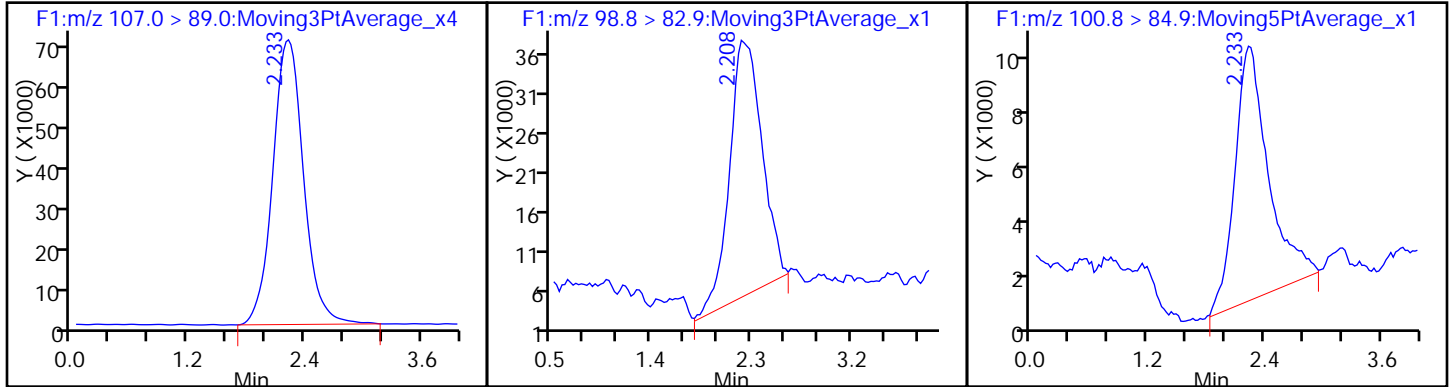
Method: 6860

Limit Group: LC - 6860 Perchlorate

\* 1 Perchlorate-18O

2 Perchlorate (M)

2 Perchlorate (M)



TestAmerica Denver

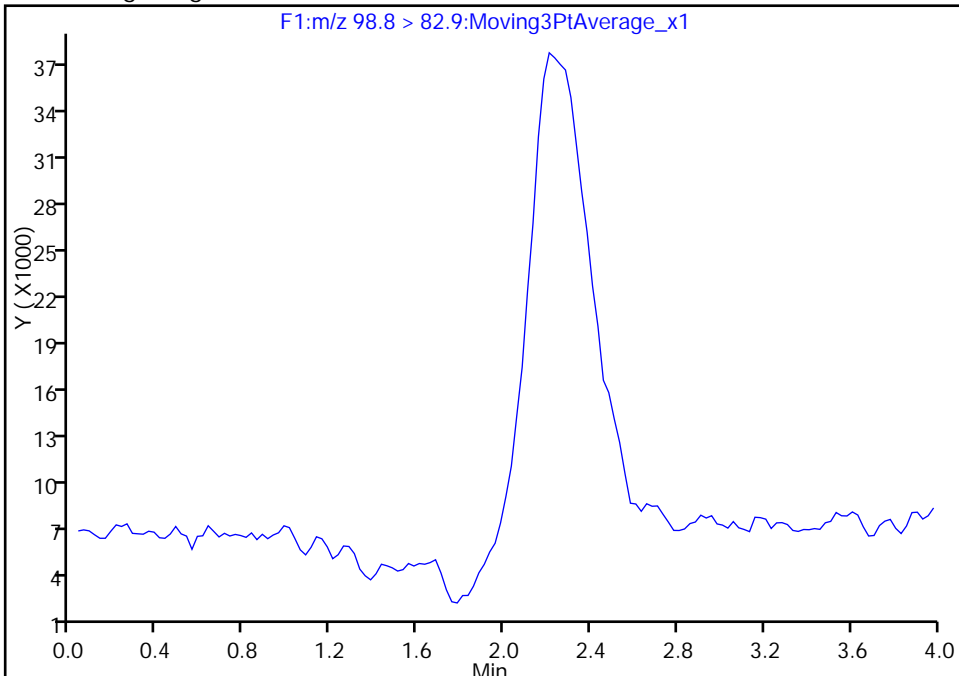
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11037.d  
Injection Date: 11-May-2017 15:42:27 Instrument ID: LC\_LCMS2  
Lims ID: inf  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 39  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:M/RM

2 Perchlorate, CAS: 14797-73-0

Signal: 1

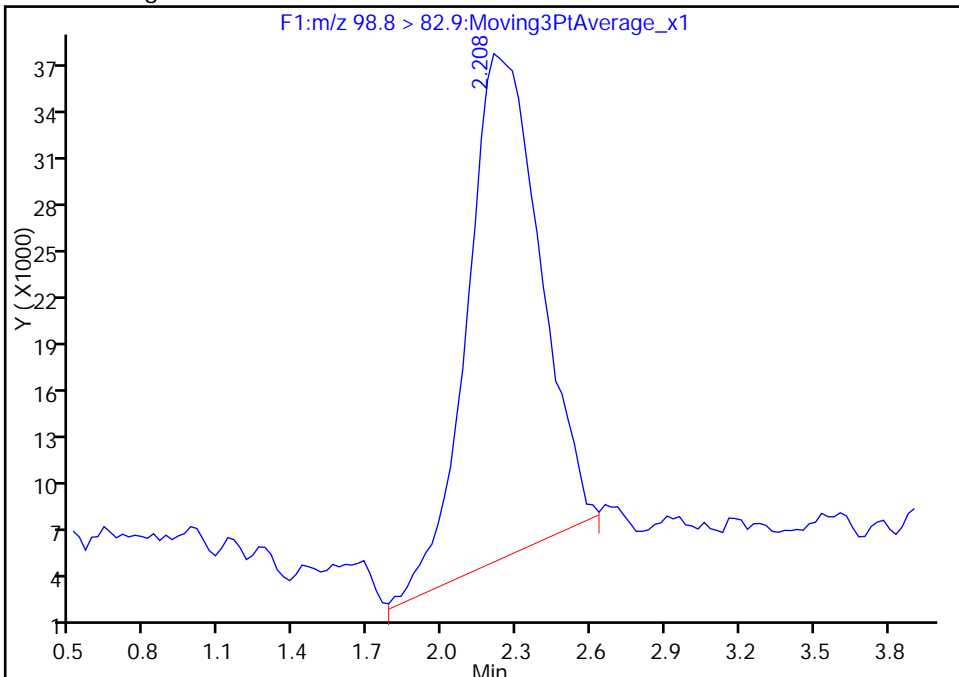
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.21  
Area: 642637  
Amount: 46.523374  
Amount Units: ng/l



Reviewer: fiedlerh, 12-May-2017 08:34:34  
Audit Action: Manually Integrated

TestAmerica Denver

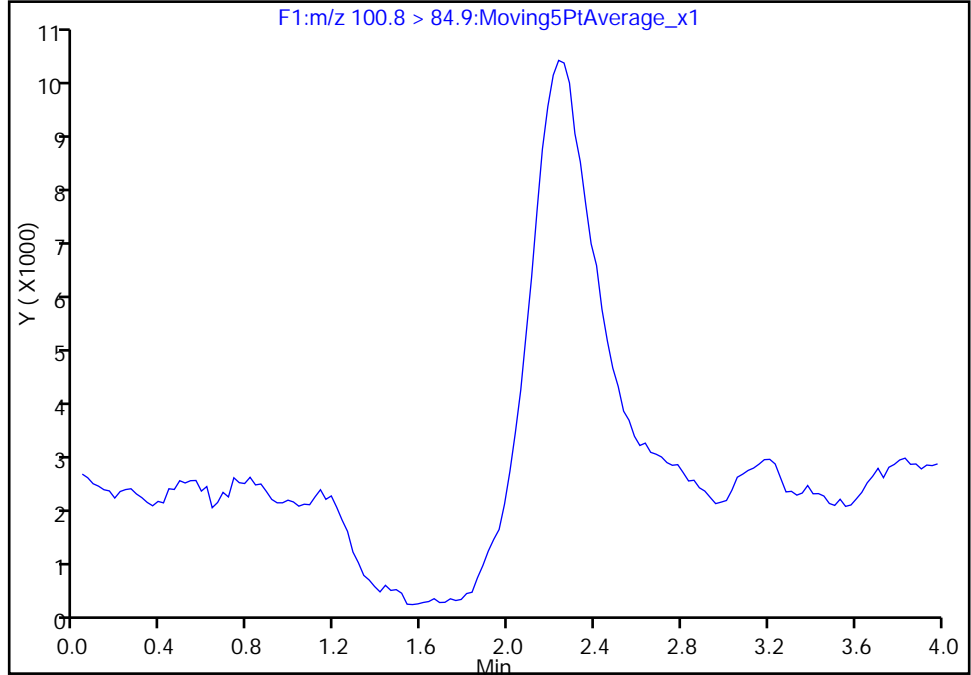
Data File: \\ChromNA\Denver\ChromData\LC\_LCMS2\20170511-58570.b\IC217E11037.d  
Injection Date: 11-May-2017 15:42:27 Instrument ID: LC\_LCMS2  
Lims ID: inf  
Client ID:  
Operator ID: ALS Bottle#: 0 Worklist Smp#: 39  
Injection Vol: 250.0 ul Dil. Factor: 1.0000  
Method: 6860 Limit Group: LC - 6860 Perchlorate  
Column: Ion PAC AS-16 ( 2.00 mm) Detector F1:MRM

2 Perchlorate, CAS: 14797-73-0

Signal: 2

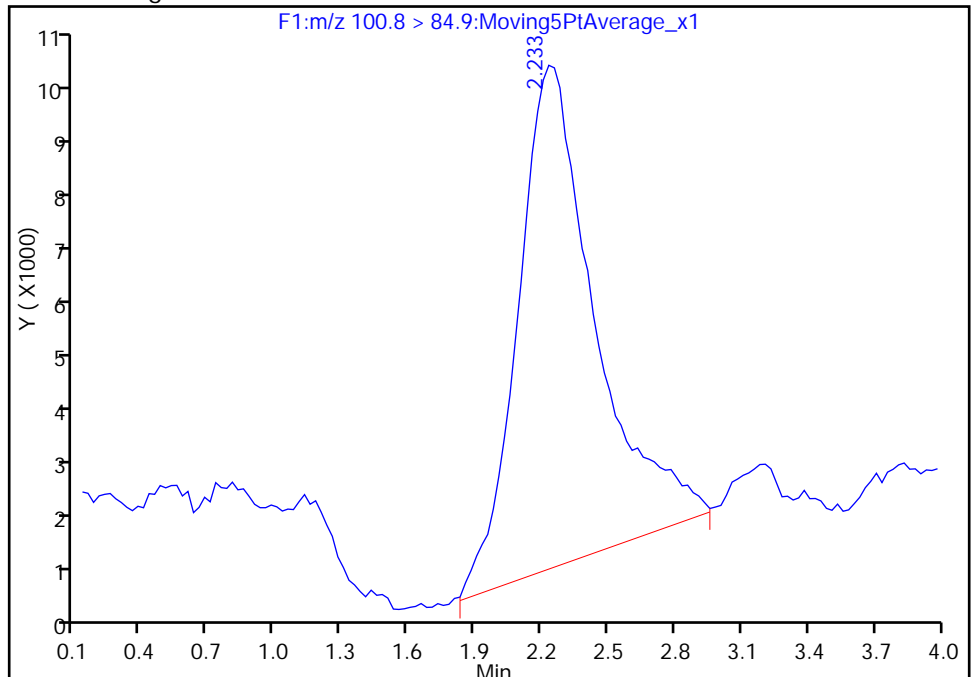
Not Detected  
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.23  
Area: 225038  
Amount: 46.523374  
Amount Units: ng/l



Reviewer: fiedlerh, 12-May-2017 08:34:37

Audit Action: Manually Integrated

Audit Reason: Baseline

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: LC\_LCMS2 Start Date: 05/11/2017 12:42

Analysis Batch Number: 373139 End Date: 05/11/2017 18:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD020 280-373139/4 IC		05/11/2017 12:42	1	IC217E11002.d	IonPac 2 (mm)
STD050 280-373139/5 IC		05/11/2017 12:47	1	IC217E11003.d	IonPac 2 (mm)
STD100 280-373139/6 IC		05/11/2017 12:52	1	IC217E11004.d	IonPac 2 (mm)
STD200 280-373139/7 ICISAV		05/11/2017 12:57	1	IC217E11005.d	IonPac 2 (mm)
STD500 280-373139/8 IC		05/11/2017 13:02	1	IC217E11006.d	IonPac 2 (mm)
STD1000 280-373139/9 IC		05/11/2017 13:07	1	IC217E11007.d	IonPac 2 (mm)
ICB 280-373139/10		05/11/2017 13:12	1	IC217E11008.d	IonPac 2 (mm)
ICV 280-373139/11		05/11/2017 13:18	1	IC217E11009.d	IonPac 2 (mm)
DLCK 280-373139/12		05/11/2017 13:23	1	IC217E11010.d	IonPac 2 (mm)
MB 280-373139/13		05/11/2017 13:28	1	IC217E11011.d	IonPac 2 (mm)
LCS 280-373139/14		05/11/2017 13:33	1	IC217E11012.d	IonPac 2 (mm)
LCSD 280-373139/15		05/11/2017 13:38	1	IC217E11013.d	IonPac 2 (mm)
INF 280-373139/16		05/11/2017 13:43	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 13:49	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 13:54	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 13:59	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:04	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:09	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:15	1		IonPac 2 (mm)
CCV 280-373139/23		05/11/2017 14:20	1	IC217E11021.d	IonPac 2 (mm)
CCVL 280-373139/24		05/11/2017 14:25	1	IC217E11022.d	IonPac 2 (mm)
CCB 280-373139/25		05/11/2017 14:30	1	IC217E11023.d	IonPac 2 (mm)
ZZZZZ		05/11/2017 14:35	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:40	5000		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:46	5000		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:51	1000		IonPac 2 (mm)
ZZZZZ		05/11/2017 14:56	20		IonPac 2 (mm)
ZZZZZ		05/11/2017 15:01	10		IonPac 2 (mm)
ZZZZZ		05/11/2017 15:06	10		IonPac 2 (mm)
CCV 280-373139/33		05/11/2017 15:11	1	IC217E11031.d	IonPac 2 (mm)
CCVL 280-373139/34		05/11/2017 15:16	1	IC217E11032.d	IonPac 2 (mm)
CCB 280-373139/35		05/11/2017 15:21	1	IC217E11033.d	IonPac 2 (mm)
MB 280-373139/36		05/11/2017 15:27	1	IC217E11034.d	IonPac 2 (mm)
LCS 280-373139/37		05/11/2017 15:32	1	IC217E11035.d	IonPac 2 (mm)
LCSD 280-373139/38		05/11/2017 15:37	1	IC217E11036.d	IonPac 2 (mm)
INF 280-373139/39		05/11/2017 15:42	1	IC217E11037.d	IonPac 2 (mm)
ZZZZZ		05/11/2017 15:47	100		IonPac 2 (mm)
ZZZZZ		05/11/2017 15:52	50		IonPac 2 (mm)
ZZZZZ		05/11/2017 15:57	50		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:02	50		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:07	10		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:12	10		IonPac 2 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: LC\_LCMS2 Start Date: 05/11/2017 12:42

Analysis Batch Number: 373139 End Date: 05/11/2017 18:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-373139/46		05/11/2017 16:17	1	IC217E11044.d	IonPac 2 (mm)
CCVL 280-373139/47		05/11/2017 16:22	1	IC217E11045.d	IonPac 2 (mm)
CCB 280-373139/48		05/11/2017 16:27	1	IC217E11046.d	IonPac 2 (mm)
ZZZZZ		05/11/2017 16:33	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:38	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:43	5		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:48	5		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:53	5		IonPac 2 (mm)
ZZZZZ		05/11/2017 16:58	5		IonPac 2 (mm)
280-96682-2		05/11/2017 17:03	1	IC217E11053.d	IonPac 2 (mm)
280-96682-3		05/11/2017 17:08	1	IC217E11054.d	IonPac 2 (mm)
CCV 280-373139/57		05/11/2017 17:13	1	IC217E11055.d	IonPac 2 (mm)
CCVL 280-373139/58		05/11/2017 17:18	1	IC217E11056.d	IonPac 2 (mm)
CCB 280-373139/59		05/11/2017 17:24	1	IC217E11057.d	IonPac 2 (mm)
ZZZZZ		05/11/2017 17:29	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 17:34	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 17:39	1		IonPac 2 (mm)
ZZZZZ		05/11/2017 17:44	10		IonPac 2 (mm)
ZZZZZ		05/11/2017 17:49	10		IonPac 2 (mm)
ZZZZZ		05/11/2017 17:55	10		IonPac 2 (mm)
CCV 280-373139/66		05/11/2017 18:00	1		IonPac 2 (mm)
CCVL 280-373139/67		05/11/2017 18:05	1		IonPac 2 (mm)
CCB 280-373139/68		05/11/2017 18:10	1		IonPac 2 (mm)



# GENERAL CHEMISTRY

COVER PAGE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

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

Project: Ravenna, OH

Client Sample ID	Lab Sample ID
<u>RQLmw-012-050317-GW</u>	<u>280-96682-1</u>
<u>BKGmw-005-050317-GW</u>	<u>280-96682-4</u>
<u>FWGmw-005-050317-GW</u>	<u>280-96682-5</u>
<u>FWGmw-021-050317-GW</u>	<u>280-96682-6</u>
<u>LLlmw-084-050317-GW</u>	<u>280-96682-7</u>

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.: 280-96682-1

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

Matrix: Water

Date Sampled: 05/03/2017 14:00

Reporting Basis: WET

Date Received: 05/04/2017 08:55

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Cyanide, Total	5.0	10	5.0	2.0	ug/L	U		1	9012B
Chromium, hexavalent	4.0	20	4.0	4.0	ug/L	U	H	1	7196A
Sulfide	1900	4000	1900	790	ug/L	U		1	9034
Nitrate as N	640	500	100	42	ug/L			1	9056A
Sulfate	190000	5000	500	230	ug/L		J	1	9056A
Nitrite as N	100	500	100	49	ug/L	U		1	9056A
Alkalinity	28	5.0	3.2	1.1	mg/L			1	SM 2320B

1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: BKGmw-005-050317-GW

Lab Sample ID: 280-96682-4

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Matrix: Water

Date Sampled: 05/03/2017 15:37

Reporting Basis: WET

Date Received: 05/04/2017 08:55

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Chromium, hexavalent	4.0	20	4.0	4.0	ug/L	U		1	7196A

1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: FWGmw-005-050317-GW

Lab Sample ID: 280-96682-5

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Matrix: Water

Date Sampled: 05/03/2017 14:51

Reporting Basis: WET

Date Received: 05/04/2017 08:55

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Chromium, hexavalent	4.0	20	4.0	4.0	ug/L	U		1	7196A

1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: FWGmw-021-050317-GW

Lab Sample ID: 280-96682-6

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Matrix: Water

Date Sampled: 05/03/2017 14:30

Reporting Basis: WET

Date Received: 05/04/2017 08:55

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Chromium, hexavalent	4.0	20	4.0	4.0	ug/L	U		1	7196A

1B-IN  
 INORGANIC ANALYSIS DATA SHEET  
 GENERAL CHEMISTRY

Client Sample ID: LL1mw-084-050317-GW

Lab Sample ID: 280-96682-7

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Matrix: Water

Date Sampled: 05/03/2017 15:21

Reporting Basis: WET

Date Received: 05/04/2017 08:55

Analyte	Result	LOQ	LOD	DL	Units	C	Q	DIL	Method
Chromium, hexavalent	4.0	20	4.0	4.0	ug/L	U		1	7196A

2-IN  
 CALIBRATION QUALITY CONTROL  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Analyst: JML Batch Start Date: 05/12/2017  
 Reporting Units: mg/L Analytical Batch No.: 373406

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	ICV	13:45	Cyanide, Total	0.101	0.100	101	90-110		CN ICV Daily_01015
15	ICB	13:46	Cyanide, Total	0.0050				U	
29	CCV	14:07	Cyanide, Total	0.203	0.200	101	90-110		CN CAL 1 ppm_01250
30	CCB	14:09	Cyanide, Total	0.0050				U	
44	CCV	14:30	Cyanide, Total	0.207	0.200	103	90-110		CN CAL 1 ppm_01250
45	CCB	14:31	Cyanide, Total	0.0050				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 Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Analyst: IEU Batch Start Date: 05/04/2017  
 Reporting Units: mg/L Analytical Batch No.: 372214

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
6	ICV	12:19	Chromium, hexavalent	0.0525	0.0500	105	90-110		CR6 ICV int_01235
7	ICB	12:19	Chromium, hexavalent	0.0040				U	
21	CCV	12:19	Chromium, hexavalent	0.107	0.100	107	90-110		CR6 ICV int_01235
22	CCB	12:19	Chromium, hexavalent	0.0040				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 Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Analyst: TLP Batch Start Date: 04/12/2017  
 Reporting Units: mg/L Analytical Batch No.: 369033

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
8	ICV	12:56	Nitrate as N	3.87	4.00	97	90-110		IC ICV 5_00170
			Nitrite as N	3.77	4.00	94	90-110		IC ICV 5_00170
9	ICB	13:15	Nitrate as N	0.10				U	
			Nitrite as N	0.10				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 Denver Job No.: 280-96682-1

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

Analyst: TLP Batch Start Date: 04/12/2017

Reporting Units: mg/L Analytical Batch No.: 369034

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
8	ICV	12:56	Sulfate	80.5	80.0	101	90-110		IC SO4 ICV_00016
9	ICB	13:15	Sulfate	0.312				J	

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

2-IN  
 CALIBRATION QUALITY CONTROL  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Analyst: AFB Batch Start Date: 05/04/2017  
 Reporting Units: mg/L Analytical Batch No.: 372161

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	09:26	Nitrate as N	4.99	5.00	100	90-110		IC LCS_00897
			Nitrite as N	5.15	5.00	103	90-110		IC LCS_00897
2	CCB	09:46	Nitrate as N	0.0435				J	
			Nitrite as N	0.10				U	
17	CCV	17:58	Nitrate as N	4.90	5.00	98	90-110		IC LCS_00897
			Nitrite as N	5.05	5.00	101	90-110		IC LCS_00897
18	CCB	18:18	Nitrate as N	0.10				U	
			Nitrite as N	0.10				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 Denver Job No.: 280-96682-1

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

Analyst: AFB Batch Start Date: 05/04/2017

Reporting Units: mg/L Analytical Batch No.: 372162

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	09:26	Sulfate	105	100	105	90-110		IC LCS_00897
2	CCB	09:46	Sulfate	0.396				J	
17	CCV	17:58	Sulfate	102	100	102	90-110		IC LCS_00897
18	CCB	18:18	Sulfate	0.474				J	

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

2-IN  
 CALIBRATION QUALITY CONTROL  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Analyst: AlD Batch Start Date: 05/09/2017  
 Reporting Units: mg/L Analytical Batch No.: 372960

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
28	CCV	13:48	Alkalinity	189	200	95	90-110		Alk daily lcs 00644
29	CCB	13:54	Alkalinity	2.17				J	
42	CCV	15:12	Alkalinity	190	200	95	90-110		Alk daily lcs 00644
43	CCB	15:18	Alkalinity	2.15				J	

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

3-IN  
METHOD BLANK  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Method	Lab Sample ID	Analyte	Result	Qual	Units	LOQ	Dil
Batch ID: 372214 Date: 05/04/2017 12:19							
7196A	MB 280-372214/10	Chromium, hexavalent	4.0	U	ug/L	20	1
Batch ID: 373406 Date: 05/12/2017 13:55 Prep Batch: 373272 Date: 05/12/2017 07:22							
9012B	MB 280-373272/5-A	Cyanide, Total	2.22	J	ug/L	10	1
Batch ID: 372887 Date: 05/09/2017 19:44 Prep Batch: 372881 Date: 05/09/2017 18:50							
9034	MB 280-372881/1-A	Sulfide	1900	U	ug/L	4000	1
Batch ID: 372161 Date: 05/04/2017 11:05							
9056A	MB 280-372161/6	Nitrate as N	100	U	ug/L	500	1
9056A	MB 280-372161/6	Nitrite as N	100	U	ug/L	500	1
Batch ID: 372162 Date: 05/04/2017 11:05							
9056A	MB 280-372162/6	Sulfate	362	J	ug/L	5000	1
Batch ID: 372960 Date: 05/09/2017 14:07							
SM 2320B	MB 280-372960/31	Alkalinity	2.30	J	mg/L	5.0	1

5-IN  
 MATRIX SPIKE SAMPLE RECOVERY  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 372214 Date: 05/04/2017 12:19											
7196A	280-96682-1	Chromium, hexavalent	4.0	U	ug/L						H
7196A	280-96682-1	Chromium, hexavalent	99.5		ug/L	100	99	90-111			
MS											
Batch ID: 372161 Date: 05/04/2017 14:36											
9056A	280-96682-1	Nitrate as N	640		ug/L						
9056A	280-96682-1	Nitrate as N	5660		ug/L	5000	100	88-111			
MS											
9056A	280-96682-1	Nitrite as N	100	U	ug/L						
9056A	280-96682-1	Nitrite as N	5070		ug/L	5000	101	87-111			
MS											
Batch ID: 372162 Date: 05/04/2017 14:36											
9056A	280-96682-1	Sulfate	190000		ug/L						J
9056A	280-96682-1	Sulfate	218000		ug/L	25000	115	87-112			J 4
MS											

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



5-IN  
 MATRIX SPIKE DUPLICATE SAMPLE RECOVERY  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 372214 Date: 05/04/2017 12:19											
7196A	280-96682-1	Chromium, hexavalent	102		ug/L	100	102	90-111	3	20	
MSD											
Batch ID: 372161 Date: 05/04/2017 14:55											
9056A	280-96682-1	Nitrate as N	5720		ug/L	5000	102	88-111	1	10	
MSD											
9056A	280-96682-1	Nitrite as N	5130		ug/L	5000	103	87-111	1	10	
MSD											
Batch ID: 372162 Date: 05/04/2017 14:55											
9056A	280-96682-1	Sulfate	218000		ug/L	25000	116	87-112	0	10	J 4
MSD											

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

6-IN  
DUPLICATE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water

Method	Client Sample ID	Lab Sample ID	Analyte	Result	Unit	RPD	RPD Limit	Qual
Batch ID: 372214 Date: 05/04/2017 12:19								
7196A	RQLmw-012-050317-G W	280-96682-1	Chromium, hexavalent	4.0	ug/L			U
7196A	RQLmw-012-050317-G W	280-96682-1 DU	Chromium, hexavalent	4.0	ug/L	NC	20	U
Batch ID: 372161 Date: 05/04/2017 14:16								
9056A	RQLmw-012-050317-G W	280-96682-1	Nitrate as N	640	ug/L			
9056A	RQLmw-012-050317-G W	280-96682-1 DU	Nitrate as N	632	ug/L	1	10	
9056A	RQLmw-012-050317-G W	280-96682-1	Nitrite as N	100	ug/L			U
9056A	RQLmw-012-050317-G W	280-96682-1 DU	Nitrite as N	100	ug/L	NC	10	U
Batch ID: 372162 Date: 05/04/2017 14:16								
9056A	RQLmw-012-050317-G W	280-96682-1	Sulfate	190000	ug/L			
9056A	RQLmw-012-050317-G W	280-96682-1 DU	Sulfate	189000	ug/L	0.08	10	
Batch ID: 372960 Date: 05/09/2017 14:17								
SM 2320B	RQLmw-012-050317-G W	280-96682-1	Alkalinity	28	mg/L			
SM 2320B	RQLmw-012-050317-G W	280-96682-1 DU	Alkalinity	27.3	mg/L	2	10	

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

7A-IN  
LAB CONTROL SAMPLE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 372214 Date: 05/04/2017 12:19											
7196A	LCS 280-372214/8	Chromium, hexavalent	105		ug/L	100	105	90-111	5	20	
						LCS Source: CR6 spike sou_00842					
Batch ID: 373406 Date: 05/12/2017 13:52 Prep Batch: 373272 Date: 05/12/2017 07:22											
9012B	LCS 280-373272/3-A	Cyanide, Total	92.1		ug/L	100	92	83-116	0	20	
						LCS Source: CN ICV Int_00435					
Batch ID: 372887 Date: 05/09/2017 19:44 Prep Batch: 372881 Date: 05/09/2017 18:50											
9034	LCS 280-372881/2-A	Sulfide	16800		ug/L	22000	76	50-106			
						LCS Source: SFD CAL INT_01358					
Batch ID: 372161 Date: 05/04/2017 10:25											
9056A	LCS 280-372161/4	Nitrate as N	5010		ug/L	5000	100	88-111	0	10	
9056A	LCS 280-372161/4	Nitrite as N	5160		ug/L	5000	103	87-111	0	10	
						LCS Source: IC LCS_00897					
Batch ID: 372162 Date: 05/04/2017 10:25											
9056A	LCS 280-372162/4	Sulfate	104000		ug/L	100000	104	87-112	0	10	
						LCS Source: IC LCS_00897					
Batch ID: 372960 Date: 05/09/2017 14:00											
SM 2320B	LCS 280-372960/30	Alkalinity	190		mg/L	200	95	90-110			
						LCS Source: Alk daily lcs_00644					

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

7A-IN  
 LAB CONTROL SAMPLE DUPLICATE  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 372214 Date: 05/04/2017 12:19											
LCSD Source: CR6 spike sou_00842											
7196A	LCSD 280-372214/9	Chromium, hexavalent	99.5		ug/L	100	99	90-111	5	20	
Batch ID: 373406 Date: 05/12/2017 13:54 Prep Batch: 373272 Date: 05/12/2017 07:22											
LCSD Source: CN ICV Int_00435											
9012B	LCSD 280-373272/4-A	Cyanide, Total	92.3		ug/L	100	92	83-116	0	20	
Batch ID: 372161 Date: 05/04/2017 10:45											
LCSD Source: IC LCS_00897											
9056A	LCSD 280-372161/5	Nitrate as N	5010		ug/L	5000	100	88-111	0	10	
9056A	LCSD 280-372161/5	Nitrite as N	5170		ug/L	5000	103	87-111	0	10	
Batch ID: 372162 Date: 05/04/2017 10:45											
LCSD Source: IC LCS_00897											
9056A	LCSD 280-372162/5	Sulfate	105000		ug/L	100000	105	87-112	0	10	

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.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 373406 Date: 05/12/2017 13:51			Prep Batch: 373272 Date: 05/12/2017 07:22			LCS Source: CN 10ppm_00253					
9012B	LLCS 280-373272/2-A	Cyanide, Total	96.0		ug/L	100	96	44-167			

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

7A-IN  
HIGH LEVEL CONTROL SAMPLE  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 373406			Date: 05/12/2017 13:49			Prep Batch: 373272			Date: 05/12/2017 07:22		
			LCS Source: CN 10ppm_00253								
9012B	HLCS 280-373272/1- A	Cyanide, Total	378		ug/L	400	94	90-110			

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

FORM VIIA-IN

7A-IN  
 METHOD REPORTING LIMIT CHECK  
 GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 372161 Date: 05/04/2017 10:06			LCS Source: IC Cal low_00292								
9056A	MRL 280-372161/3	Nitrate as N	0.218	J	mg/L	0.200	109	50-150			
9056A	MRL 280-372161/3	Nitrite as N	0.221	J	mg/L	0.200	111	50-150			
Batch ID: 372162 Date: 05/04/2017 10:06			LCS Source: IC CAL cl/so4_00148								
9056A	MRL 280-372162/3	Sulfate	2.51	J	mg/L	2.50	100	50-150			

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

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: WC\_Alp 1

Method: 9012B

DL Date: 02/16/2014 00:00

Prep Method: 9012B

Analyte	Wavelength/ Mass	LOQ (mg/L)	DL (mg/L)
Cyanide, Total		0.01	0.002



9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-1  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: WC\_Alp 1  
Method: 9012B XMDL Date: 02/16/2014 00:00

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

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: WC\_HSPEC\_7196

Method: 7196A

DL Date: 02/16/2014 00:00

Analyte	Wavelength/ Mass	LOQ (mg/L)	DL (mg/L)
Chromium, hexavalent		0.02	0.004

9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-1  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: WC\_HSPEC\_7196  
Method: 7196A XMDL Date: 05/16/2013 14:49

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Chromium, hexavalent		0.02	0.004

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: NOEQUIP

Method: 9034

DL Date: 03/28/2011 13:37

Prep Method: 9030B

Analyte	Wavelength/ Mass	LOQ (mg/L)	DL (mg/L)
Sulfide		4	0.793

9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-1  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: NOEQUIP  
Method: 9034 XMDL Date: 03/28/2011 13:37

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Sulfide		4	0.793

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: WC\_IonChrom11

Method: 9056A

DL Date: 02/16/2014 00:00

Analyte	Wavelength/ Mass	LOQ (mg/L)	DL (mg/L)
Nitrate as N		0.5	0.042
Nitrite as N		0.5	0.049
Sulfate		5	0.232

9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: WC\_IonChrom11

Method: 9056A

XMDL Date: 02/16/2014 00:00

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Nitrate as N		0.5	0.042
Nitrite as N		0.5	0.049
Sulfate		5	0.232

9-IN  
DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job Number: 280-96682-1

SDG Number: \_\_\_\_\_

Matrix: Water

Instrument ID: WC\_AT2

Method: SM 2320B

DL Date: 03/28/2011 12:06

Analyte	Wavelength/ Mass	LOQ (mg/L)	DL (mg/L)
Alkalinity		5	1.07



9-IN  
CALIBRATION BLANK DETECTION LIMITS  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-96682-1  
SDG Number: \_\_\_\_\_  
Matrix: Water Instrument ID: WC\_AT2  
Method: SM 2320B XMDL Date: 03/28/2011 12:06

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Alkalinity		5	1.07

12-IN  
PREPARATION LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Prep Method: 9012B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
HLCS 280-373272/1-A	05/12/2017 07:22	373272		50	50
LLCS 280-373272/2-A	05/12/2017 07:22	373272		50	50
LCS 280-373272/3-A	05/12/2017 07:22	373272		50	50
LCSD 280-373272/4-A	05/12/2017 07:22	373272		50	50
MB 280-373272/5-A	05/12/2017 07:22	373272		50	50
280-96682-1	05/12/2017 07:22	373272		50	50

12-IN  
PREPARATION LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver

Job No.: 280-96682-1

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

Prep Method: 9030B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 280-372881/1-A	05/09/2017 18:50	372881		50	50
LCS 280-372881/2-A	05/09/2017 18:50	372881		50	50
280-96682-1	05/09/2017 18:50	372881		50	50

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_Alp 1 Analysis Method: 9012B

Start Date: 05/12/2017 13:25 End Date: 05/12/2017 15:36

Lab Sample Id	D/F	Type	Time	Analytes																											
				C	N																										
ZZZZZZ			13:25																												
ZZZZZZ			13:26																												
ZZZZZZ			13:28																												
ZZZZZZ			13:30																												
IC 280-373406/5			13:31	X																											
IC 280-373406/6			13:33	X																											
IC 280-373406/7			13:34	X																											
IC 280-373406/8			13:36	X																											
IC 280-373406/9			13:37	X																											
IC 280-373406/10			13:39	X																											
IC 280-373406/11			13:40	X																											
ZZZZZZ			13:42																												
ZZZZZZ			13:43																												
ICV 280-373406/14	1		13:45	X																											
ICB 280-373406/15	1		13:46	X																											
ZZZZZZ			13:48																												
HLCS 280-373272/1-A	1	T	13:49	X																											
LLCS 280-373272/2-A	1	T	13:51	X																											
LCS 280-373272/3-A	1	T	13:52	X																											
LCSD 280-373272/4-A	1	T	13:54	X																											
MB 280-373272/5-A	1	T	13:55	X																											
ZZZZZZ			13:57																												
ZZZZZZ			13:58																												
ZZZZZZ			14:00																												
ZZZZZZ			14:01																												
ZZZZZZ			14:03																												
ZZZZZZ			14:04																												
ZZZZZZ			14:06																												
CCV 280-373406/29	1		14:07	X																											
CCB 280-373406/30	1		14:09	X																											
ZZZZZZ			14:10																												
ZZZZZZ			14:12																												
ZZZZZZ			14:13																												
ZZZZZZ			14:15																												
280-96682-1	1	T	14:16	X																											
ZZZZZZ			14:18																												
ZZZZZZ			14:19																												
ZZZZZZ			14:21																												
ZZZZZZ			14:22																												
ZZZZZZ			14:24																												
ZZZZZZ			14:25																												
ZZZZZZ			14:27																												

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_Alp 1 Analysis Method: 9012B

Start Date: 05/12/2017 13:25 End Date: 05/12/2017 15:36

Lab Sample Id	D/F	Type	Time	Analytes																											
				C	N																										
ZZZZZZ			14:28																												
CCV 280-373406/44	1		14:30	X																											
CCB 280-373406/45	1		14:31	X																											
ZZZZZZ			14:33																												
ZZZZZZ			14:34																												
ZZZZZZ			14:36																												
ZZZZZZ			14:37																												
ZZZZZZ			14:39																												
ZZZZZZ			14:40																												
ZZZZZZ			14:42																												
ZZZZZZ			14:43																												
ZZZZZZ			14:45																												
ZZZZZZ			14:46																												
ZZZZZZ			14:48																												
ZZZZZZ			14:49																												
ZZZZZZ			14:51																												
CCV 280-373406/59			14:52																												
CCB 280-373406/60			14:54																												
ZZZZZZ			14:55																												
ZZZZZZ			14:57																												
ZZZZZZ			14:58																												
ZZZZZZ			15:00																												
ZZZZZZ			15:01																												
ZZZZZZ			15:03																												
ZZZZZZ			15:04																												
ZZZZZZ			15:06																												
ZZZZZZ			15:07																												
ZZZZZZ			15:09																												
ZZZZZZ			15:10																												
ZZZZZZ			15:12																												
ZZZZZZ			15:13																												
CCV 280-373406/74			15:15																												
CCB 280-373406/75			15:16																												
ZZZZZZ			15:18																												
ZZZZZZ			15:19																												
ZZZZZZ			15:21																												
ZZZZZZ			15:22																												
ZZZZZZ			15:24																												
ZZZZZZ			15:25																												
ZZZZZZ			15:27																												
ZZZZZZ			15:28																												
ZZZZZZ			15:30																												

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_Alp 1 Analysis Method: 9012B

Start Date: 05/12/2017 13:25 End Date: 05/12/2017 15:36

Lab Sample Id	D/F	Type	Time	Analytes																											
				C	N																										
ZZZZZZ			15:31																												
CCV 280-373406/86			15:33																												
CCB 280-373406/87			15:34																												
ZZZZZZ			15:36																												

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

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_HSPEC\_7196 Analysis Method: 7196A

Start Date: 05/04/2017 12:19 End Date: 05/04/2017 12:20

Lab Sample Id	D/F	Type	Time	C r 6	Analytes																			
IC 280-372214/1	1		12:19	X																				
IC 280-372214/2	1		12:19	X																				
IC 280-372214/3	1		12:19	X																				
IC 280-372214/4	1		12:19	X																				
IC 280-372214/5	1		12:19	X																				
ICV 280-372214/6	1		12:19	X																				
ICB 280-372214/7	1		12:19	X																				
LCS 280-372214/8	1	T	12:19	X																				
LCSD 280-372214/9	1	T	12:19	X																				
MB 280-372214/10	1	T	12:19	X																				
280-96682-1	1	T	12:19	X																				
280-96682-1 DU	1	T	12:19	X																				
280-96682-1 MS	1	T	12:19	X																				
280-96682-1 MSD	1	T	12:19	X																				
280-96682-4	1	T	12:19	X																				
280-96682-5	1	T	12:19	X																				
280-96682-6	1	T	12:19	X																				
280-96682-7	1	T	12:19	X																				
ZZZZZZ			12:19																					
ZZZZZZ			12:19																					
CCV 280-372214/21	1		12:19	X																				
CCB 280-372214/22	1		12:19	X																				
ZZZZZZ			12:20																					

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

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: NOEQUIP Analysis Method: 9034

Start Date: 05/09/2017 19:44 End Date: 05/09/2017 19:44

Lab Sample Id	D/F	T y p e	Time	Analytes																											
				S 2																											
MB 280-372881/1-A	1	T	19:44	X																											
LCS 280-372881/2-A	1	T	19:44	X																											
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
280-96682-1	1	T	19:44	X																											
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
ZZZZZZ			19:44																												
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ZZZZZZ			19:44																												
ZZZZZZ			19:44																												

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



13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_IonChrom11 Analysis Method: 9056A

Start Date: 04/12/2017 10:02 End Date: 04/13/2017 09:54

Lab Sample Id	D/F	Type	Time	Analytes																											
				N - N o 2	N O 3																										
RTC 280-369033/1			10:02																												
STD 280-369033/2 IC	1		10:22	X	X																										
STD 280-369033/3 IC	1		10:41	X	X																										
STD 280-369033/4 IC	1		11:01	X	X																										
STD 280-369033/5 IC	1		11:21	X	X																										
STD 280-369033/6 IC	1		11:41	X	X																										
STD 280-369033/7 IC	1		12:01	X	X																										
ICV 280-369033/8	1		12:56	X	X																										
ICB 280-369033/9	1		13:15	X	X																										
ZZZZZZ			13:35																												
ZZZZZZ			13:55																												
ZZZZZZ			14:15																												
ZZZZZZ			14:35																												
ZZZZZZ			19:39																												
ZZZZZZ			21:18																												
ZZZZZZ			21:38																												
ZZZZZZ			21:58																												
ZZZZZZ			22:17																												
ZZZZZZ			22:37																												
ZZZZZZ			22:57																												
ZZZZZZ			23:17																												
ZZZZZZ			23:37																												
ZZZZZZ			23:57																												
CCV 280-369033/24			00:17																												
CCB 280-369033/25			00:37																												
ZZZZZZ			00:57																												
ZZZZZZ			01:17																												
ZZZZZZ			01:37																												
ZZZZZZ			01:57																												
ZZZZZZ			02:16																												
ZZZZZZ			02:36																												
ZZZZZZ			02:56																												
ZZZZZZ			03:16																												
ZZZZZZ			03:36																												
ZZZZZZ			03:56																												
CCV 280-369033/36			04:16																												
CCB 280-369033/37			04:36																												
ZZZZZZ			04:56																												
ZZZZZZ			05:16																												

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_IonChrom11 Analysis Method: 9056A

Start Date: 04/12/2017 10:02 End Date: 04/13/2017 09:54

Lab Sample Id	D/F	Type	Time	Analytes																											
				N - N O 2	N O 3																										
ZZZZZZ			05:36																												
ZZZZZZ			05:56																												
ZZZZZZ			06:15																												
ZZZZZZ			06:35																												
ZZZZZZ			06:55																												
ZZZZZZ			07:15																												
ZZZZZZ			07:35																												
ZZZZZZ			07:55																												
CCV 280-369033/48			08:15																												
CCB 280-369033/49			08:35																												
ZZZZZZ			08:55																												
ZZZZZZ			09:15																												
CCV 280-369033/52			09:35																												
CCB 280-369033/53			09:54																												

Prep Types: \_\_\_\_\_  
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13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_IonChrom11 Analysis Method: 9056A

Start Date: 04/12/2017 10:02 End Date: 04/13/2017 04:36

Lab Sample Id	D/F	Type	Time	Analytes																											
				S	O	4																									
RTC 280-369034/1			10:02																												
STD 280-369034/2 IC	1		10:22	X																											
STD 280-369034/3 IC	1		10:41	X																											
STD 280-369034/4 IC	1		11:01	X																											
STD 280-369034/5 IC	1		11:21	X																											
STD 280-369034/6 IC	1		11:41	X																											
STD 280-369034/7 IC	1		12:01	X																											
ICV 280-369034/8	1		12:56	X																											
ICB 280-369034/9	1		13:15	X																											
ZZZZZZ			13:35																												
ZZZZZZ			13:55																												
ZZZZZZ			14:15																												
ZZZZZZ			14:35																												
ZZZZZZ			19:39																												
ZZZZZZ			21:18																												
ZZZZZZ			21:38																												
ZZZZZZ			21:58																												
ZZZZZZ			22:17																												
ZZZZZZ			22:37																												
ZZZZZZ			22:57																												
CCV 280-369034/24			00:17																												
CCB 280-369034/25			00:37																												
CCV 280-369034/36			04:16																												
CCB 280-369034/37			04:36																												

Prep Types: \_\_\_\_\_  
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13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_IonChrom11 Analysis Method: 9056A

Start Date: 05/04/2017 09:26 End Date: 05/05/2017 06:15

Lab Sample Id	D/F	Type	Time	Analytes																											
				N - N o 2	N O 3																										
CCV 280-372161/1	1		09:26	X	X																										
CCB 280-372161/2	1		09:46	X	X																										
MRL 280-372161/3	1	T	10:06	X	X																										
LCS 280-372161/4	1	T	10:25	X	X																										
LCSD 280-372161/5	1	T	10:45	X	X																										
MB 280-372161/6	1	T	11:05	X	X																										
280-96682-1	1	T	13:56	X	X																										
280-96682-1 DU	1	T	14:16	X	X																										
280-96682-1 MS	1	T	14:36	X	X																										
280-96682-1 MSD	1	T	14:55	X	X																										
ZZZZZZ			15:15																												
ZZZZZZ			15:35																												
ZZZZZZ			16:39																												
ZZZZZZ			16:59																												
ZZZZZZ			17:19																												
ZZZZZZ			17:38																												
CCV 280-372161/17	1		17:58	X	X																										
CCB 280-372161/18	1		18:18	X	X																										
ZZZZZZ			18:38																												
ZZZZZZ			18:58																												
ZZZZZZ			19:18																												
ZZZZZZ			19:38																												
ZZZZZZ			19:58																												
ZZZZZZ			20:18																												
ZZZZZZ			20:38																												
ZZZZZZ			20:58																												
ZZZZZZ			21:18																												
ZZZZZZ			21:37																												
CCV 280-372161/29			21:57																												
CCB 280-372161/30			22:17																												
ZZZZZZ			22:37																												
ZZZZZZ			22:57																												
ZZZZZZ			23:17																												
ZZZZZZ			23:37																												
ZZZZZZ			23:57																												
ZZZZZZ			00:17																												
ZZZZZZ			00:37																												
ZZZZZZ			00:57																												
ZZZZZZ			01:16																												

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_IonChrom11 Analysis Method: 9056A

Start Date: 05/04/2017 09:26 End Date: 05/05/2017 06:15

Lab Sample Id	D/F	Type	Time	Analytes																											
				N - N O 2	N O 3																										
ZZZZZZ			01:36																												
CCV 280-372161/41			01:56																												
CCB 280-372161/42			02:16																												
ZZZZZZ			02:36																												
ZZZZZZ			02:56																												
ZZZZZZ			03:16																												
ZZZZZZ			03:36																												
ZZZZZZ			03:56																												
ZZZZZZ			04:16																												
ZZZZZZ			04:36																												
ZZZZZZ			04:56																												
ZZZZZZ			05:15																												
ZZZZZZ			05:35																												
CCV 280-372161/53			05:55																												
CCB 280-372161/54			06:15																												

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

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_IonChrom11 Analysis Method: 9056A

Start Date: 05/04/2017 09:26 End Date: 05/05/2017 06:15

Lab Sample Id	D/F	Type	Time	Analytes																			
				S	O	4																	
CCV 280-372162/1	1		09:26	X																			
CCB 280-372162/2	1		09:46	X																			
MRL 280-372162/3	1	T	10:06	X																			
LCS 280-372162/4	1	T	10:25	X																			
LCSD 280-372162/5	1	T	10:45	X																			
MB 280-372162/6	1	T	11:05	X																			
280-96682-1	1	T	13:56	X																			
280-96682-1 DU	1	T	14:16	X																			
280-96682-1 MS	1	T	14:36	X																			
280-96682-1 MSD	1	T	14:55	X																			
ZZZZZZ			15:15																				
ZZZZZZ			15:35																				
ZZZZZZ			16:39																				
ZZZZZZ			16:59																				
ZZZZZZ			17:19																				
ZZZZZZ			17:38																				
CCV 280-372162/17	1		17:58	X																			
CCB 280-372162/18	1		18:18	X																			
ZZZZZZ			18:38																				
ZZZZZZ			18:58																				
ZZZZZZ			19:18																				
ZZZZZZ			19:38																				
ZZZZZZ			19:58																				
ZZZZZZ			20:18																				
ZZZZZZ			20:38																				
ZZZZZZ			20:58																				
ZZZZZZ			21:18																				
ZZZZZZ			21:37																				
CCV 280-372162/29			21:57																				
CCB 280-372162/30			22:17																				
ZZZZZZ			22:37																				
ZZZZZZ			22:57																				
ZZZZZZ			23:17																				
ZZZZZZ			23:37																				
ZZZZZZ			23:57																				
ZZZZZZ			00:17																				
ZZZZZZ			00:37																				
ZZZZZZ			00:57																				
ZZZZZZ			01:16																				
ZZZZZZ			01:36																				
CCV 280-372162/41			01:56																				

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: WC\_IonChrom11 Analysis Method: 9056A  
 Start Date: 05/04/2017 09:26 End Date: 05/05/2017 06:15

Lab Sample Id	D/F	Type	Time	Analytes																							
				S	O	4																					
CCB 280-372162/42			02:16																								
ZZZZZZ			02:36																								
ZZZZZZ			02:56																								
ZZZZZZ			05:15																								
ZZZZZZ			05:35																								
CCV 280-372162/53			05:55																								
CCB 280-372162/54			06:15																								

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

13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_AT2 Analysis Method: SM 2320B

Start Date: 05/09/2017 10:47 End Date: 05/09/2017 16:27

Lab Sample Id	D/F	Type	Time	Analytes																			
				Alk																			
RINSE 280-372960/1			10:47																				
ZZZZZZ			10:55																				
ZZZZZZ			11:02																				
ZZZZZZ			11:08																				
ZZZZZZ			11:14																				
ZZZZZZ			11:21																				
ZZZZZZ			11:26																				
ZZZZZZ			11:32																				
ZZZZZZ			11:38																				
ZZZZZZ			11:44																				
ZZZZZZ			11:50																				
ZZZZZZ			11:59																				
ZZZZZZ			12:08																				
ZZZZZZ			12:16																				
ZZZZZZ			12:22																				
CCV1 280-372960/16			12:28																				
CCB1 280-372960/17			12:34																				
ZZZZZZ			12:40																				
ZZZZZZ			12:49																				
ZZZZZZ			12:54																				
ZZZZZZ			13:01																				
ZZZZZZ			13:08																				
ZZZZZZ			13:15																				
ZZZZZZ			13:23																				
ZZZZZZ			13:29																				
ZZZZZZ			13:34																				
ZZZZZZ			13:42																				
CCV 280-372960/28		1	13:48	X																			
CCB 280-372960/29		1	13:54	X																			
LCS 280-372960/30		1 T	14:00	X																			
MB 280-372960/31		1 T	14:07	X																			
280-96682-1		1 T	14:11	X																			
280-96682-1 DU		1 T	14:17	X																			
ZZZZZZ			14:22																				
ZZZZZZ			14:28																				
ZZZZZZ			14:35																				
ZZZZZZ			14:41																				
ZZZZZZ			14:48																				
ZZZZZZ			14:54																				
ZZZZZZ			15:00																				
ZZZZZZ			15:05																				



13-IN  
ANALYSIS RUN LOG  
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Instrument ID: WC\_AT2 Analysis Method: SM 2320B

Start Date: 05/09/2017 10:47 End Date: 05/09/2017 16:27

Lab Sample Id	D/F	T y p e	Time	A l k	Analytes																			
CCV 280-372960/42	1		15:12	X																				
CCB 280-372960/43	1		15:18	X																				
ZZZZZZ			15:24																					
ZZZZZZ			15:29																					
ZZZZZZ			15:35																					
ZZZZZZ			15:41																					
ZZZZZZ			15:48																					
ZZZZZZ			15:53																					
ZZZZZZ			16:00																					
ZZZZZZ			16:07																					
ZZZZZZ			16:15																					
CCV 280-372960/53			16:21																					
CCB 280-372960/54			16:27																					

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

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Batch Number: 373272 Batch Start Date: 05/12/17 07:22 Batch Analyst: Lehman, Jeffrey M

Batch Method: 9012B Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	DistillpHCheck	SulfideCheck	ChlorineCheck	CN 10ppm 00253
HLCS 280-373272/1		9012B, 9012B		50 mL	50 mL	>12	N	N	2 mL
LLCS 280-373272/2		9012B, 9012B		50 mL	50 mL	>12	N	N	0.5 mL
LCS 280-373272/3		9012B, 9012B		50 mL	50 mL	>12	N	N	
LCSD 280-373272/4		9012B, 9012B		50 mL	50 mL	>12	N	N	
MB 280-373272/5		9012B, 9012B		50 mL	50 mL	>12	N	N	
280-96682-A-1	RQLmw-012-050317 -GW	9012B, 9012B	T	50 mL	50 mL	>12	N	N	

Lab Sample ID	Client Sample ID	Method Chain	Basis	CN ICV Int 00435					
HLCS 280-373272/1		9012B, 9012B							
LLCS 280-373272/2		9012B, 9012B							
LCS 280-373272/3		9012B, 9012B		0.5 mL					
LCSD 280-373272/4		9012B, 9012B		0.5 mL					
MB 280-373272/5		9012B, 9012B							
280-96682-A-1	RQLmw-012-050317 -GW	9012B, 9012B	T						

Batch Notes	
Balance ID	M19170
Batch Comment	Trainer: Jeff Lehman Trainee: Claire O'Donnell
Bismuth Nitrate ID	Bismuth Nitrate_00023
Magnesium Chloride Reagent ID Number	CN Mag Chl_00067
Sodium Hydroxide ID	2% NaOH_00278
Pipette ID	T1000
Sulfamic Acid ID	CN Sulf_00076
Sulfuric Acid Reagent ID Number	H2SO4_00168

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.: 280-96682-1

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

Batch Number: 373272 Batch Start Date: 05/12/17 07:22 Batch Analyst: Lehman, Jeffrey M

Batch Method: 9012B Batch End Date: \_\_\_\_\_

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.: 280-96682-1

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

Batch Number: 373406 Batch Start Date: 05/12/17 13:25 Batch Analyst: Lehman, Jeffrey M

Batch Method: 9012B Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CN CAL 1 ppm 01250	CN ICV Daily 01015		
ICV 280-373406/14		9012B		50 mL	50 mL		50 mL		
ICB 280-373406/15		9012B		50 mL	50 mL				
HLCS 280-373272/1-A		9012B		50 mL	50 mL				
LLCS 280-373272/2-A		9012B		50 mL	50 mL				
LCS 280-373272/3-A		9012B		50 mL	50 mL				
LCSD 280-373272/4-A		9012B		50 mL	50 mL				
MB 280-373272/5-A		9012B		50 mL	50 mL				
CCV 280-373406/29		9012B		50 mL	50 mL	10 mL			
CCB 280-373406/30		9012B		50 mL	50 mL				
280-96682-A-1-A	RQLmw-012-050317 -GW	9012B	T	50 mL	50 mL				
CCV 280-373406/44		9012B		50 mL	50 mL	10 mL			
CCB 280-373406/45		9012B		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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-96682-1

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

Batch Number: 372214 Batch Start Date: 05/04/17 12:19 Batch Analyst: Uge, Ikem E

Batch Method: 7196A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ColorBlk	UnCorResp	Initial pH	Final pH
IC 280-372214/1		7196A		10 mL	10 mL				
IC 280-372214/2		7196A		10 mL	10 mL				
IC 280-372214/3		7196A		10 mL	10 mL				
IC 280-372214/4		7196A		10 mL	10 mL				
IC 280-372214/5		7196A		10 mL	10 mL				
ICV 280-372214/6		7196A		10 mL	10 mL				
ICB 280-372214/7		7196A		10 mL	10 mL				
LCS 280-372214/8		7196A		10 mL	10 mL				
LCSD 280-372214/9		7196A		10 mL	10 mL				
MB 280-372214/10		7196A		10 mL	10 mL				
280-96682-D-1	RQLmw-012-050317 -GW	7196A	T	10 mL	10 mL	0.000 Absorbance	0.000 Absorbance	5 SU	2.0 SU
280-96682-D-1 DU	RQLmw-012-050317 -GW	7196A	T	10 mL	10 mL	0.000 Absorbance	0.000 Absorbance	5 SU	2.0 SU
280-96682-D-1 MS	RQLmw-012-050317 -GW	7196A	T	10 mL	10 mL	0.000 Absorbance	0.114 Absorbance	5 SU	2.0 SU
280-96682-D-1 MSD	RQLmw-012-050317 -GW	7196A	T	10 mL	10 mL	0.000 Absorbance	0.117 Absorbance	5. SU	2.0 SU
280-96682-A-4	BKGmw-005-050317 -GW	7196A	T	10 mL	10 mL	0.003 Absorbance	0.004 Absorbance	4 SU	2.0 SU
280-96682-A-5	FWGmw-005-050317 -GW	7196A	T	10 mL	10 mL	0.009 Absorbance	0.011 Absorbance	4.5 SU	2.0 SU
280-96682-A-6	FWGmw-021-050317 -GW	7196A	T	10 mL	10 mL	0.001 Absorbance	0.001 Absorbance	4 SU	2.0 SU
280-96682-A-7	LL1mw-084-050317 -GW	7196A	T	10 mL	10 mL	0.000 Absorbance	0.000 Absorbance	4 SU	2.0 SU

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.: 280-96682-1

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

Batch Number: 372214 Batch Start Date: 05/04/17 12:19 Batch Analyst: Uge, Ikem E

Batch Method: 7196A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	CR6 ICV int 01235	CR6 Int cal 00803	CR6 spike sou 00842			
280-96682-D-1 MSD	RQLmw-012-050317 -GW	7196A	T			0.1 mL			
280-96682-A-4	BKGmw-005-050317 -GW	7196A	T						
280-96682-A-5	FWGmw-005-050317 -GW	7196A	T						
280-96682-A-6	FWGmw-021-050317 -GW	7196A	T						
280-96682-A-7	LLlmw-084-050317 -GW	7196A	T						
CCV 280-372214/21		7196A		1 mL					
CCB 280-372214/22		7196A							

Batch Notes	
Acid Used for pH Adjustment ID	50%H2SO4_00029
Color Reagent ID	CR^6ColorR_00291
pH Paper ID	hc412308, hc601355
Pipette ID	100ix,1000iu,5000iu

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.: 280-96682-1

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

Batch Number: 372881 Batch Start Date: 05/09/17 19:35 Batch Analyst: Schroder, Aaron L

Batch Method: 9030B Batch End Date: 05/09/17 21:05

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	DistillUnitPort	Initial pH	Final pH	SFD CAL INT
MB 280-372881/1		9030B, 9034		50 mL	50 mL	1		<2 SU	01358
LCS 280-372881/2		9030B, 9034		50 mL	50 mL	2		<2 SU	1 mL
280-96682-C-1	RQLmw-012-050317 -GW	9030B, 9034	T	50 mL	50 mL	7	>12 SU	<2 SU	

Batch Notes	
Formaldehyde ID	form_00099
Pipette ID	1000ALS, 5000IX
Sulfuric Acid Reagent ID Number	H2SO4_00169
Zinc Acetate Buffer ID	znac_00092

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.: 280-96682-1

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

Batch Number: 372887 Batch Start Date: 05/09/17 19:35 Batch Analyst: Schroder, Aaron L

Batch Method: 9034 Batch End Date: 05/09/17 21:05

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	IodineAmount	BuretStart1	BuretStop1	TitrantVolume1	CalcMsg
MB 280-372881/1-A		9034		50 mL	1 mL	0.00 mL	1.00 mL	1 mL	OK
LCS 280-372881/2-A		9034		50 mL	5 mL	1.00 mL	3.90 mL	2.9 mL	OK
280-96682-C-1-A	RQLmw-012-050317 -GW	9034	T	50 mL	1 mL	10.50 mL	11.50 mL	1 mL	OK

Batch Notes	
HCl Concentration	1:1
Lot # of hydrochloric acid	HCl Sol_00141
Iodine Lot Number	2611A88
Iodine Vendor	RICCA
Normality of Iodine Solution	0.0250 N
Sodium Thiosulfate Reagent ID Number	Na Thio_00112
Pipette ID	1000ALS, 5000IX
Perform Calculation (0=No, 1=Yes)	1
Starch Lot Number	1701B91
Starch Vendor	RICCA
Normality of First Titrant	0.0250 N
Zinc Acetate Buffer ID	znac_00092

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.: 280-96682-1

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

Batch Number: 369033 Batch Start Date: 04/12/17 10:02 Batch Analyst: Phan, Thu L

Batch Method: 9056A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CalcMsg	IC CAL c1/so4 00145	IC Cal low 00282	IC CL ICV 00013
STD 280-369033/2 IC		9056A		5 mL	5 mL	OK	0.02 mL	0.02 mL	
STD 280-369033/3 IC		9056A		5 mL	5 mL	OK	0.05 mL	0.05 mL	
STD 280-369033/4 IC		9056A		5 mL	5 mL	OK	0.1 mL	0.1 mL	
STD 280-369033/5 IC		9056A		5 mL	5 mL	OK	1.2 mL	0.4 mL	
STD 280-369033/6 IC		9056A		5 mL	5 mL	OK	2.4 mL	0.8 mL	
STD 280-369033/7 IC		9056A		5 mL	5 mL	OK	4 mL	1 mL	
ICV 280-369033/8		9056A		5 mL	5 mL	OK			0.4 mL
ICB 280-369033/9		9056A		5 mL	5 mL	OK			

Lab Sample ID	Client Sample ID	Method Chain	Basis	IC ICV 5 00170	IC SO4 ICV 00016				
STD 280-369033/2 IC		9056A							
STD 280-369033/3 IC		9056A							
STD 280-369033/4 IC		9056A							
STD 280-369033/5 IC		9056A							
STD 280-369033/6 IC		9056A							
STD 280-369033/7 IC		9056A							
ICV 280-369033/8		9056A		0.4 mL	0.4 mL				
ICB 280-369033/9		9056A							

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.: 280-96682-1

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

Batch Number: 369033 Batch Start Date: 04/12/17 10:02 Batch Analyst: Phan, Thu L

Batch Method: 9056A Batch End Date: \_\_\_\_\_

Batch Notes	
Batch Comment	pipets: 5000ics, 1000d, 100c
Eluent 1 ID	icl1 eluent_00311
Perform Calculation (0=No, 1=Yes)	1

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 Denver Job No.: 280-96682-1

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

Batch Number: 369034 Batch Start Date: 04/12/17 10:02 Batch Analyst: Phan, Thu L

Batch Method: 9056A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	IC CAL cl/so4 00145	IC Cal low 00282	IC CL ICV 00013	IC ICV 5 00170
STD 280-369034/2 IC		9056A		5 mL	5 mL	0.02 mL	0.02 mL		
STD 280-369034/3 IC		9056A		5 mL	5 mL	0.05 mL	0.05 mL		
STD 280-369034/4 IC		9056A		5 mL	5 mL	0.1 mL	0.1 mL		
STD 280-369034/5 IC		9056A		5 mL	5 mL	1.2 mL	0.4 mL		
STD 280-369034/6 IC		9056A		5 mL	5 mL	2.4 mL	0.8 mL		
STD 280-369034/7 IC		9056A		5 mL	5 mL	4 mL	1 mL		
ICV 280-369034/8		9056A		5 mL	5 mL			0.4 mL	0.4 mL
ICB 280-369034/9		9056A		5 mL	5 mL				

Lab Sample ID	Client Sample ID	Method Chain	Basis	IC SO4 ICV 00016					
STD 280-369034/2 IC		9056A							
STD 280-369034/3 IC		9056A							
STD 280-369034/4 IC		9056A							
STD 280-369034/5 IC		9056A							
STD 280-369034/6 IC		9056A							
STD 280-369034/7 IC		9056A							
ICV 280-369034/8		9056A		0.4 mL					
ICB 280-369034/9		9056A							

Batch Notes	
Eluent 1 ID	ic11 eluent_00311
Pipette ID	5000ics, 1000d, 100c

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.: 280-96682-1

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

Batch Number: 369034 Batch Start Date: 04/12/17 10:02 Batch Analyst: Phan, Thu L

Batch Method: 9056A Batch End Date: \_\_\_\_\_

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 Denver Job No.: 280-96682-1

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

Batch Number: 372161 Batch Start Date: 05/04/17 09:26 Batch Analyst: Benson, Alex F

Batch Method: 9056A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CalcMsg	IC CAL c1/so4 00148	IC Cal low 00292	IC LCS 00897
CCV 280-372161/1		9056A		5 mL	5 mL	OK			5 mL
CCB 280-372161/2		9056A		5 mL	5 mL	OK			
MRL 280-372161/3		9056A		5 mL	5 mL	OK	0.05 mL	0.02 mL	
LCS 280-372161/4		9056A		5 mL	5 mL	OK			5 mL
LCSD 280-372161/5		9056A		5 mL	5 mL	OK			5 mL
MB 280-372161/6		9056A		5 mL	5 mL	OK			
280-96682-E-1	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL	OK			
280-96682-E-1 DU	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL	OK			
280-96682-E-1 MS	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL	OK			
280-96682-E-1 MSD	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL	OK			
CCV 280-372161/17		9056A		5 mL	5 mL	OK			5 mL
CCB 280-372161/18		9056A		5 mL	5 mL	OK			

Lab Sample ID	Client Sample ID	Method Chain	Basis	ICMS/MSD WEEK 00468					
CCV 280-372161/1		9056A							
CCB 280-372161/2		9056A							
MRL 280-372161/3		9056A							
LCS 280-372161/4		9056A							
LCSD 280-372161/5		9056A							
MB 280-372161/6		9056A							
280-96682-E-1	RQLmw-012-050317 -GW	9056A	T						
280-96682-E-1 DU	RQLmw-012-050317 -GW	9056A	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.: 280-96682-1

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

Batch Number: 372161 Batch Start Date: 05/04/17 09:26 Batch Analyst: Benson, Alex F

Batch Method: 9056A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	ICMS/MSD WEEK 00468					
280-96682-E-1 MS	RQLmw-012-050317 -GW	9056A	T	0.05 mL					
280-96682-E-1 MSD	RQLmw-012-050317 -GW	9056A	T	0.05 mL					
CCV 280-372161/17		9056A							
CCB 280-372161/18		9056A							

Batch Notes	
Batch Comment	pipettes: 100-C, 1000-D, 5000ICS
Eluent 1 ID	IC11 Eluent_00326
Perform Calculation (0=No, 1=Yes)	1

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.: 280-96682-1

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

Batch Number: 372162 Batch Start Date: 05/04/17 09:26 Batch Analyst: Benson, Alex F

Batch Method: 9056A Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	IC CAL cl/so4 00148	IC Cal low 00292	IC LCS 00897	ICMS/MSD WEEK 00468
CCV 280-372162/1		9056A		5 mL	5 mL			5 mL	
CCB 280-372162/2		9056A		5 mL	5 mL				
MRL 280-372162/3		9056A		5 mL	5 mL	0.05 mL	0.02 mL		
LCS 280-372162/4		9056A		5 mL	5 mL			5 mL	
LCSD 280-372162/5		9056A		5 mL	5 mL			5 mL	
MB 280-372162/6		9056A		5 mL	5 mL				
280-96682-E-1	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL				
280-96682-E-1 DU	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL				
280-96682-E-1 MS	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL				0.05 mL
280-96682-E-1 MSD	RQLmw-012-050317 -GW	9056A	T	5 mL	5 mL				0.05 mL
CCV 280-372162/17		9056A		5 mL	5 mL			5 mL	
CCB 280-372162/18		9056A		5 mL	5 mL				

Batch Notes	
Eluent 1 ID	IC11 Eluent_00326
Pipette ID	100-C, 1000-D, 5000ICS

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.: 280-96682-1

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

Batch Number: 372960 Batch Start Date: 05/09/17 10:47 Batch Analyst: Duplin, Alysha 1

Batch Method: SM 2320B Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	CalcMsg	Alk daily lcs 00644				
CCV 280-372960/28		SM 2320B		InitialAmount is blank	1 mL				
CCB 280-372960/29		SM 2320B		InitialAmount is blank					
LCS 280-372960/30		SM 2320B		InitialAmount is blank	1 mL				
MB 280-372960/31		SM 2320B		InitialAmount is blank					
280-96682-D-1	RQLmw-012-050317 -GW	SM 2320B	T	InitialAmount is blank					
280-96682-D-1 DU	RQLmw-012-050317 -GW	SM 2320B	T	InitialAmount is blank					
CCV 280-372960/42		SM 2320B		InitialAmount is blank	1 mL				
CCB 280-372960/43		SM 2320B		InitialAmount is blank					

Batch Notes	
pH Buffer 1 ID	pH2buffer_00063
pH Buffer 2 ID	pH4buffer_00156
pH Buffer 3 ID	pH7buffer_00210
pH Buffer 4 ID	pH10buffer_00123
pH Buffer 5 ID	pH12buffer_00121
pH Buffer 6 ID	pH7buffer_00206
First End time	see attached
Sulfuric Acid Lot Number	0.02H2SO4_00215
Sulfuric Acid Vendor	Ricca
Nominal Amount Used	25mL mL
Pipette ID	5000CJ
Probe ID	PCE 86 pH 1105 sep 14
First Start time	see attached
Normality of First Titrant	0.02 N

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.: 280-96682-1

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

Batch Number: 372960 Batch Start Date: 05/09/17 10:47 Batch Analyst: Duplin, Alysha 1

Batch Method: SM 2320B Batch End Date: \_\_\_\_\_

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\C051217A.RST  
 Sample table path C:\FLOW\_4\c051217a.tbl  
 Method path C:\FLOW\_4\cyanide.mth  
 Date acquired 12-May-17  
 Time acquired 15:41

----- Cyanide, Total -----						
Date	Time	Cup	Name	Response	Calc [ppb]	Flags
12-May-17	13:25	107	Sync	353771	399.714	
12-May-17	13:26	0	Carryover	375	-0.847	LO
12-May-17	13:28	0	Carryover	99	-1.160	LO
12-May-17	13:30	0	Baseline	0	-1.272	BL
12-May-17	13:31	101	CAL 0.00 ppb	170	-1.080	LO
12-May-17	13:33	102	CAL 10.0 ppb	9328	9.301	
12-May-17	13:34	103	CAL 20.0 ppb	18193	19.349	
12-May-17	13:36	104	CAL 50.0 ppb	45789	50.628	
12-May-17	13:37	105	CAL 100 ppb	90795	101.640	
12-May-17	13:39	106	Cal 200 ppb	178632	201.201	
12-May-17	13:40	107	Cal 400 ppb	353107	398.961	
12-May-17	13:42	0	BLK	-50	-1.329	LO
12-May-17	13:43	0	Baseline	0	-1.272	BL
12-May-17	13:45	108	ICV 100 ppb	90047	100.793	
12-May-17	13:46	0	ICB	35	-1.233	LO
12-May-17	13:48	0	Baseline	0	-1.272	BL
12-May-17	13:49	113	hlcs 280-373272/1-a	334562	377.941	
12-May-17	13:51	114	llcs 280-373272/2-a	85778	95.954	
12-May-17	13:52	115	lcs 280-373272/3-a	82341	92.058	
12-May-17	13:54	116	lcsd 280-373272/4-a	82541	92.285	
12-May-17	13:55	117	mb 280-373272/5-a	3084	2.223	
12-May-17	13:57	118	280-96624-g-1-a	4197	3.484	
12-May-17	13:58	119	280-96624-g-1-b ms	82297	92.009	
12-May-17	14:00	120	280-96624-g-1-c msd	80866	90.386	
12-May-17	14:01	121	280-96624-g-2-a	2974	2.098	
12-May-17	14:03	122	280-96624-g-3-a	3136	2.283	
12-May-17	14:04	0	BLK	52	-1.214	LO
12-May-17	14:06	0	baseline	0	-1.272	BL
12-May-17	14:07	109	CCV 200PPB	180105	202.870	
12-May-17	14:09	0	CCB	160	-1.091	LO
12-May-17	14:10	0	Baseline	0	-1.272	BL
12-May-17	14:12	123	280-96624-g-4-a	3507	2.703	
12-May-17	14:13	124	280-96624-g-5-a	1586	0.525	
12-May-17	14:15	125	280-96624-g-6-a	1489	0.415	
12-May-17	14:16	126	280-96682-a-1-a	2454	1.509	
12-May-17	14:18	127	280-96674-a-6-a	2957	2.079	
12-May-17	14:19	128	280-96674-a-15-a	1795	0.762	
12-May-17	14:21	129	280-96674-a-35-a	1622	0.566	
12-May-17	14:22	130	280-96674-a-44-a	1862	0.838	
12-May-17	14:24	131	280-96674-a-44-b ms	83344	93.195	
12-May-17	14:25	132	280-96674-a-44-c msd	84917	94.978	
12-May-17	14:27	0	BLK	23	-1.246	LO
12-May-17	14:28	0	baseline	0	-1.272	BL
12-May-17	14:30	109	CCV 200PPB	183349	206.547	
12-May-17	14:31	0	CCB	9	-1.262	LO
12-May-17	14:33	0	Baseline	0	-1.272	BL

Result path C:\FLOW\_4\C051217A.RST  
 Sample table path C:\FLOW\_4\c051217a.tbl  
 Method path C:\FLOW\_4\cyanide.mth  
 Date acquired 12-May-17  
 Time acquired 15:41

|----- Cyanide, Total -----|

Date	Time	Cup	Name	Response	Calc [ppb]	Flags
12-May-17	14:34	133	280-96674-a-24-a	2650	1.732	
12-May-17	14:36	134	280-96678-l-1-a	1796	0.764	
12-May-17	14:37	135	280-96680-h-1-a	6425	6.010	
12-May-17	14:39	136	280-96612-i-1-a	2186	1.206	
12-May-17	14:40	137	280-96612-i-2-a	2364	1.407	
12-May-17	14:42	138	280-96612-i-3-a	23337	25.179	
12-May-17	14:43	139	280-96612-i-4-a	2479	1.537	
12-May-17	14:45	140	280-96612-i-5-a	2387	1.433	
12-May-17	14:46	141	hlcs 280-373323/1-a	363954	411.257	
12-May-17	14:48	142	llcs 280-373323/2-a	89379	100.035	
12-May-17	14:49	0	BLK	45	-1.221	LO
12-May-17	14:51	0	baseline	0	-1.272	BL
12-May-17	14:52	109	CCV 200PPB	183848	207.112	
12-May-17	14:54	0	CCB	52	-1.213	LO
12-May-17	14:55	0	Baseline	0	-1.272	BL
12-May-17	14:57	143	lcs 280-373323/3-a	86573	96.855	
12-May-17	14:58	144	mb 280-373323/4-a	1067	-0.062	LO
12-May-17	15:00	145	280-96683-m-1-a	15390	16.171	
12-May-17	15:01	146	280-96683-m-1-b ms	95565	107.047	
12-May-17	15:03	147	280-96683-m-1-c msd	101087	113.306	
12-May-17	15:04	148	280-96683-m-2-a	16845	17.821	
12-May-17	15:06	149	280-96685-s-1-a	8141	7.956	
12-May-17	15:07	150	280-96711-l-1-a	4219	3.510	
12-May-17	15:09	151	280-96753-b-1-a	2596	1.670	
12-May-17	15:10	152	280-96794-f-1-a	2141	1.155	
12-May-17	15:12	0	BLK	164	-1.086	LO
12-May-17	15:13	0	baseline	0	-1.272	BL
12-May-17	15:15	109	CCV 200PPB	185144	208.582	
12-May-17	15:16	0	CCB	31	-1.238	LO
12-May-17	15:18	0	Baseline	0	-1.272	BL
12-May-17	15:19	153	280-96794-f-2-a	8052	7.854	
12-May-17	15:21	154	280-96719-a-5-a	218994	246.950	
12-May-17	15:22	155	280-96878-h-1-a	3969	3.226	
12-May-17	15:24	156	280-96878-h-2-a	2002	0.997	
12-May-17	15:25	157	280-96878-h-3-a	3028	2.160	
12-May-17	15:27	158	280-96878-h-3-b ms	73304	81.815	
12-May-17	15:28	159	280-96878-h-3-c msd	69024	76.964	
12-May-17	15:30	0	BLK	-27	-1.302	LO
12-May-17	15:31	0	baseline	0	-1.272	BL
12-May-17	15:33	109	CCV 200PPB	185673	209.181	
12-May-17	15:34	0	CCB	-11	-1.285	LO
12-May-17	15:36	0	Baseline	0	-1.272	BL

File name: C:\FLOW\_4\C051217A.RST

Date: 12-May-17

Operator: JML

Peak	Cup	Name	R	Type	Dil	Wt	Height	Calc. (ppb)	Flags
1	107	Sync	1	SYNC		1	353771	399.714111	
2	0	Carryover	1	CO		1	375	-0.847206	LO
3	0	Carryover	2	CO		1	99	-1.159868	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
5	101	CAL 0.00 ppb	1	C		1	170	-1.079995	LO
6	102	CAL 10.0 ppb	1	C		1	9328	9.300611	
7	103	CAL 20.0 ppb	1	C		1	18193	19.349190	
8	104	CAL 50.0 ppb	1	C		1	45789	50.628033	
9	105	CAL 100 ppb	1	C		1	90795	101.640388	
10	106	Cal 200 ppb	1	C		1	178632	201.200699	
11	107	Cal 400 ppb	1	C		1	353107	398.961090	
12	0	BLK	1	BLNK		1	-50	-1.328538	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
14	108	ICV 100 ppb	1	CCV		1	90047	100.792953	
15	0	ICB	1	U		1	35	-1.232823	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
17	113	hlcs 280-373272/1-a	1	U		1	334562	377.941498	
18	114	llcs 280-373272/2-a	1	U		1	85778	95.954124	
19	115	lcs 280-373272/3-a	1	U		1	82341	92.057678	
20	116	lcsd 280-373272/4-a	1	U		1	82541	92.285431	
21	117	mb 280-373272/5-a	1	U		1	3084	2.223498	
22	118	280-96624-g-1-a	1	U		1	4197	3.484398	
23	119	280-96624-g-1-b	ms	1	U	1	82297	92.008560	
24	120	280-96624-g-1-c	msd	1	U	1	80866	90.386124	
25	121	280-96624-g-2-a	1	U		1	2974	2.098335	
26	122	280-96624-g-3-a	1	U		1	3136	2.282847	
27	0	BLK	1	BLNK		1	52	-1.213824	LO
B	0	baseline	1	RB		1	0	-1.272249	BL
29	109	CCV 200PPB	1	CCV		1	180105	202.869629	
30	0	CCB	1	U		1	160	-1.090829	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
32	123	280-96624-g-4-a	1	U		1	3507	2.702971	
33	124	280-96624-g-5-a	1	U		1	1586	0.524899	
34	125	280-96624-g-6-a	1	U		1	1489	0.415314	
35	126	280-96682-a-1-a	1	U		1	2454	1.508932	
36	127	280-96674-a-6-a	1	U		1	2957	2.078903	
37	128	280-96674-a-15-a	1	U		1	1795	0.762205	
38	129	280-96674-a-35-a	1	U		1	1622	0.566142	
39	130	280-96674-a-44-a	1	U		1	1862	0.838439	
40	131	280-96674-a-44-b	ms	1	U	1	83344	93.195381	
41	132	280-96674-a-44-c	msd	1	U	1	84917	94.977921	
42	0	BLK	1	BLNK		1	23	-1.246181	LO
B	0	baseline	1	RB		1	0	-1.272249	BL
44	109	CCV 200PPB	1	CCV		1	183349	206.547363	
45	0	CCB	1	U		1	9	-1.262222	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
47	133	280-96674-a-24-a	1	U		1	2650	1.731869	
48	134	280-96678-l-1-a	1	U		1	1796	0.763593	
49	135	280-96680-h-1-a	1	U		1	6425	6.009849	
50	136	280-96612-i-1-a	1	U		1	2186	1.205692	
51	137	280-96612-i-2-a	1	U		1	2364	1.407305	
52	138	280-96612-i-3-a	1	U		1	23337	25.179480	
53	139	280-96612-i-4-a	1	U		1	2479	1.537352	
54	140	280-96612-i-5-a	1	U		1	2387	1.432896	
55	141	hlcs 280-373323/1-a	1	U		1	363954	411.256500	
56	142	llcs 280-373323/2-a	1	U		1	89379	100.034988	
57	0	BLK	1	BLNK		1	45	-1.221146	LO
B	0	baseline	1	RB		1	0	-1.272249	BL
59	109	CCV 200PPB	1	CCV		1	183848	207.112045	
60	0	CCB	1	U		1	52	-1.213343	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
62	143	lcs 280-373323/3-a	1	U		1	86573	96.854942	
63	144	mb 280-373323/4-a	1	U		1	1067	-0.062472	LO
64	145	280-96683-m-1-a	1	U		1	15390	16.171404	
65	146	280-96683-m-1-b	ms	1	U	1	95565	107.047325	
66	147	280-96683-m-1-c	msd	1	U	1	101087	113.305710	
67	148	280-96683-m-2-a	1	U		1	16845	17.820641	
68	149	280-96685-s-1-a	1	U		1	8141	7.955573	
69	150	280-96711-l-1-a	1	U		1	4219	3.509631	
70	151	280-96753-b-1-a	1	U		1	2596	1.669706	

Peak	Cup	Name	R	Type	Dil	Wt	Height	Calc. (ppb)	Flags
71	152	280-96794-f-1-a	1	U		1	2141	1.154557	
72	0	BLK	1	BLNK		1	164	-1.086397	LO
B	0	baseline	1	RB		1	0	-1.272249	BL
74	109	CCV 200PPB	1	CCV		1	185144	208.581604	
75	0	CCB	1	U		1	31	-1.237657	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL
77	153	280-96794-f-2-a	1	U		1	8052	7.854168	
78	154	280-96719-a-5-a	1	U		1	218994	246.949661	
79	155	280-96878-h-1-a	1	U		1	3969	3.226238	
80	156	280-96878-h-2-a	1	U		1	2002	0.997487	
81	157	280-96878-h-3-a	1	U		1	3028	2.159855	
82	158	280-96878-h-3-b	ms	1	U	1	73304	81.814903	
83	159	280-96878-h-3-c	msd	1	U	1	69024	76.964127	
84	0	BLK	1	BLNK		1	-27	-1.302287	LO
B	0	baseline	1	RB		1	0	-1.272249	BL
86	109	CCV 200PPB	1	CCV		1	185673	209.180771	
87	0	CCB	1	U		1	-11	-1.285054	LO
B	0	Baseline	1	RB		1	0	-1.272249	BL

File name: C:\FLOW\_4\C051217A.RST

Date: 12-May-17

Operator: JML

* Name	Conc	Height
* CAL 0.00 ppb	0.000000	169.616486
* CAL 10.0 ppb	10.000000	9327.928711
* CAL 20.0 ppb	20.000000	18193.310547
* CAL 50.0 ppb	50.000000	45789.136719
* CAL 100 ppb	100.000000	90794.898438
* Cal 200 ppb	200.000000	178632.203125
* Cal 400 ppb	400.000000	353106.750000

Calib Coef:

y=bx+a

a: (intercept) 1.1224e+03

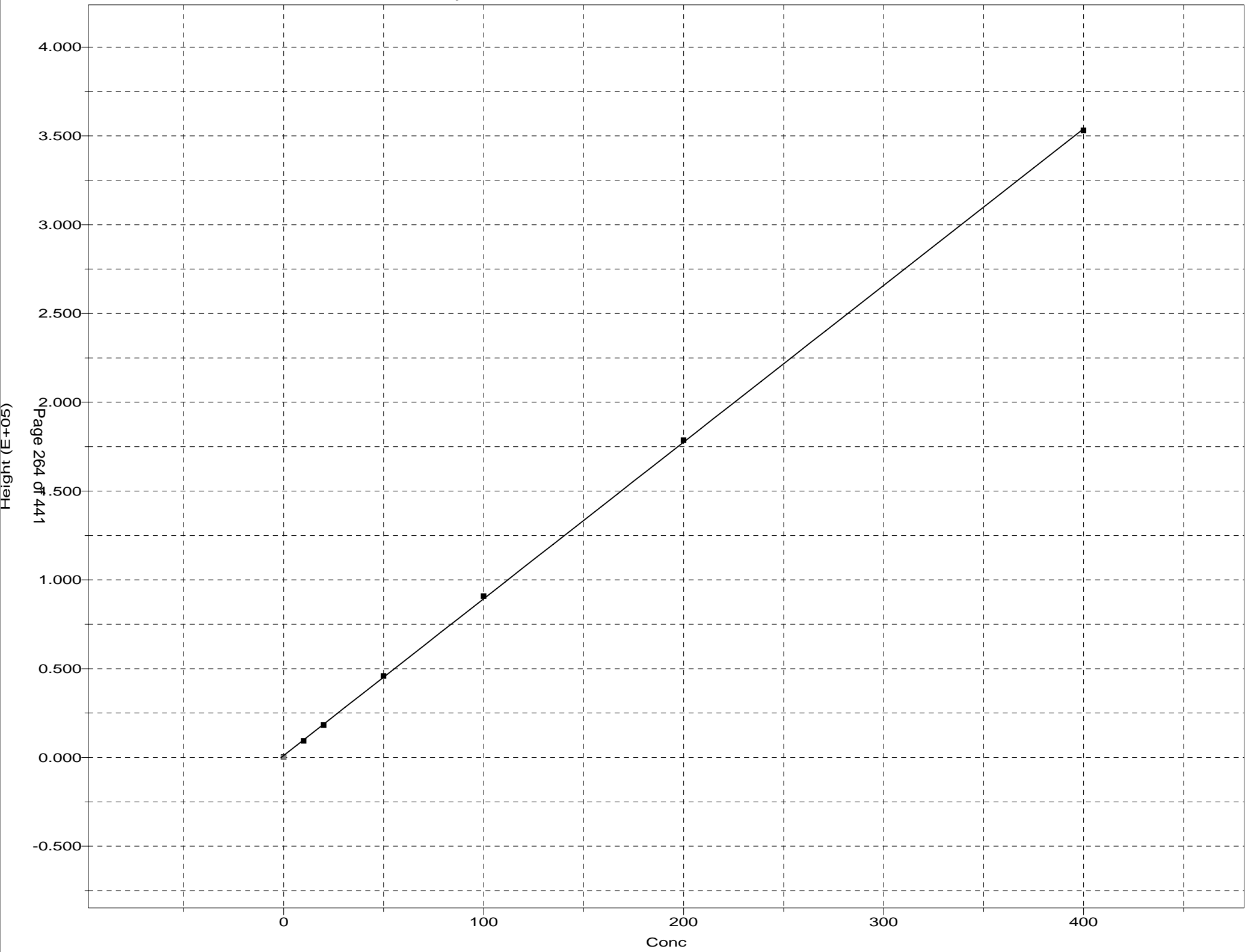
b: 8.8225e+02

Corr Coef: 0.999970

Carryover: 0.106%

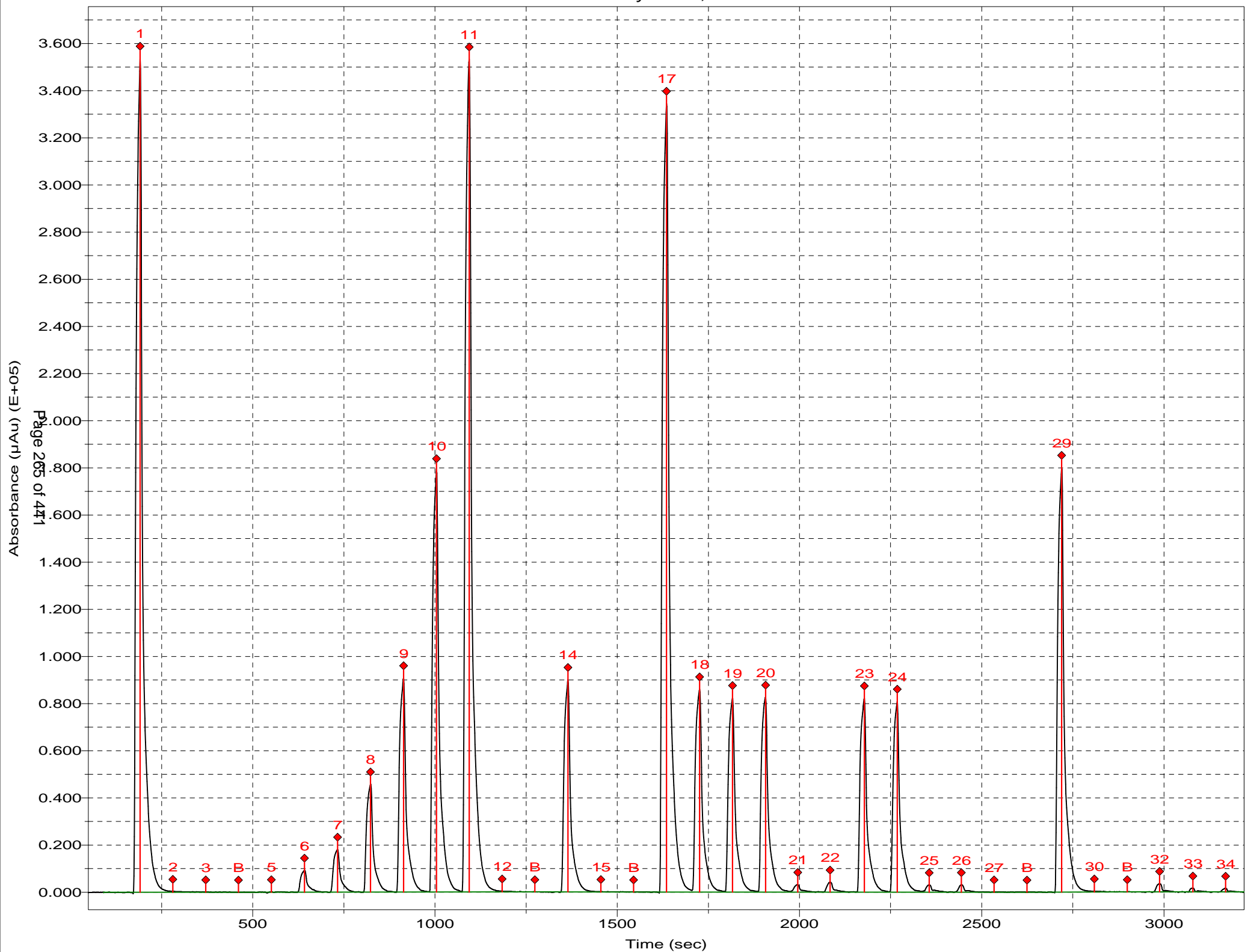
No Drift Peaks

Cyanide, Total:Calibration 1: Peak 5-88

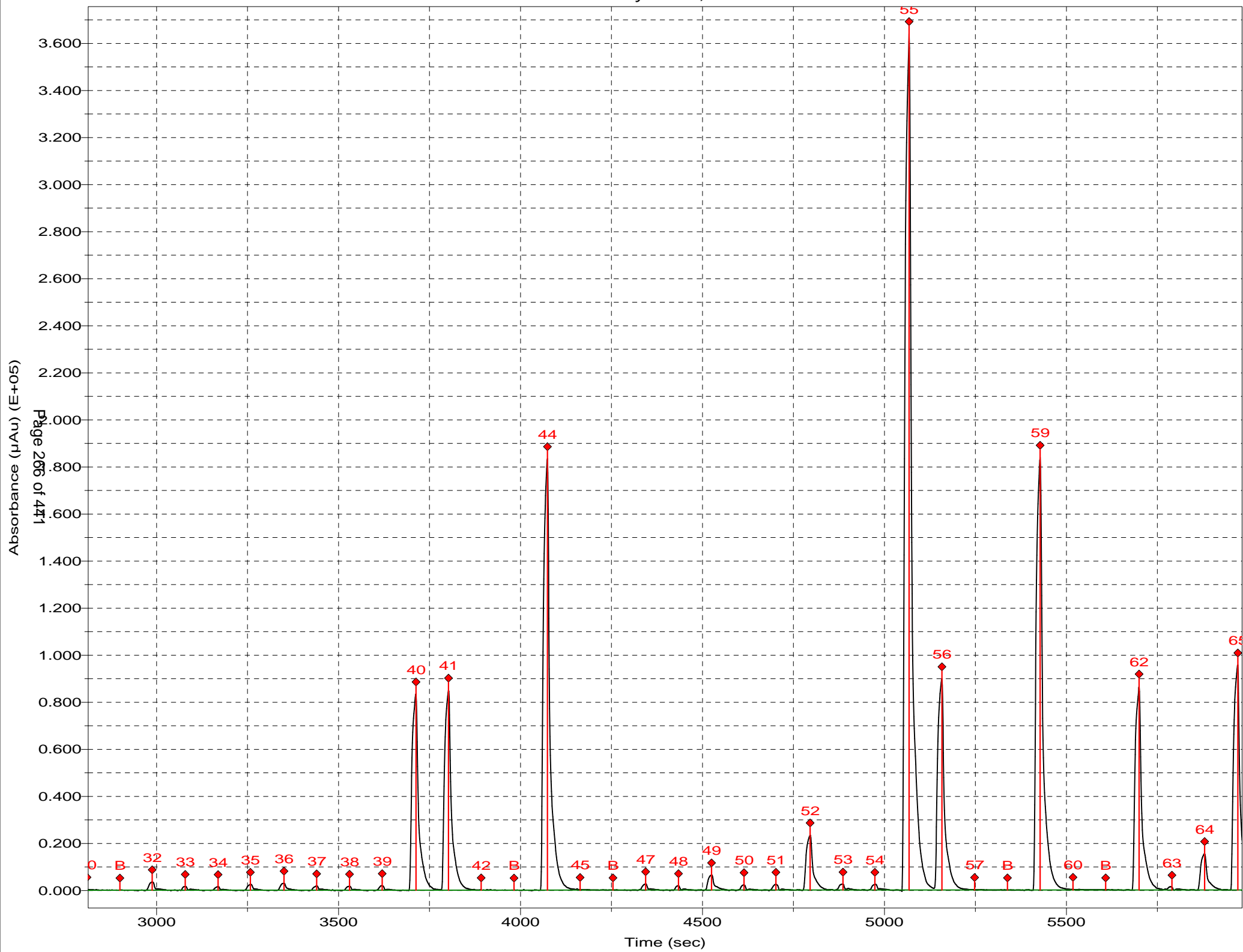




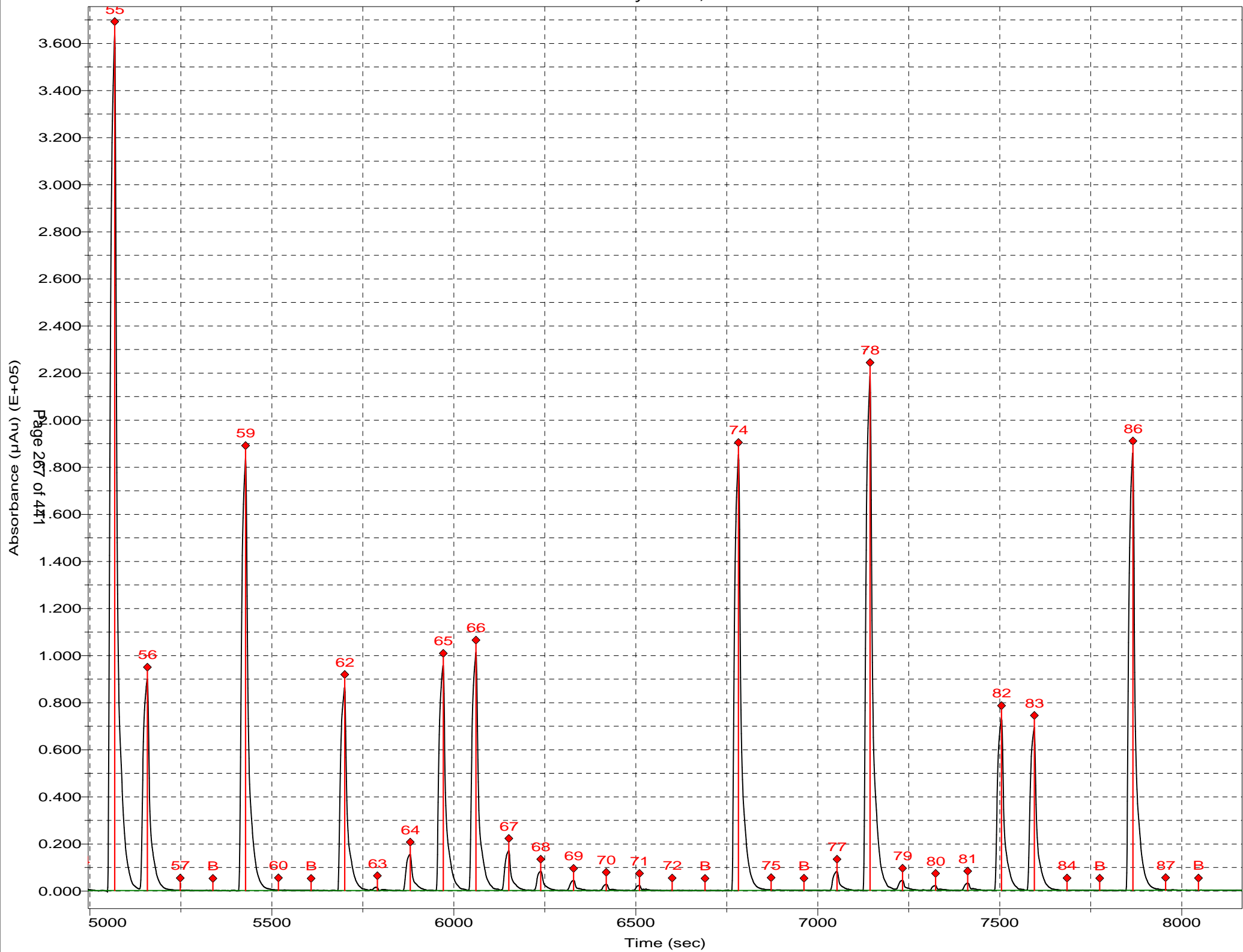
# Channel 1: Cyanide, Total



# Channel 1: Cyanide, Total



# Channel 1: Cyanide, Total



Calibration

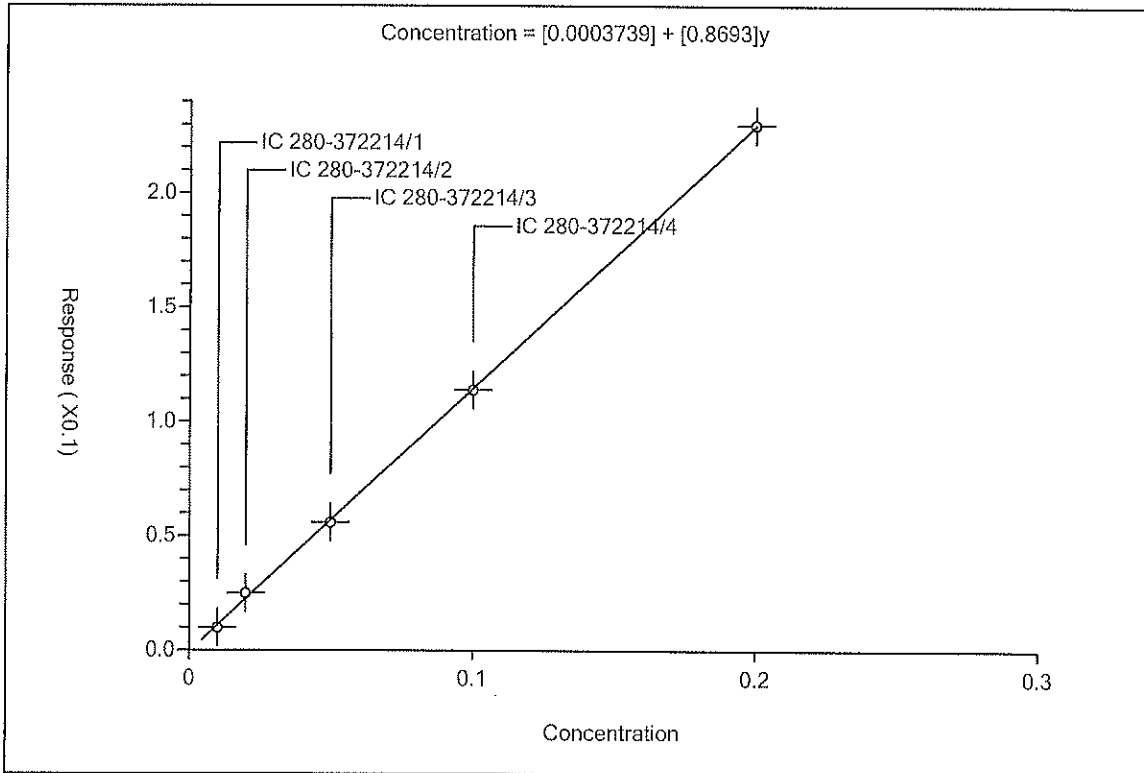
372214

Calib 372214-0 / Cr (VI)

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

Curve Coefficients	
Intercept:	0.0003739
Slope:	0.8693
Error Coefficients	
Standard Error:	0.001480
Relative Standard Error:	8.203
Correlation Coefficient:	0.9999
Coefficient of Determination (Adjusted):	0.9997 (0.9997)

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	IC 280-372214/1	0.01	0.01			1.0	Y
2	IC 280-372214/2	0.02	0.025			1.25	Y
3	IC 280-372214/3	0.05	0.056			1.12	Y
4	IC 280-372214/4	0.1	0.114			1.14	Y
5	IC 280-372214/5	0.2	0.23			1.15	Y



# TALS Raw Data Report

Job Number: 280-96682-1  
 LIMS Batch: 372214  
 Equipment: WC\_HSPEC\_7196

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
6	ICV 280-372214/6	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.060	0.05253190 mg/L	mg/L	105	90 110		
7	ICB 280-372214/7	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.002	0.02112500 mg/L	0.0040 U mg/L				
8	LCS 280-372214/8	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.120	0.1046899 mg/L	ug/L	105	90 111		
9	LCSD 280-372214/9	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.114	0.09947410 mg/L	ug/L	99	90 111	5	20
10	MB 280-372214/10	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	-0.001	0.00495400 mg/L	4.0 U ug/L				
11	280-96682-D-1	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	4.0 U ug/L				
12	280-96682-D-1 DU	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	4.0 U ug/L			NC	20
13	280-96682-D-1 MS	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.1140	0.099474100 mg/L	ug/L	99	90 111		
14	280-96682-D-1 MSD	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.1170	0.10208200 mg/L	ug/L	102	90 111	3	20
15	280-96682-A-4	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0010	0.01243200 mg/L	4.0 U ug/L				
16	280-96682-A-5	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0020	0.02112500 mg/L	4.0 U ug/L				
17	280-96682-A-6	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	4.0 U ug/L				
18	280-96682-A-7	5/4/2017 12:19:33PM	1.0	7196A_DOD5				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)							

# TALS Raw Data Report

Cr (VI)                    0.0000    000373900 mg/L        4.0 U ug/L

RS# 21      Lab ID: **CCV 280-372214/21**                    Inj Date: 5/4/2017 12:19:33PM                    Dil: 1.0                    Meth: 7196A\_DOD5

Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
Cr (VI)	0.123	0.1072978 mg/L	mg/L	107	90	110	

RS# 22      Lab ID: **CCB 280-372214/22**                    Inj Date: 5/4/2017 12:19:33PM                    Dil: 1.0                    Meth: 7196A\_DOD5

Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
Cr (VI)	0.003	002981800 mg/L	.0040 U mg/L				

# TALS Raw Data Report

Job Number: 280-96683-1  
 LIMS Batch: 372214  
 Equipment: WC\_HSPEC\_7196

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
6	ICV 280-372214/6	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.060	0.05253190 mg/L	mg/L	105	90	110	
7	ICB 280-372214/7	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.002	0.02112500 mg/L	mg/L				
8	LCS 280-372214/8	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.120	0.1046899 mg/L	mg/L	105	85	115	
9	LCS D 280-372214/9	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.114	0.09947410 mg/L	mg/L	99	85	115	5 20
10	MB 280-372214/10	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	-0.001	0.00495400 mg/L	mg/L				
11	280-96682-D-1	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	mg/L				
12	280-96682-D-1 DU	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	mg/L				NC 20
13	280-96682-D-1 MS	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.1140	0.099474100 mg/L	mg/L	99	85	115	
14	280-96682-D-1 MSD	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.1170	0.10208200 mg/L	mg/L	102	85	115	3 20
19	280-96683-N-1	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	mg/L				
20	280-96683-N-2	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.0000	0.00373900 mg/L	mg/L				
21	CCV 280-372214/21	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)	0.123	0.1072978 mg/L	mg/L	107	90	110	
22	CCB 280-372214/22	5/4/2017 12:19:33PM	1.0	7196A				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Cr (VI)							

# TALS Raw Data Report

Cr (VI)

0.003

002981800 mg/L

mg/L



# TALS Raw Data Report

**Calibration Data Review Checklist**

Note: Includes all methods (except IC, CN) that utilize initial calibration)

SOP No. <u>WC-0021</u>	Instrument ID: <u>4Acm</u>
LIMS Prep Batch#: <u>NA</u>	LIMS Analytical Batch# <u>372214</u>
Analyst(s)/1 <sup>st</sup> Reviewer/Date: <u>IU</u> <u>05/10/11</u>	QC Type (circle): <u>Standard</u> <u>LCS D</u> DOD Q4 <u>DoD Q5</u> QAPP _____ Other _____
Method (circle): 3500-Cr B 3500-Cr D 3500-Fe B 3500-Fe D 350.1 351.2 353.2 365.1 410.4 420.1 420.4 4500-NO <sub>2</sub> B 4500-S <sup>2</sup> -D <u>7196A</u> 9060 5310B	
Matrix (circle): <u>Water</u> Solid Waste Leachate	Circle all that apply: <u>Total</u> Field Filtered Lab Filtered

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable? (List NCM #)
<b>A. Calibration/Instrument Run QC</b>					
1. Verify intermediate standards for correct concentration stated in SOP (ICAL pts at correct concentration)	✓			✓	
2. Number of Points: 1 <sup>st</sup> order: 5 standards; 2 <sup>nd</sup> order: 6 standards	✓			✓	
3. Linearity and intercept: $r \geq 0.995$ ( $r^2 \geq 0.99$ ) $ x\text{-intercept}  < \frac{1}{2} \text{RL}$	✓			✓	
4. ICV, second source: run before samples 90-110% recovery	✓			✓	
5. CCV: 10% frequency & closing 90-110% recovery	✓			✓	
6. Cadmium Column Efficiency Check (353.2): 85-115% NO <sub>2</sub> recovery			✓	✓	
7. ICB: run before samples, CCB: 10% frequency, & closing Result < 1/2 RL (410.4 Result < RL)	✓			✓	
<b>B. Client Sample and QC Sample Results</b>					
8. Samples with results > linear range diluted and reanalyzed?	✓			✓	Comments:
9. On-instrument response of diluted sample is >10X  MB  on-instrument response	✓			✓	Comments:
<b>C. Preparation/Matrix QC</b>					
10. If samples are lab filtered, QC samples filtered?			✓	✓	
11. Method Blank: one per preparation batch Result < 1/2 RL (410.4 Result < RL)	✓			✓	If no, list blank ID & explain:
12. LCS: one per preparation batch 90-110% recovery Lab limits (3500-x, 4500-x, 7196A); (7196 DOD5: 90-111% recovery)	✓			✓	If no, list LCS ID & explain:
13. MS/MSD or MS/Dup frequency (Determine correct frequency by method or reference SOP) A pair per 20 samples or a pair per 10 samples Lab limits (3500-x, 4500-x, 7196A); Others (90-110%)	✓			✓	If no, list QC ID & explain:

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
<b>D. Raw Data &amp; TALS Data Entry</b>					
14. Raw Data/Run Log				✓	
a. Unused data is clearly identified and reason not used is stated	✓			✓	
b. All cross outs are initialed and dated	✓			✓	
c. Out of control QC is clearly identified	✓			✓	
d. Any data that has a qualifier is commented on with appropriate action taken	✓			✓	
e. The first page of the run includes the filename, instrument, and analyst initials/signature	✓			✓	
f. Analyst initials/signature provided				✓	
15. TALS Sample List				✓	
a. LIMS Sample IDs / Containers are correct	✓			✓	
b. Method and matrix are correct	✓			✓	
c. Date and time match raw data	✓			✓	
d. Dilutions are correct	✓			✓	
e. Correct suffix (DU, MS, MSD) designated (where applicable)	✓			✓	
16. TALS Worksheet Tab is complete and correct	✓			✓	
17. Sample pH, presence of chlorine/sulfide recorded?	✓			✓	
18. NCM written for any samples needing preservation at the bench?	✓			✓	
19. TALS Reagent Tab is complete and correct	✓			✓	
20. TALS QC Links Tab is correct	✓			✓	
21. TALS Sample Results Tab				✓	
a. All unused data are marked Rejected or Accepted	✓			✓	
b. All reported analytes are marked Primary or Secondary	✓			✓	
22. TALS Batch Information Screen documentation is complete	✓			✓	
23. Historical Data Checker: Check historical data. Print charts for outliers. Take corrective action as appropriate	✓			✓	
24. TALS Status set to appropriate review level	✓			✓	
<b>E. Final Report and NCMs (2<sup>nd</sup> level review only)</b>					
25. Were all job/project requirements met?	✓				
26. Results for samples and QC correct on final report?	✓				
27. Are all necessary scanned documents in TALS?	✓				
28. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?	✓				

Comments:

\_\_\_\_\_

\_\_\_\_\_ *5/12/17 WES* \_\_\_\_\_

\_\_\_\_\_

2<sup>nd</sup> Reviewer:

*ASB*

Review Date:

*5/12/17*

**Sulfide by Titration**

Analyst:	<b>ALS</b>		<b>SOP Information:</b>	
Date:	5/9/2017		Number:	WC-0091
<b>Titration Solutions</b>			<b>Calibration Information</b>	
Solution 1:	Iodine		Source/Ver-Lot#:	CAL_1358
TALS ID	Iod_00173		Prep Date:	5/9/2017
Normality:	0.025		Made By:	ALS
Solution 2:	sodium thiosulfate		Concentration:	1100
TALS ID	Na Thio_00112		Expiration Date:	8/9/2017
Normality:	0.025			
	Starch Indicator			
TALS ID	Starch Ind_00039			

	CAL	Buret	Buret	mL	Final	Conc
	Volume	Start	End	Iodine	mL	mg/L
CAL	5	0.00	6.20	20	6.20	1104.000
CAL	5	6.20	12.50	20	6.30	1096.000

# TALS Raw Data Report

Job Number: 280-96591-1  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	<b>MB 280-372881/1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
2	<b>LCS 280-372881/2-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	mg/L				
	Sulfide		16.8 mg/L	mg/L	76	50	106	
3	<b>280-96591-D-1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
4	<b>280-96591-K-3-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
5	<b>280-96591-L-3-A MS</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	mg/L				
	Sulfide		13.2 mg/L	mg/L	60	50	106	
6	<b>280-96591-L-3-B MSD</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	mg/L				
	Sulfide		14 mg/L	mg/L	64	50	106	6 20

# TALS Raw Data Report

Job Number: 280-96682-1  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	<b>MB 280-372881/1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2000 U ug/L				
	Sulfide		0 mg/L	1900 U ug/L				
2	<b>LCS 280-372881/2-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	ug/L				
	Sulfide		16.8 mg/L	ug/L	76	50	106	
4	<b>280-96591-K-3-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2000 U ug/L				
	Sulfide		0 mg/L	1900 U ug/L				
5	<b>280-96591-L-3-A MS</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	ug/L				
	Sulfide		13.2 mg/L	ug/L	60	50	106	
6	<b>280-96591-L-3-B MSD</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	ug/L				
	Sulfide		14 mg/L	ug/L	64	50	106	6 20
7	<b>280-96682-C-1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2000 U ug/L				
	Sulfide		0 mg/L	1900 U ug/L				

# TALS Raw Data Report

Job Number: 280-96750-1  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	MB 280-372881/1-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
2	LCS 280-372881/2-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	mg/L				
	Sulfide		16.8 mg/L	mg/L	76	50	106	
4	280-96591-K-3-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
5	280-96591-L-3-A MS	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	mg/L				
	Sulfide		13.2 mg/L	mg/L	60	50	106	
6	280-96591-L-3-B MSD	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	mg/L				
	Sulfide		14 mg/L	mg/L	64	50	106	6 20
8	280-96750-D-3-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
9	280-96750-D-4-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
10	280-96750-D-10-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
11	280-96750-D-11-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
12	280-96750-D-12-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				

# TALS Raw Data Report

Job Number: 280-96754-2  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	<b>MB 280-372881/1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	ug/L				
	Sulfide		0 mg/L	ug/L				
2	<b>LCS 280-372881/2-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	ug/L				
	Sulfide		16.8 mg/L	ug/L	76	50	106	
4	<b>280-96591-K-3-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	ug/L				
	Sulfide		0 mg/L	ug/L				
5	<b>280-96591-L-3-A MS</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	ug/L				
	Sulfide		13.2 mg/L	ug/L	60	50	106	
6	<b>280-96591-L-3-B MSD</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	ug/L				
	Sulfide		14 mg/L	ug/L	64	50	106	6 20
13	<b>280-96754-P-3-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	ug/L				
	Sulfide		0 mg/L	ug/L				



# TALS Raw Data Report

Job Number: 280-96757-1  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	<b>MB 280-372881/1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				
2	<b>LCS 280-372881/2-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	mg/L				
	Sulfide		16.8 mg/L	mg/L	76	50	106	
4	<b>280-96591-K-3-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				
5	<b>280-96591-L-3-A MS</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	mg/L				
	Sulfide		13.2 mg/L	mg/L	60	50	106	
6	<b>280-96591-L-3-B MSD</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	mg/L				
	Sulfide		14 mg/L	mg/L	64	50	106	6 20
14	<b>280-96757-R-1-A</b>	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				

# TALS Raw Data Report

Job Number: 280-96769-1  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	MB 280-372881/1-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				
2	LCS 280-372881/2-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	mg/L				
	Sulfide		16.8 mg/L	mg/L	76	50	106	
4	280-96591-K-3-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				
5	280-96591-L-3-A MS	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	mg/L				
	Sulfide		13.2 mg/L	mg/L	60	50	106	
6	280-96591-L-3-B MSD	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	mg/L				
	Sulfide		14 mg/L	mg/L	64	50	106	6 20
15	280-96769-L-1-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				
16	280-96769-L-3-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0.85 mg/L	mg/L				
	Sulfide		0.8 mg/L	mg/L				
17	280-96769-L-4-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				
18	280-96769-L-5-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	mg/L				
	Sulfide		0 mg/L	mg/L				

# TALS Raw Data Report

Job Number: 280-96885-1  
 LIMS Batch: 372887  
 Equipment: NOEQUIP

Laboratory: TestAmerica Denver

RS#	Lab ID	Inj Date	Dil	Meth				
1	MB 280-372881/1-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
2	LCS 280-372881/2-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		17.85 mg/L	mg/L				
	Sulfide		16.8 mg/L	mg/L	76	50	106	
4	280-96591-K-3-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
5	280-96591-L-3-A MS	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.025 mg/L	mg/L				
	Sulfide		13.2 mg/L	mg/L	60	50	106	
6	280-96591-L-3-B MSD	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		14.875 mg/L	mg/L				
	Sulfide		14 mg/L	mg/L	64	50	106	6 20
19	280-96885-C-4-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				
20	280-96885-C-7-A	5/9/2017 7:44:00PM	1.0	9034				
	Analyte	Rspnse	Raw Res/Units	Final Res/Qual/Units	% Rec	Rec Lmt	% RPD	RPD Lmt
	Sulfide as H2S		0 mg/L	2.0 U mg/L				
	Sulfide		0 mg/L	1.9 U mg/L				

# TALS Raw Data Report

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0002.d  
 Lims ID: std L1  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 12-Apr-2017 10:22:00 ALS Bottle#: 0 Worklist Smp#: 2  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-002  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:19:55 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

First Level Reviewer: bensona Date: 12-Apr-2017 12:42:11

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.526	-0.001	1303462	0.2000	0.2242	
2 Chloride	5.167	5.226	-0.059	4133608	1.00	1.31	
3 Nitrite as N	6.275	6.276	-0.001	1803144	0.2000	0.2136	
4 Bromide	8.109	8.092	0.017	367525	0.2000	0.1889	
5 Nitrate as N	9.600	9.476	0.124	1927006	0.2000	0.2106	
7 Orthophosphate as P	12.309	12.284	0.025	1643897	0.2000	0.2342	
6 Sulfate	14.850	14.792	0.058	3137652	1.00	1.20	

Reagents:

IC Cal low\_00282 Amount Added: 0.02 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 0.02 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0002.d

Injection Date: 12-Apr-2017 10:22:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L1

Worklist Smp#: 2

Client ID:

Injection Vol: 10.0 ul

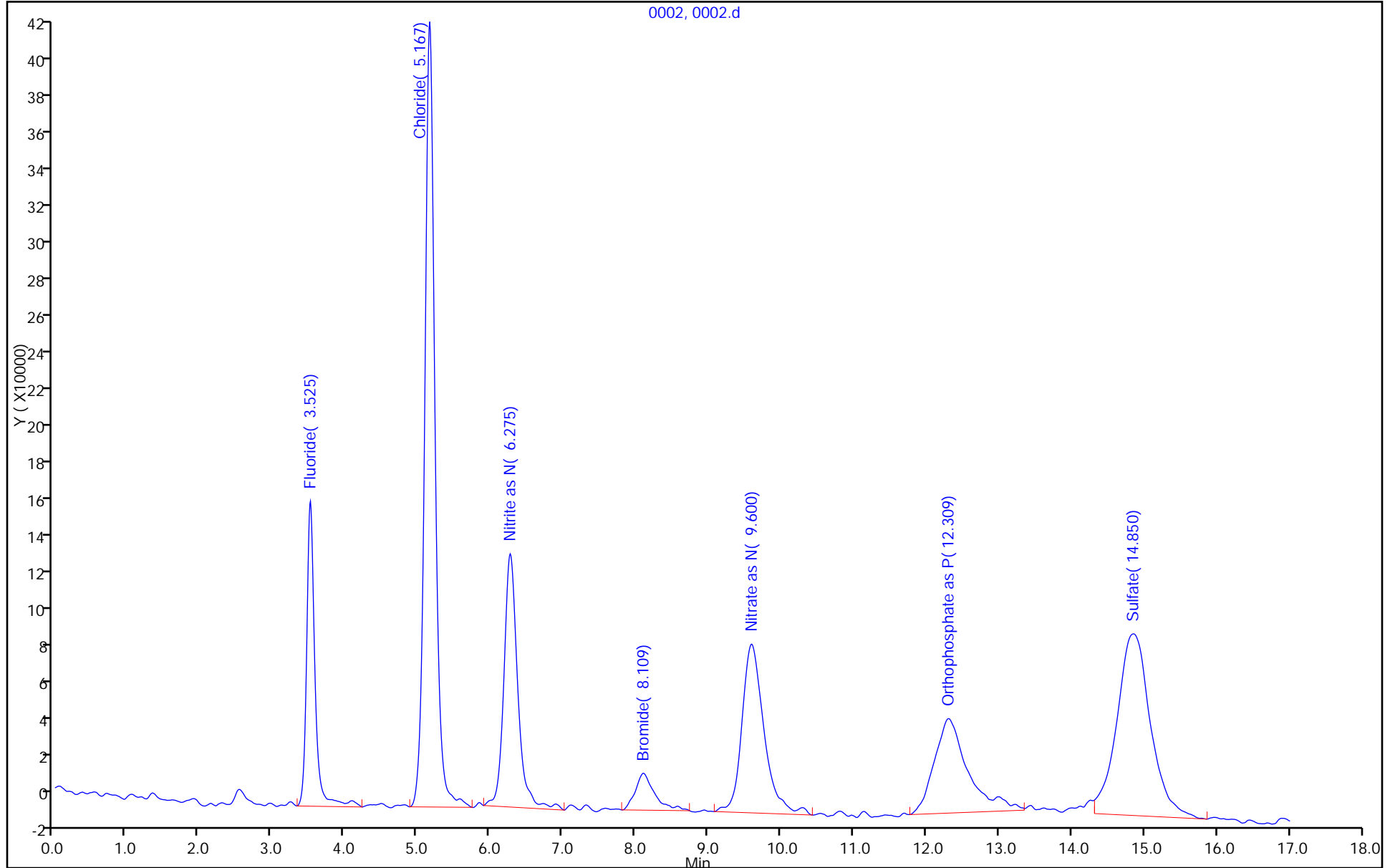
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions

0002, 0002.d



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0002.d  
 Lims ID: std L1  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 12-Apr-2017 10:22:00 ALS Bottle#: 0 Worklist Smp#: 2  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-002  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:19:55 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

First Level Reviewer: bensona Date: 12-Apr-2017 12:42:11

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.526	-0.001	1303462	0.2000	0.2242	
2 Chloride	5.167	5.226	-0.059	4133608	1.00	1.31	
3 Nitrite as N	6.275	6.276	-0.001	1803144	0.2000	0.2136	
4 Bromide	8.109	8.092	0.017	367525	0.2000	0.1889	
5 Nitrate as N	9.600	9.476	0.124	1927006	0.2000	0.2106	
7 Orthophosphate as P	12.309	12.284	0.025	1643897	0.2000	0.2342	
6 Sulfate	14.850	14.792	0.058	3137652	1.00	1.20	

Reagents:

IC Cal low\_00282 Amount Added: 0.02 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 0.02 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0002.d

Injection Date: 12-Apr-2017 10:22:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L1

Worklist Smp#: 2

Client ID:

Injection Vol: 10.0 ul

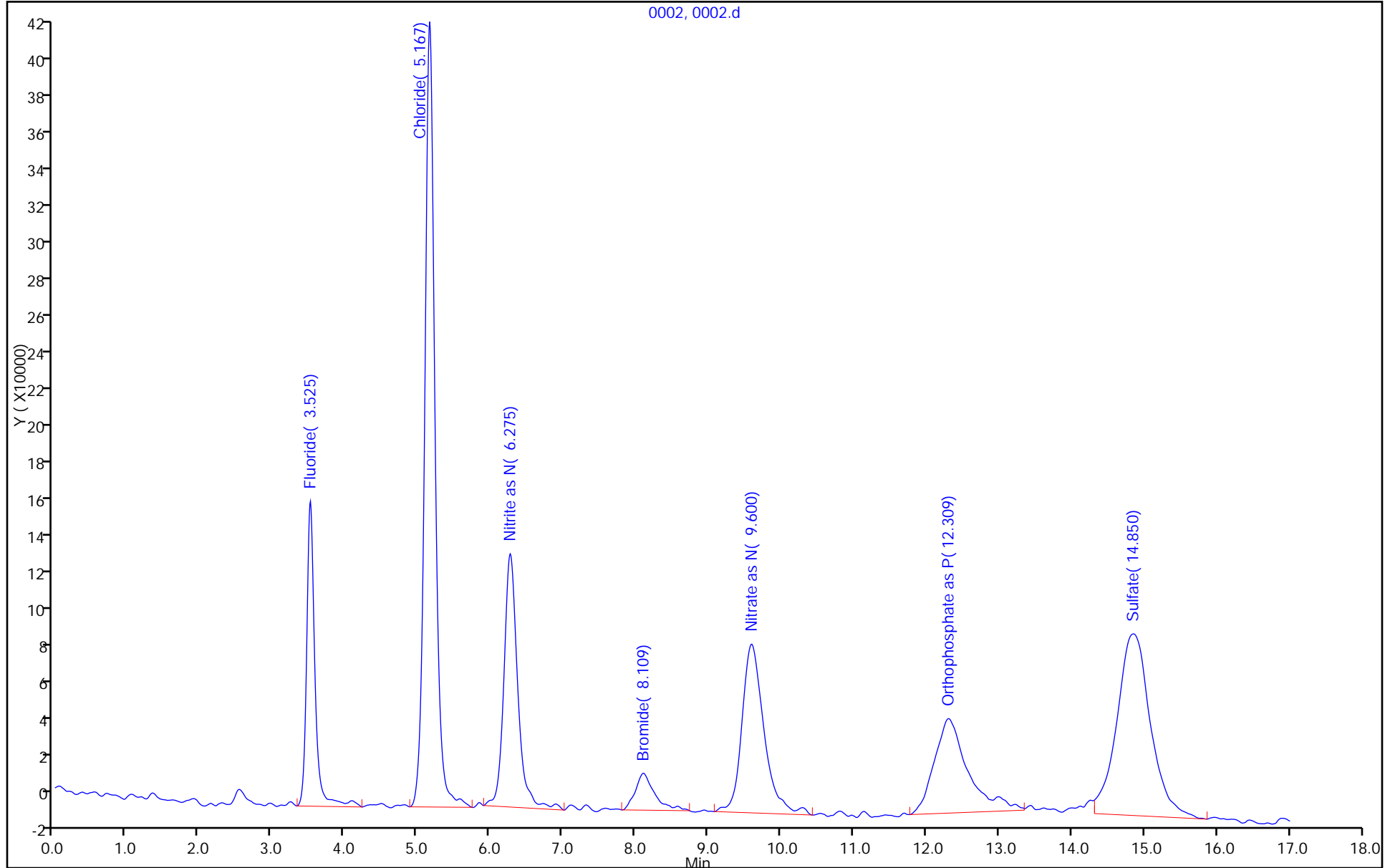
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D

0002, 0002.d





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0003.d  
 Lims ID: std L2  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 12-Apr-2017 10:41:00 ALS Bottle#: 0 Worklist Smp#: 3  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-003  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:19:56 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.526	3.526	0.000	3013588	0.5000	0.4706	
2 Chloride	5.167	5.226	-0.059	9693642	2.50	2.34	
3 Nitrite as N	6.267	6.276	-0.009	4367260	0.5000	0.4870	
4 Bromide	8.101	8.092	0.009	948074	0.5000	0.5243	
5 Nitrate as N	9.551	9.476	0.075	4921762	0.5000	0.4943	
7 Orthophosphate as P	12.309	12.284	0.025	2491680	0.5000	0.4442	
6 Sulfate	14.859	14.792	0.067	7147707	2.50	2.40	

Reagents:

IC Cal low\_00282 Amount Added: 0.05 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 0.05 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0003.d

Injection Date: 12-Apr-2017 10:41:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L2

Worklist Smp#: 3

Client ID:

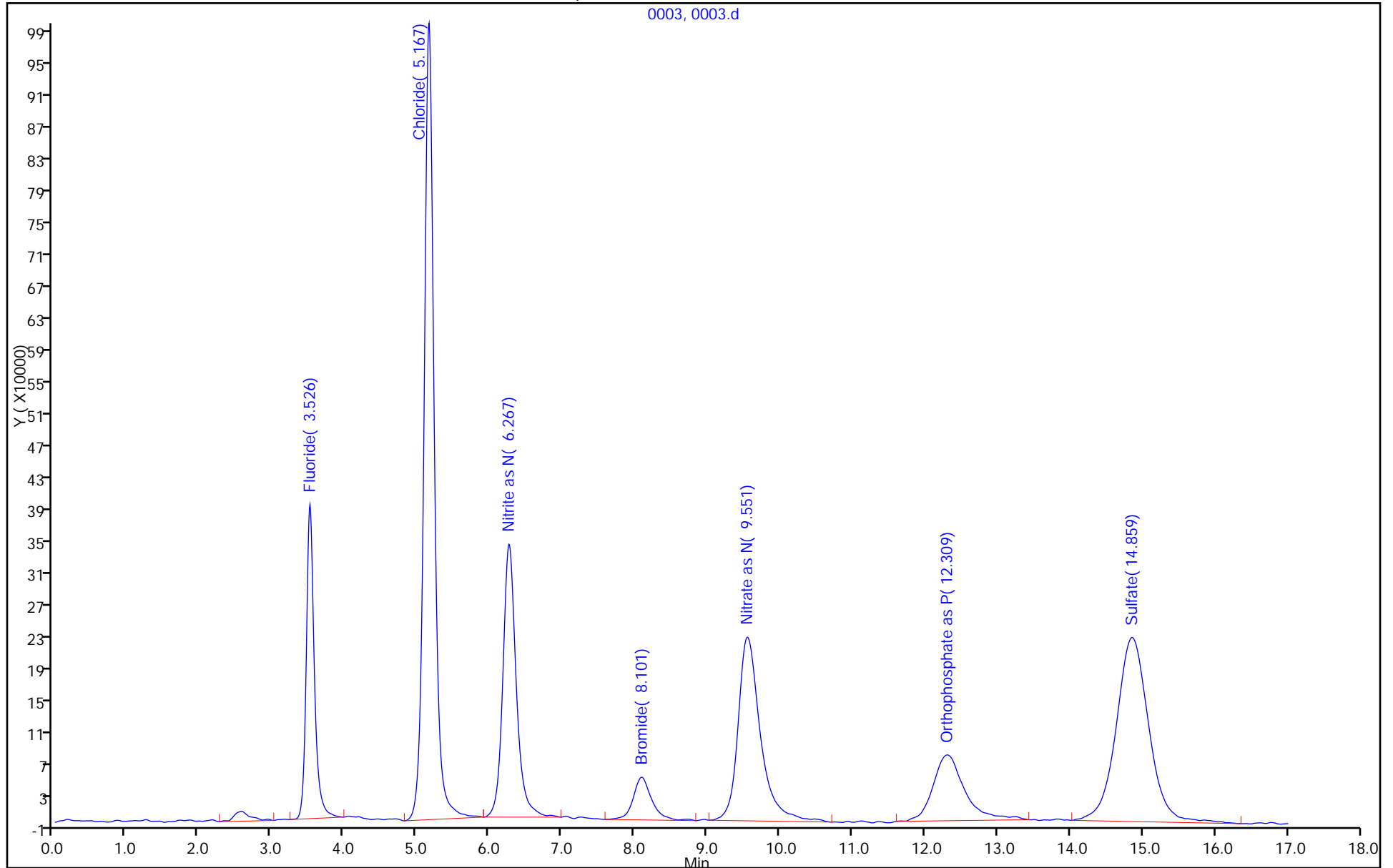
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0003.d  
 Lims ID: std L2  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 12-Apr-2017 10:41:00 ALS Bottle#: 0 Worklist Smp#: 3  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-003  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:19:56 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.526	3.526	0.000	3013588	0.5000	0.4706	
2 Chloride	5.167	5.226	-0.059	9693642	2.50	2.34	
3 Nitrite as N	6.267	6.276	-0.009	4367260	0.5000	0.4870	
4 Bromide	8.101	8.092	0.009	948074	0.5000	0.5243	
5 Nitrate as N	9.551	9.476	0.075	4921762	0.5000	0.4943	
7 Orthophosphate as P	12.309	12.284	0.025	2491680	0.5000	0.4442	
6 Sulfate	14.859	14.792	0.067	7147707	2.50	2.40	

Reagents:

IC Cal low\_00282 Amount Added: 0.05 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 0.05 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0003.d

Injection Date: 12-Apr-2017 10:41:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L2

Worklist Smp#: 3

Client ID:

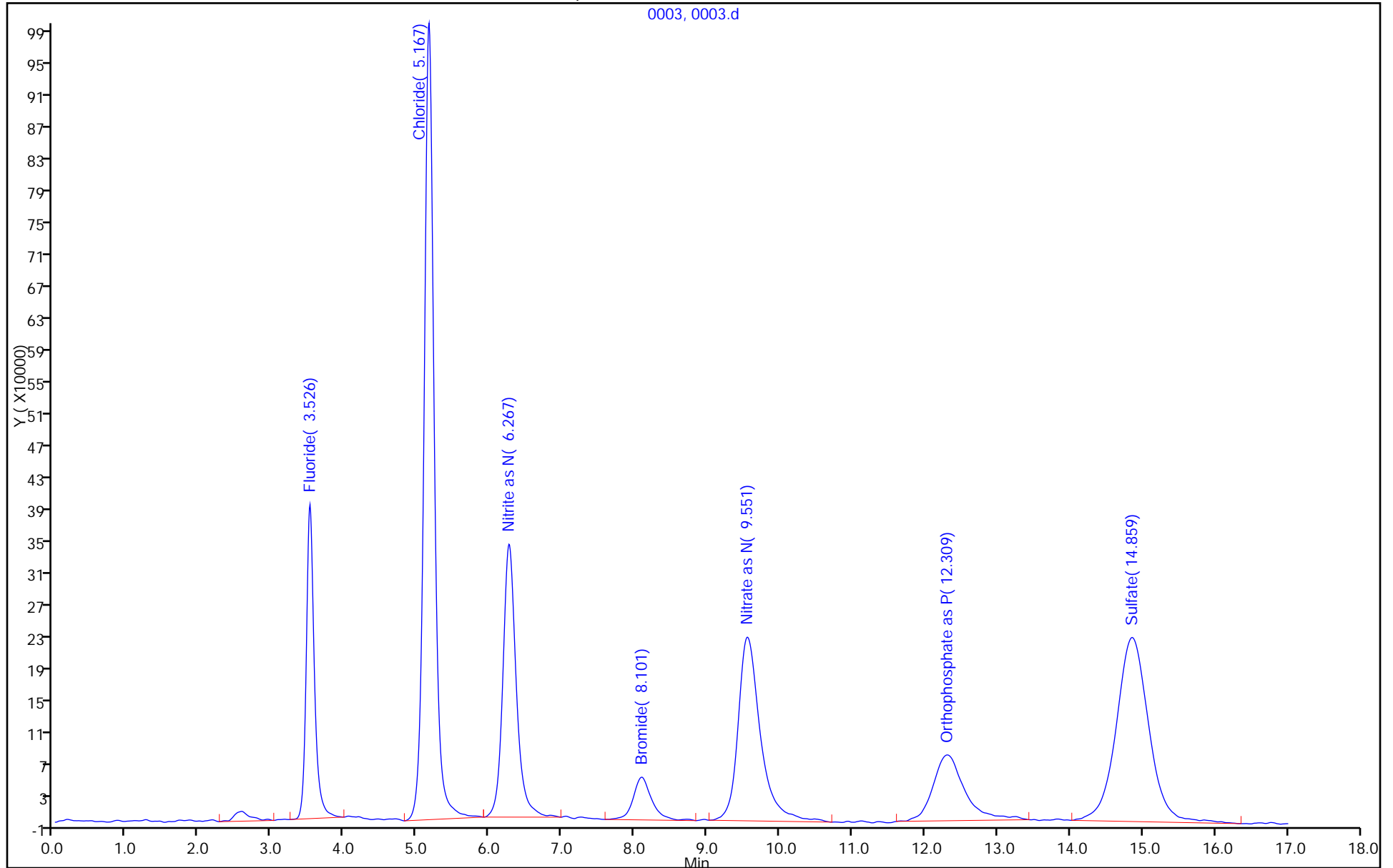
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0004.d  
 Lims ID: std L3  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 12-Apr-2017 11:01:00 ALS Bottle#: 0 Worklist Smp#: 4  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-004  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:19:58 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.526	3.526	0.000	6372226	1.00	0.9546	
2 Chloride	5.159	5.226	-0.067	19381551	5.00	4.14	
3 Nitrite as N	6.259	6.276	-0.017	8951404	1.00	0.9759	
4 Bromide	8.084	8.092	-0.008	1805661	1.00	1.02	
5 Nitrate as N	9.517	9.476	0.041	9997552	1.00	0.9751	
7 Orthophosphate as P	12.301	12.284	0.017	4517957	1.00	0.9459	
6 Sulfate	14.851	14.792	0.059	14126249	5.00	4.48	

Reagents:

IC Cal low\_00282 Amount Added: 0.10 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 0.10 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0004.d

Injection Date: 12-Apr-2017 11:01:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L3

Worklist Smp#: 4

Client ID:

Injection Vol: 10.0 ul

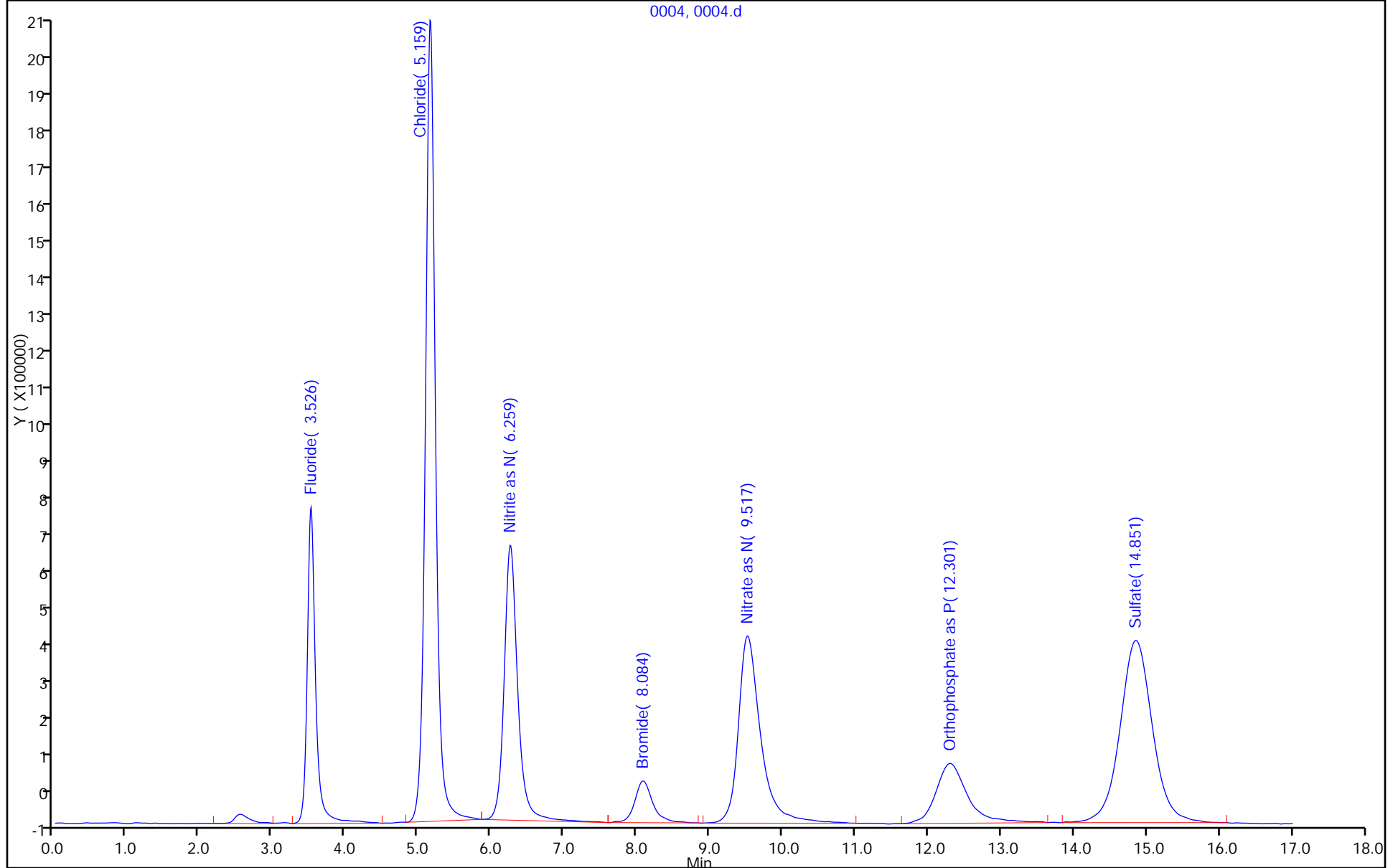
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions

0004, 0004.d



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0004.d  
 Lims ID: std L3  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 12-Apr-2017 11:01:00 ALS Bottle#: 0 Worklist Smp#: 4  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-004  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:19:58 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.526	3.526	0.000	6372226	1.00	0.9546	
2 Chloride	5.159	5.226	-0.067	19381551	5.00	4.14	
3 Nitrite as N	6.259	6.276	-0.017	8951404	1.00	0.9759	
4 Bromide	8.084	8.092	-0.008	1805661	1.00	1.02	
5 Nitrate as N	9.517	9.476	0.041	9997552	1.00	0.9751	
7 Orthophosphate as P	12.301	12.284	0.017	4517957	1.00	0.9459	
6 Sulfate	14.851	14.792	0.059	14126249	5.00	4.48	

Reagents:

IC Cal low\_00282 Amount Added: 0.10 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 0.10 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0004.d

Injection Date: 12-Apr-2017 11:01:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L3

Worklist Smp#: 4

Client ID:

Injection Vol: 10.0 ul

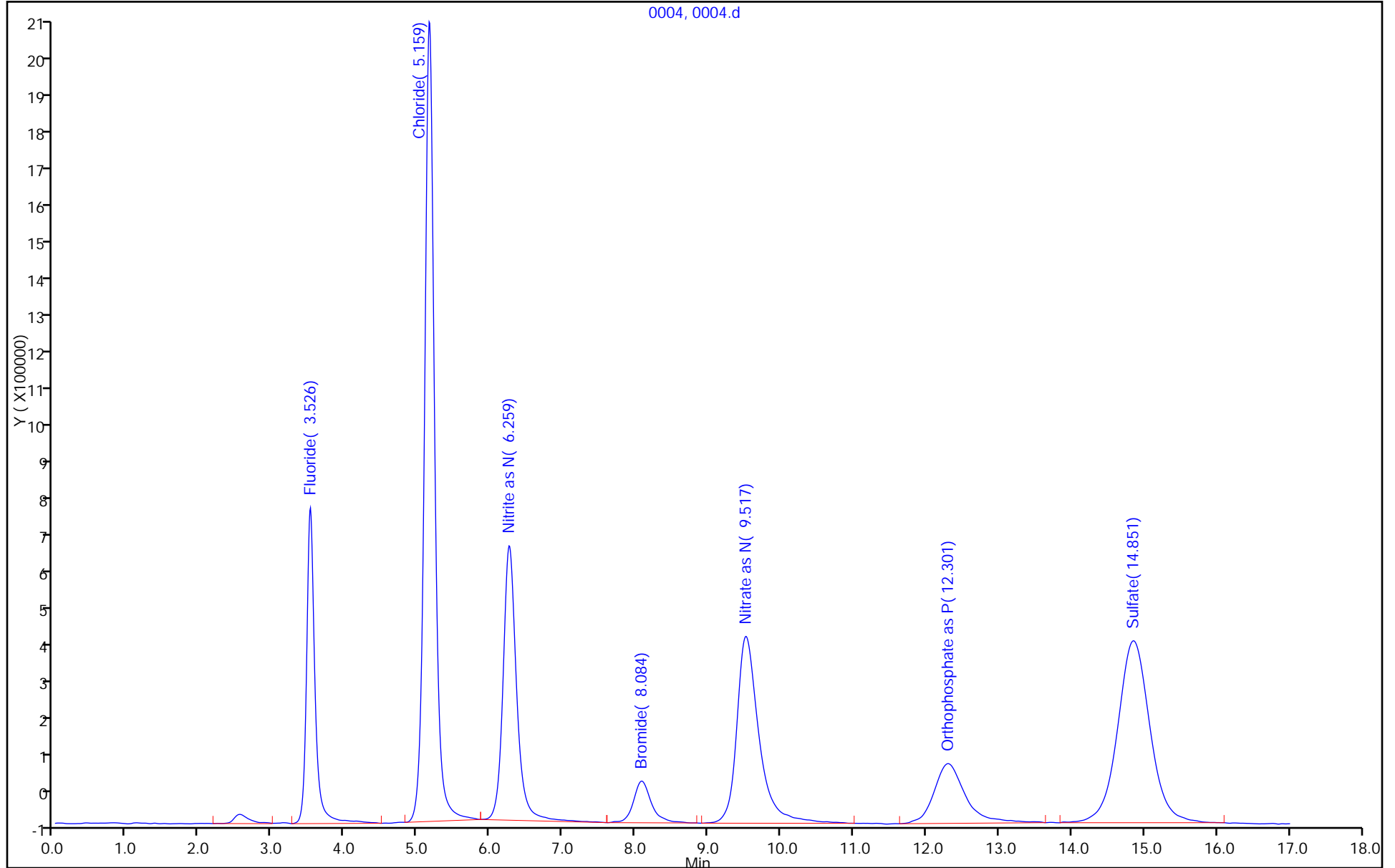
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D

0004, 0004.d





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0005.d  
 Lims ID: std L4  
 Client ID:  
 Sample Type: IC Calib Level: 4  
 Inject. Date: 12-Apr-2017 11:21:00 ALS Bottle#: 0 Worklist Smp#: 5  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-005  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:19:59 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.525	0.000	26492802	4.00	3.85	
2 Chloride	5.200	5.200	0.000	287764404	60.0	53.9	
3 Nitrite as N	6.267	6.267	0.000	35965236	4.00	3.86	
4 Bromide	8.092	8.092	0.000	6847689	4.00	3.93	
5 Nitrate as N	9.484	9.484	0.000	40579393	4.00	3.87	
7 Orthophosphate as P	12.284	12.284	0.000	16482473	4.00	3.91	
6 Sulfate	14.809	14.809	0.000	185894805	60.0	55.6	

Reagents:

IC Cal low\_00282 Amount Added: 0.40 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 1.20 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0005.d

Injection Date: 12-Apr-2017 11:21:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L4

Worklist Smp#: 5

Client ID:

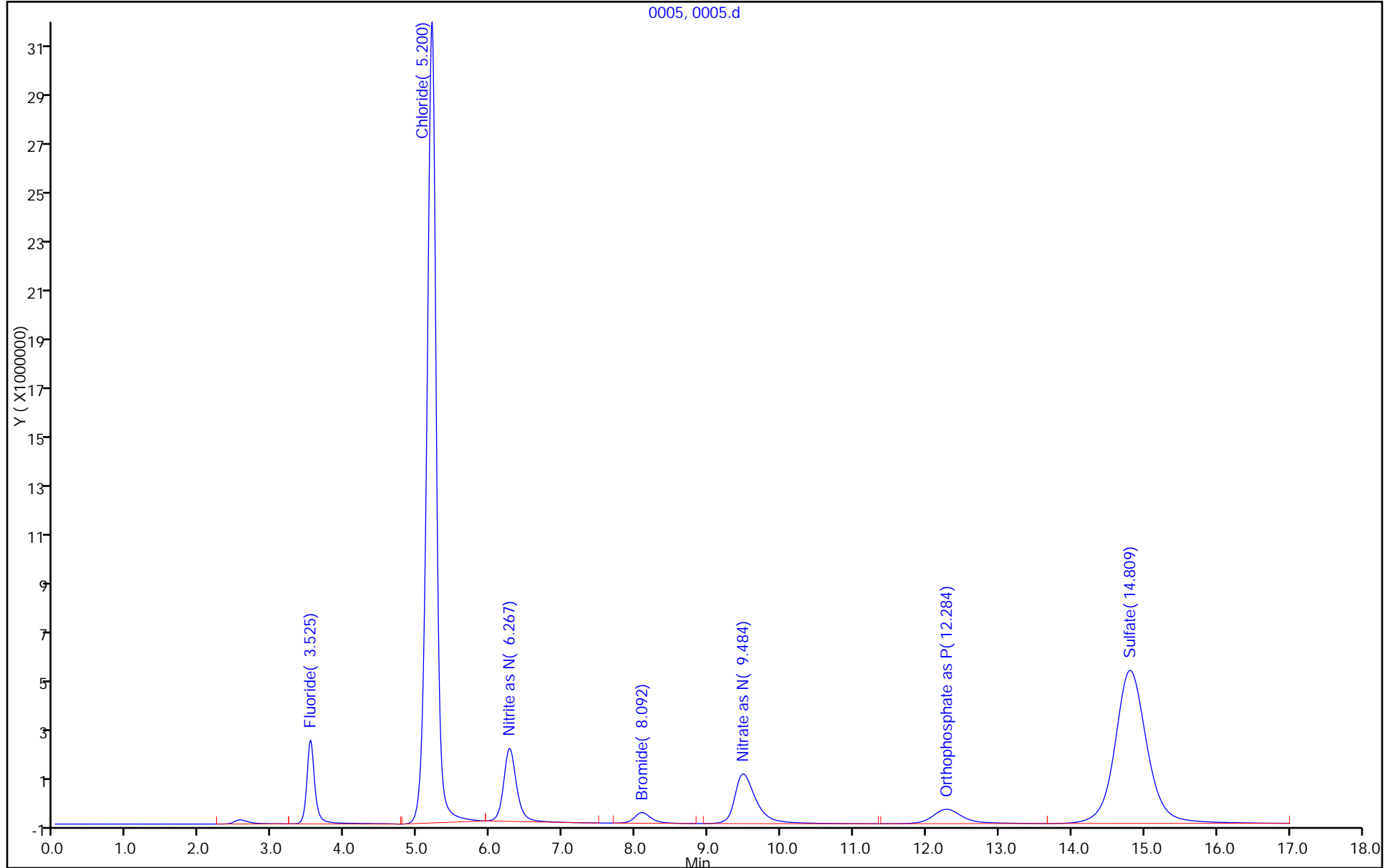
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0005.d  
 Lims ID: std L4  
 Client ID:  
 Sample Type: IC Calib Level: 4  
 Inject. Date: 12-Apr-2017 11:21:00 ALS Bottle#: 0 Worklist Smp#: 5  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-005  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:19:59 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.525	0.000	26492802	4.00	3.85	
2 Chloride	5.200	5.200	0.000	287764404	60.0	53.9	
3 Nitrite as N	6.267	6.267	0.000	35965236	4.00	3.86	
4 Bromide	8.092	8.092	0.000	6847689	4.00	3.93	
5 Nitrate as N	9.484	9.484	0.000	40579393	4.00	3.87	
7 Orthophosphate as P	12.284	12.284	0.000	16482473	4.00	3.91	
6 Sulfate	14.809	14.809	0.000	185894805	60.0	55.6	

Reagents:

IC Cal low\_00282 Amount Added: 0.40 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 1.20 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0005.d

Injection Date: 12-Apr-2017 11:21:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L4

Worklist Smp#: 5

Client ID:

Injection Vol: 10.0 ul

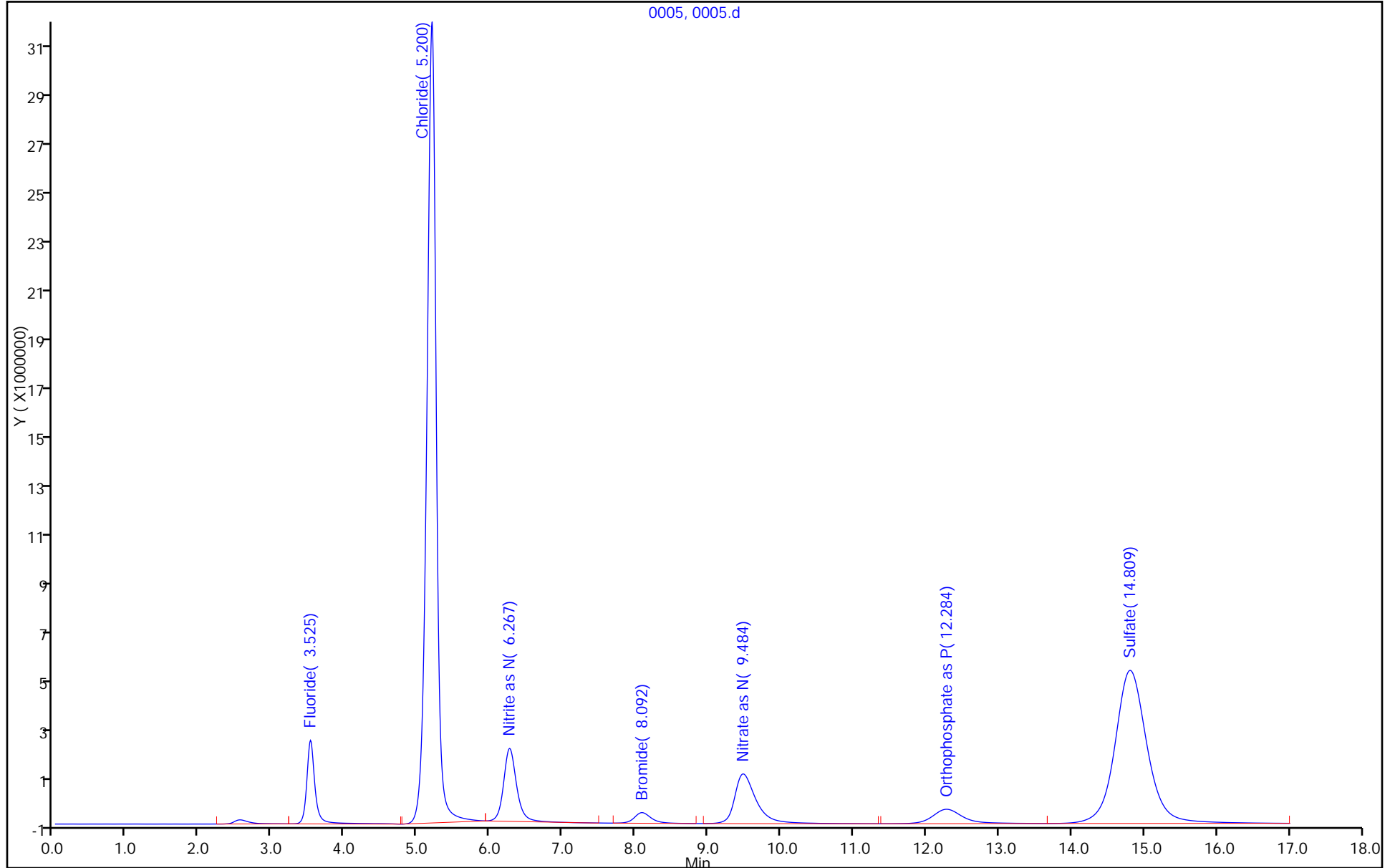
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D

0005, 0005.d



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0006.d  
 Lims ID: std L5  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 12-Apr-2017 11:41:00 ALS Bottle#: 0 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-006  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:20:00 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.525	0.000	55235366	8.00	7.99	
2 Chloride	5.234	5.200	0.034	633465679	120.0	118.0	
3 Nitrite as N	6.275	6.267	0.008	75247655	8.00	8.05	
4 Bromide	8.092	8.092	0.000	13920780	8.00	8.02	
5 Nitrate as N	9.450	9.484	-0.034	84396509	8.00	8.02	
7 Orthophosphate as P	12.259	12.284	-0.025	33138968	8.00	8.03	
6 Sulfate	14.767	14.809	-0.042	392395871	120.0	117.1	

Reagents:

IC Cal low\_00282 Amount Added: 0.80 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 2.40 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0006.d

Injection Date: 12-Apr-2017 11:41:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L5

Worklist Smp#: 6

Client ID:

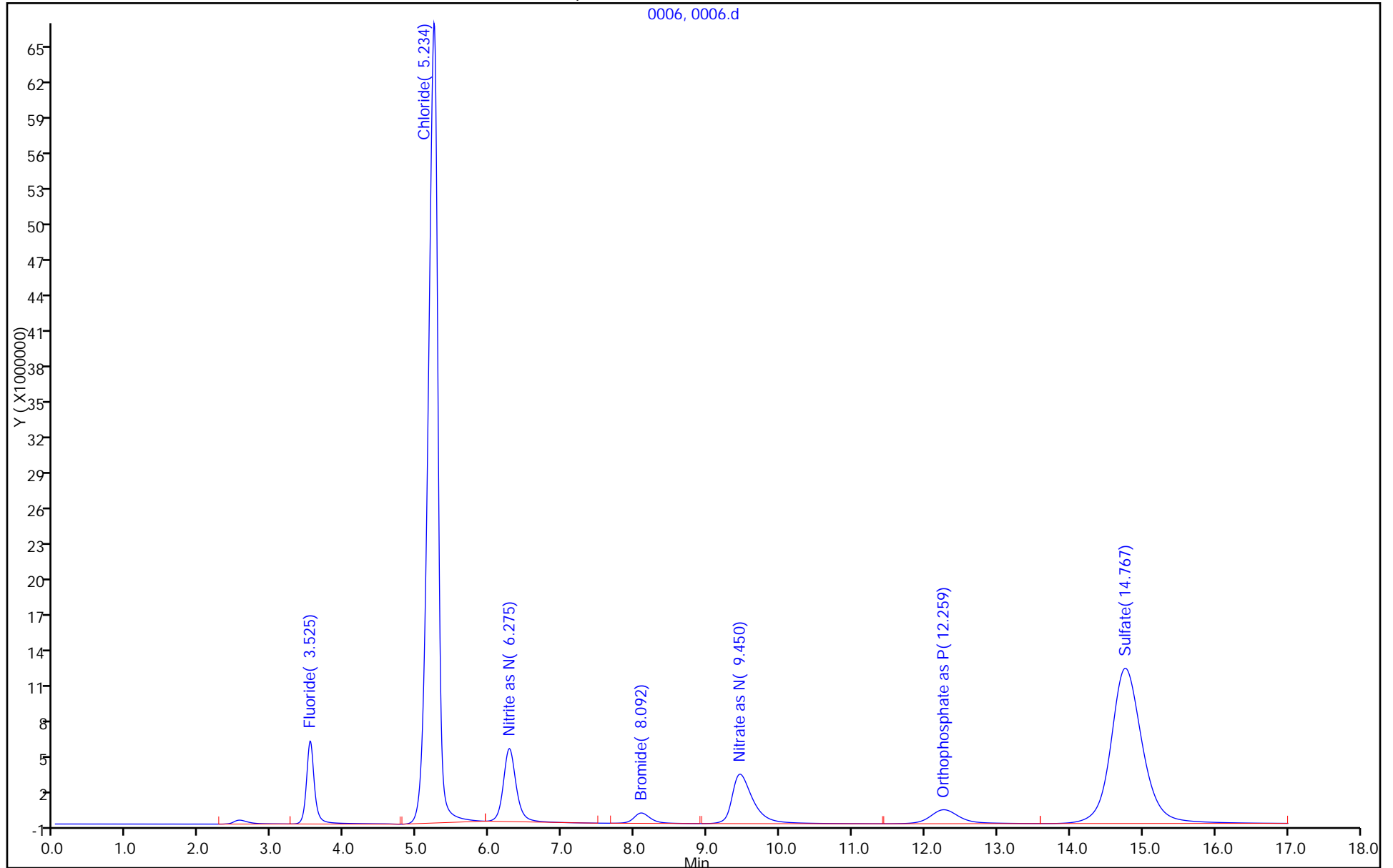
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0006.d  
 Lims ID: std L5  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 12-Apr-2017 11:41:00 ALS Bottle#: 0 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-006  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:20:00 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.525	0.000	55235366	8.00	7.99	
2 Chloride	5.234	5.200	0.034	633465679	120.0	118.0	
3 Nitrite as N	6.275	6.267	0.008	75247655	8.00	8.05	
4 Bromide	8.092	8.092	0.000	13920780	8.00	8.02	
5 Nitrate as N	9.450	9.484	-0.034	84396509	8.00	8.02	
7 Orthophosphate as P	12.259	12.284	-0.025	33138968	8.00	8.03	
6 Sulfate	14.767	14.809	-0.042	392395871	120.0	117.1	

Reagents:

IC Cal low\_00282 Amount Added: 0.80 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 2.40 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0006.d

Injection Date: 12-Apr-2017 11:41:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L5

Worklist Smp#: 6

Client ID:

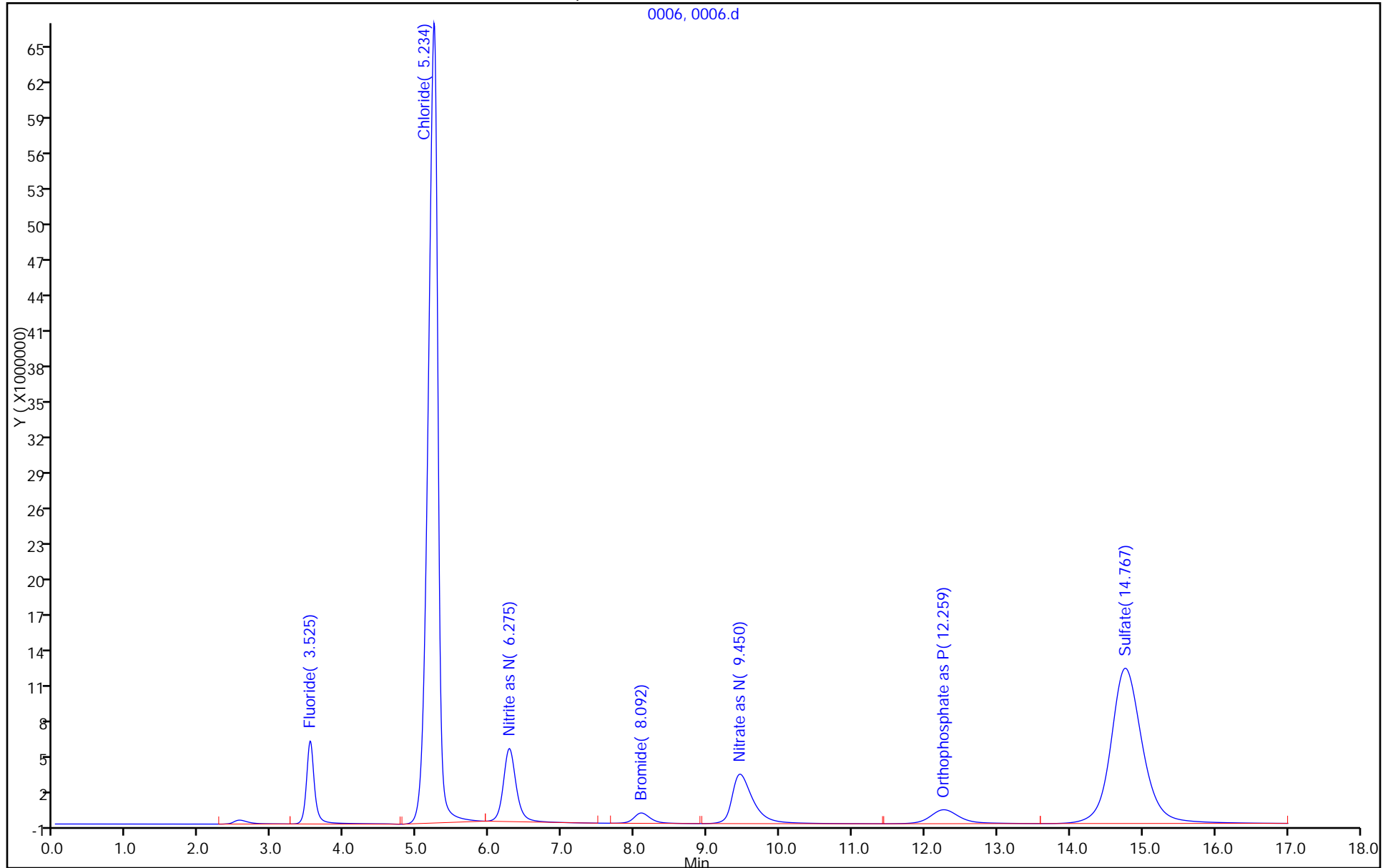
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Lims ID: std L6  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 12-Apr-2017 12:01:00 ALS Bottle#: 0 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-007  
 Misc. Info.: 29657  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:20:02 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.525	0.000	70556491	10.0	10.2	
2 Chloride	5.275	5.200	0.075	1123495009	200.0	208.8	
3 Nitrite as N	6.275	6.267	0.008	94691956	10.0	10.1	
4 Bromide	8.092	8.092	0.000	17376770	10.0	10.0	
5 Nitrate as N	9.442	9.484	-0.042	106577185	10.0	10.1	
7 Orthophosphate as P	12.250	12.284	-0.034	41616859	10.0	10.1	
6 Sulfate	14.709	14.809	-0.100	697189450	200.0	207.8	

Reagents:

IC Cal low\_00282 Amount Added: 1.00 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 4.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d

Injection Date: 12-Apr-2017 12:01:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L6

Worklist Smp#: 7

Client ID:

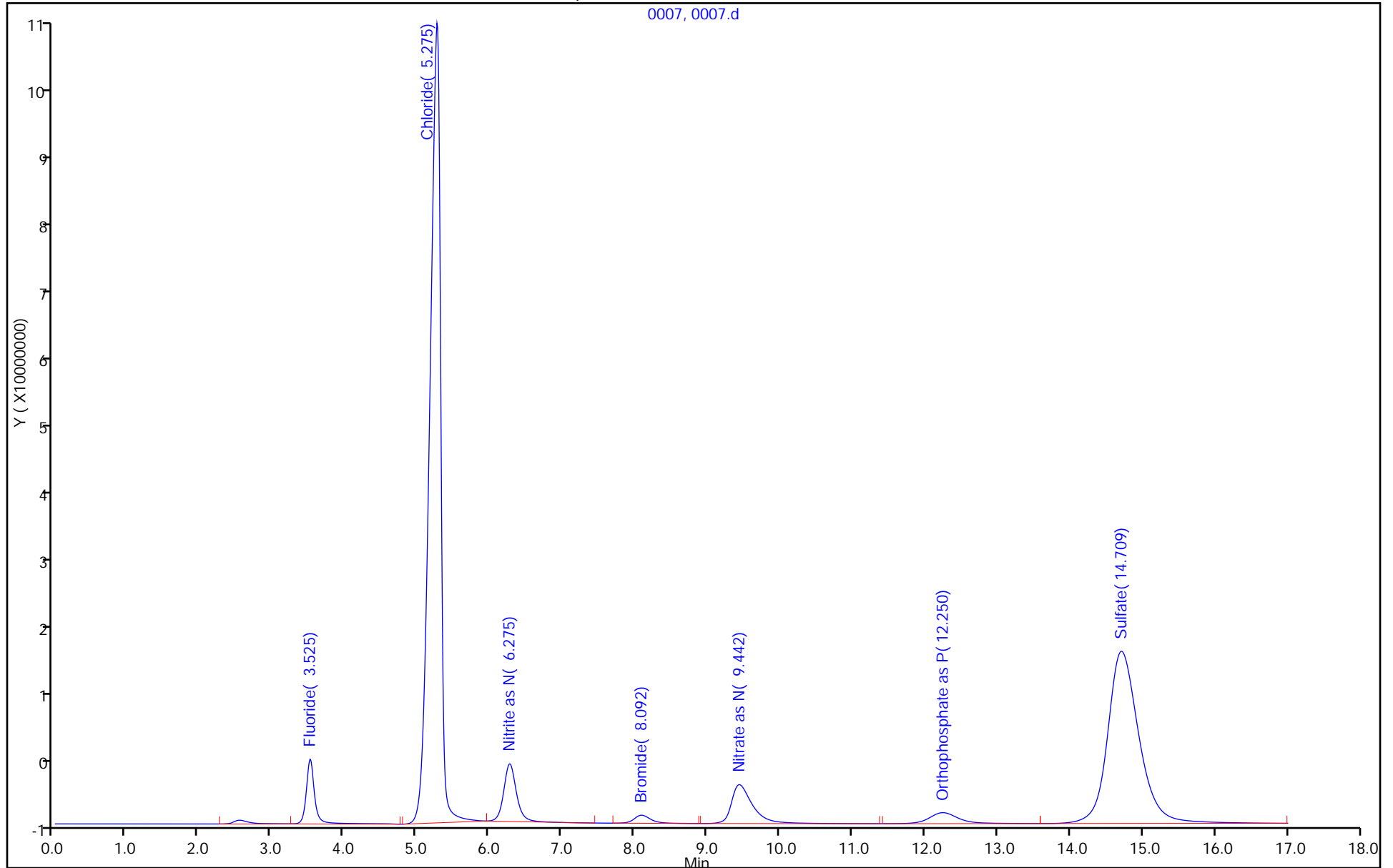
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Lims ID: std L6  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 12-Apr-2017 12:01:00 ALS Bottle#: 0 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-007  
 Misc. Info.: 29657  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:20:02 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.525	3.525	0.000	70556491	10.0	10.2	
2 Chloride	5.275	5.200	0.075	1123495009	200.0	208.8	
3 Nitrite as N	6.275	6.267	0.008	94691956	10.0	10.1	
4 Bromide	8.092	8.092	0.000	17376770	10.0	10.0	
5 Nitrate as N	9.442	9.484	-0.042	106577185	10.0	10.1	
7 Orthophosphate as P	12.250	12.284	-0.034	41616859	10.0	10.1	
6 Sulfate	14.709	14.809	-0.100	697189450	200.0	207.8	

Reagents:

IC Cal low\_00282 Amount Added: 1.00 Units: mL  
 IC CAL cl/so4\_00145 Amount Added: 4.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d

Injection Date: 12-Apr-2017 12:01:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: std L6

Worklist Smp#: 7

Client ID:

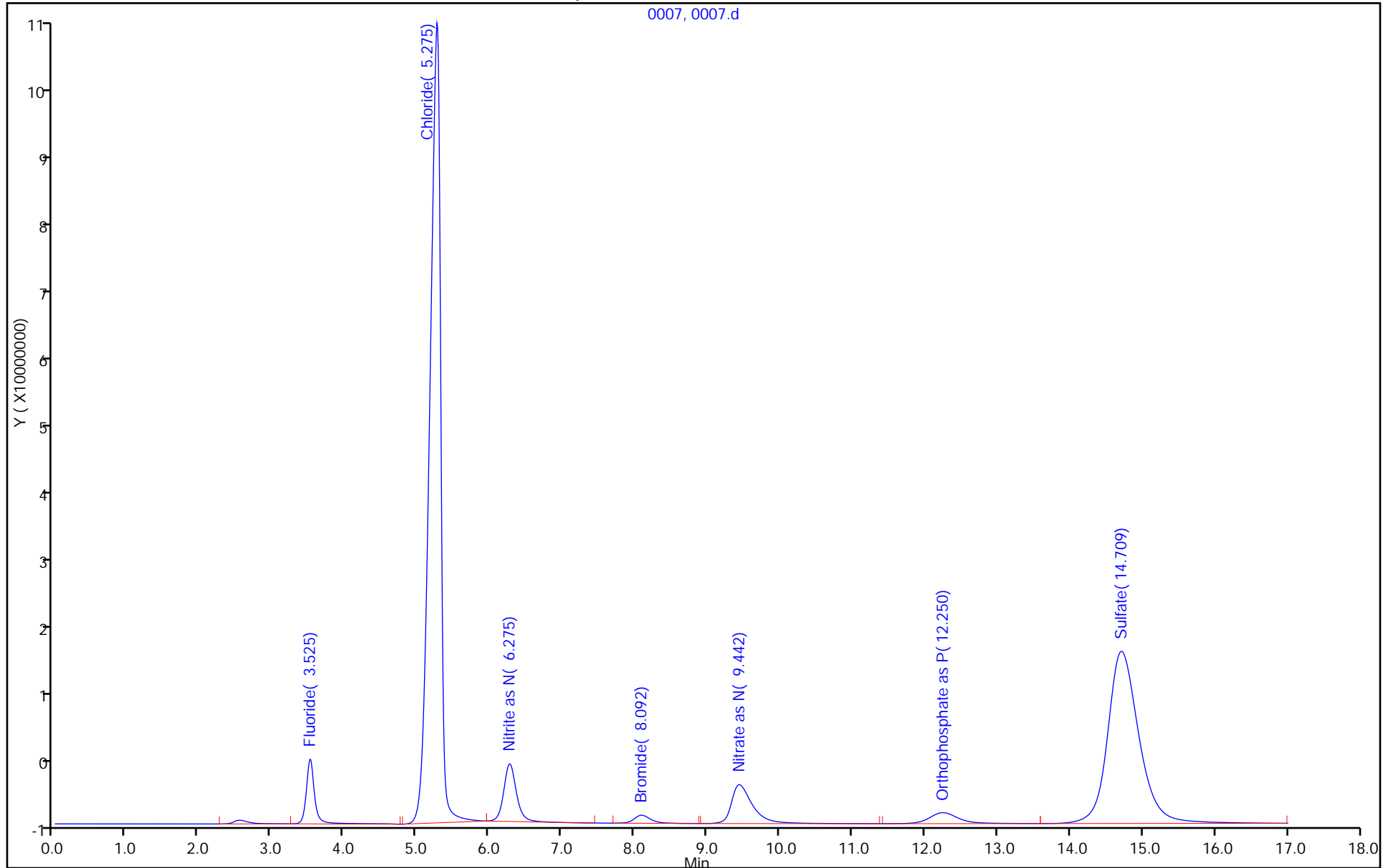
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



IC Instrument Information

WL: 57469 Inst ID: 11 Analysis Date: 04/12/17 Analyst: TP

Rush	Job No.	Samples	Anions	QC Req	HT Exp
9056A	<input type="checkbox"/> 95611	1 soil	F Cl NO2 Br NO3 PO4 SO4	MS/D 2	
9056A-DSDS	<input type="checkbox"/> 95375	19 "	F Cl NO2 Br NO3 PO4 SO4	MS/D	23 31 client
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	

Dilutions

Job No.	Samples	Anions	Dilution	Reason
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		

TestAmerica Laboratories  
Initial Calibration Summary Report

Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Instrument: WC\_IonChrom11 Lims Location: 280  
 Lock State: Unlocked Cpnd Order: Retention Time  
 Integrator: Falcon Last Modified: 13-Apr-2017 11:20:31  
 No.Compounds:7

Initial Calibration Batches

Ical Batch: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b  
 Inj Date : 12-Apr-2017 10:22:00, Sublist: chrom-Anions\_IC11\*sub1

Detector 1: 0005

Compound	Wet - Anions				Wet - Anions 28D			
	b	M1	M2	Err	b	M1	M2	Err
1 Fluoride	-252910	694056E		0.999	-252910	694056E		0.999
2 Chloride	-293484	539393E		0.996	-293484	539393E		0.996
3 Nitrite as N	-199541	937653E		1.000	-199541	937653E		1.000
4 Bromide	40528	173094E		1.000	40528	173094E		1.000
5 Nitrate as N	-295815	105558E		1.000	-295815	105558E		1.000
7 Orthophosphate as P	698159	403809E		0.999	698159	403809E		0.999
6 Sulfate	-910279	335998E		0.998	-910279	335998E		0.998

TestAmerica Denver

**Ion Chromatography Data Review Checklist**

LIMS Batch Number: 369033/34	Worklist #: 57469	Instrument ID:
Analyst/1 <sup>st</sup> Reviewer/Date: TP/TP/04/13/17	Method (circle): 300.0 9056 9056A DV-WC-0077	QC Type (circle) Standard DOD Q4 DoD Q5 QAPP Other
Matrix (circle): Water Solid Leachate		

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
<b>A. Calibration/Instrument Run QC</b>					
1. Verify intermediate standards for correct concentration stated in SOP (ICAL pts at correct concentration)	✓				
2. Calibrated with at least 5 standards & a blank	✓				
3. Elution order of analytes in ICAL confirmed to be correct	✓				
4. Linearity and intercept: $r \geq 0.995$ ( $r^2 > 0.99$ ) & $ x\text{-intercept}  < \frac{1}{2} \text{RL}$ (absolute value)	✓				
5. ICV, second source: run before samples 90-110% recovery / 80-120% recovery (Hydrazine)	✓				
6. CCV: 10% frequency & closing 90-110% recovery / 80-120% recovery (Hydrazine)	✓				
7. ICB/CCB: run before samples, 10% freq. & closing	✓				
8. Result < 1/2 RL	✓				
9. RL-level check standard (Anions) run before samples 50-150% Recovery	✓				
10. RT Window set based on midpoint of ICAL or initial CCV?	✓				
<b>B. Client Sample and QC Sample Results</b>					
11. Samples with results > linear range diluted and reanalyzed?			✓		Comments:
12. Manual integrations done & documented appropriately? (before & after chruns, date, initial, & reason)			✓		Comments:
<b>C. Preparation/Matrix QC</b>					
13. If samples are lab filtered are QC samples also filtered?	✓				
14. Method Blank: one per preparation batch Result < 1/2 RL If no, list blank ID & explain:	✓				<input type="checkbox"/> No analyte > RL in associated samples <input type="checkbox"/> Sample results >10x blank <input type="checkbox"/> Insufficient sample for reanalysis
15. LCS: one per preparation batch 90-110% recovery (routine) / Lab limits (Hydrazine) If no, list LCS ID & explain:	✓				<input type="checkbox"/> Insufficient sample for reanalysis <input type="checkbox"/> LCS %R > QC limits & samples < RL
16. Matrix Retention Time Spike: one per sample (Hydrazine) MS/MSD freq.: a pair per 20 samples (Hydrazine) MS/MSD and Dup freq.: a pair per 10 samples (Anions) If no, list QC ID & explain:	✓				<input type="checkbox"/> Insufficient sample

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
17. MS/MSD recovery & RPD: 80-120% recovery (Anions) Lab limits (Hydrazine) 20% RPD <i>If no, list MS or MSD ID &amp; explain:</i>	✓				<input type="checkbox"/> LCS acceptable – matrix effects <input type="checkbox"/> Native analyte > 4x spike level <input type="checkbox"/> Matrix effect <u>and</u> native analyte > 4x spike
<b>D. Raw Data &amp; TALS Data Entry</b>					
18. Raw Data					
a. Unused data is clearly identified (with reason)	✓				
b. All cross outs are initialed and dated	✓				
c. Out of control QC is clearly identified	✓				
d. Any data that has a qualifier is commented on with appropriate action taken	✓				
e. The first page of the run includes the filename, instrument, and analyst initials/signature	✓				
19. Run Log					
a. Unused data is clearly identified	✓				
b. All cross outs are initialed and dated	✓				
c. Analyst initials/signature provided	✓				
20. TALS Samples Tab					
a. LIMS Sample IDs / Containers are correct	✓				
b. Method and matrix are correct	✓				
c. Date and time match raw data	✓				
d. Dilutions are correct	✓				
e. Correct suffix designated (where applicable)	✓				
21. TALS Worksheet Tab is complete and correct	✓				
22. TALS Reagent Tab is complete and correct	✓				
23. TALS QC Links Tab is correct	✓				
24. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted	✓				
b. All reported analytes are marked Primary or Secondary	✓				
25. TALS Batch Information Screen documentation is complete	✓				
26. TALS Status set to appropriate review level	✓				
<b>E. Final Report and NCMs (2<sup>nd</sup> level review only)</b>					
27. Were all job/project requirements met?					
28. Results for samples and QC correct on final report?					
29. Are all necessary scanned documents in TALS?					
30. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?					

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2<sup>nd</sup> Reviewer: \_\_\_\_\_ Review Date: \_\_\_\_\_



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0008.d  
 Lims ID: ICV  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 12-Apr-2017 12:56:00 ALS Bottle#: 0 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-008  
 Misc. Info.: 30159  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist:  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:20:03 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.526	3.526	0.000	27237551	4.00	3.96	
2 Chloride	5.217	5.217	0.000	437497702	80.0	81.7	
3 Nitrite as N	6.276	6.276	0.000	35146546	4.00	3.77	
4 Bromide	8.101	8.101	0.000	6822101	4.00	3.92	
5 Nitrate as N	9.492	9.492	0.000	40503487	4.00	3.87	
7 Orthophosphate as P	12.267	12.267	0.000	17039534	4.00	4.05	
6 Sulfate	14.784	14.784	0.000	269566357	80.0	80.5	

Reagents:

IC ICV 5\_00170 Amount Added: 0.40 Units: mL  
 IC SO4 ICV\_00016 Amount Added: 0.40 Units: mL  
 IC CL ICV\_00013 Amount Added: 0.40 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0008.d

Injection Date: 12-Apr-2017 12:56:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ICV

Worklist Smp#: 8

Client ID:

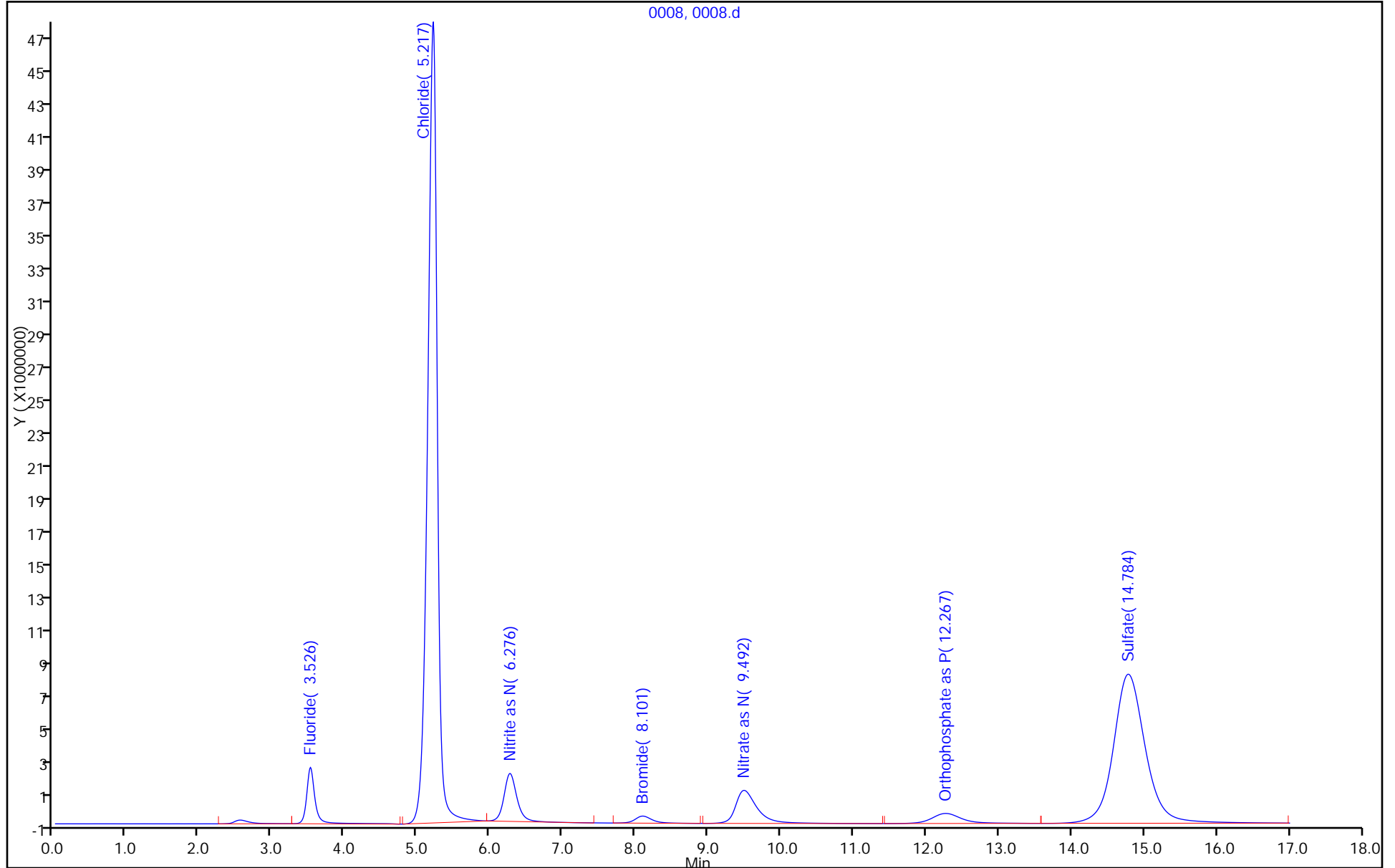
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



### IC Instrument Information

WL: 57469 Inst ID: 11 Analysis Date: 04/12/17 Analyst: TP

Rush	Job No.	Samples	Anions	QC Req	HT Exp
9056A	<input type="checkbox"/> 95611	1 soil	F Cl NO2 Br NO3 PO4 SO4	MS/D 2	
9056A-DSDS	<input type="checkbox"/> 95375	19 "	F Cl NO2 Br NO3 PO4 SO4	MS/D	23 31 client
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	
	<input type="checkbox"/>		F Cl NO2 Br NO3 PO4 SO4	MS/D	

### Dilutions

Job No.	Samples	Anions	Dilution	Reason
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		

TestAmerica Laboratories  
Initial Calibration Summary Report

Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Instrument: WC\_IonChrom11 Lims Location: 280  
 Lock State: Unlocked Cpnd Order: Retention Time  
 Integrator: Falcon Last Modified: 13-Apr-2017 11:20:31  
 No.Compounds:7

Initial Calibration Batches

Ical Batch: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b  
 Inj Date : 12-Apr-2017 10:22:00, Sublist: chrom-Anions\_IC11\*sub1

Detector 1: 0005

Compound	Wet - Anions				Wet - Anions 28D			
	b	M1	M2	Err	b	M1	M2	Err
1 Fluoride	-252910	694056E		0.999	-252910	694056E		0.999
2 Chloride	-293484	539393E		0.996	-293484	539393E		0.996
3 Nitrite as N	-199541	937653E		1.000	-199541	937653E		1.000
4 Bromide	40528	173094E		1.000	40528	173094E		1.000
5 Nitrate as N	-295815	105558E		1.000	-295815	105558E		1.000
7 Orthophosphate as P	698159	403809E		0.999	698159	403809E		0.999
6 Sulfate	-910279	335998E		0.998	-910279	335998E		0.998

TestAmerica Denver

**Ion Chromatography Data Review Checklist**

LIMS Batch Number: 369033/34	Worklist #: 57469	Instrument ID:
Analyst/1 <sup>st</sup> Reviewer/Date: TP/TP/04/13/17	Method (circle): 300.0 9056 9056A DV-WC-0077	QC Type (circle) Standard DOD Q4 DoD Q5 QAPP Other
Matrix (circle): Water Solid Leachate		

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
<b>A. Calibration/Instrument Run QC</b>					
1. Verify intermediate standards for correct concentration stated in SOP (ICAL pts at correct concentration)	✓				
2. Calibrated with at least 5 standards & a blank	✓				
3. Elution order of analytes in ICAL confirmed to be correct	✓				
4. Linearity and intercept: $r \geq 0.995$ ( $r^2 > 0.99$ ) & $ x\text{-intercept}  < \frac{1}{2} \text{RL}$ (absolute value)	✓				
5. ICV, second source: run before samples 90-110% recovery / 80-120% recovery (Hydrazine)	✓				
6. CCV: 10% frequency & closing 90-110% recovery / 80-120% recovery (Hydrazine)	✓				
7. ICB/CCB: run before samples, 10% freq. & closing	✓				
8. Result < 1/2 RL	✓				
9. RL-level check standard (Anions) run before samples 50-150% Recovery	✓				
10. RT Window set based on midpoint of ICAL or initial CCV?	✓				
<b>B. Client Sample and QC Sample Results</b>					
11. Samples with results > linear range diluted and reanalyzed?			✓		Comments:
12. Manual integrations done & documented appropriately? (before & after chruns, date, initial, & reason)			✓		Comments:
<b>C. Preparation/Matrix QC</b>					
13. If samples are lab filtered are QC samples also filtered?	✓				
14. Method Blank: one per preparation batch Result < 1/2 RL If no, list blank ID & explain:	✓				<input type="checkbox"/> No analyte > RL in associated samples <input type="checkbox"/> Sample results >10x blank <input type="checkbox"/> Insufficient sample for reanalysis
15. LCS: one per preparation batch 90-110% recovery (routine) / Lab limits (Hydrazine) If no, list LCS ID & explain:	✓				<input type="checkbox"/> Insufficient sample for reanalysis <input type="checkbox"/> LCS %R > QC limits & samples < RL
16. Matrix Retention Time Spike: one per sample (Hydrazine) MS/MSD freq.: a pair per 20 samples (Hydrazine) MS/MSD and Dup freq.: a pair per 10 samples (Anions) If no, list QC ID & explain:	✓				<input type="checkbox"/> Insufficient sample

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
17. MS/MSD recovery & RPD: 80-120% recovery (Anions) Lab limits (Hydrazine) 20% RPD <i>If no, list MS or MSD ID &amp; explain:</i>	✓				<input type="checkbox"/> LCS acceptable – matrix effects <input type="checkbox"/> Native analyte > 4x spike level <input type="checkbox"/> Matrix effect <u>and</u> native analyte > 4x spike
<b>D. Raw Data &amp; TALS Data Entry</b>					
18. Raw Data					
a. Unused data is clearly identified (with reason)	✓				
b. All cross outs are initialed and dated	✓				
c. Out of control QC is clearly identified	✓				
d. Any data that has a qualifier is commented on with appropriate action taken	✓				
e. The first page of the run includes the filename, instrument, and analyst initials/signature	✓				
19. Run Log					
a. Unused data is clearly identified	✓				
b. All cross outs are initialed and dated	✓				
c. Analyst initials/signature provided	✓				
20. TALS Samples Tab					
a. LIMS Sample IDs / Containers are correct	✓				
b. Method and matrix are correct	✓				
c. Date and time match raw data	✓				
d. Dilutions are correct	✓				
e. Correct suffix designated (where applicable)	✓				
21. TALS Worksheet Tab is complete and correct	✓				
22. TALS Reagent Tab is complete and correct	✓				
23. TALS QC Links Tab is correct	✓				
24. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted	✓				
b. All reported analytes are marked Primary or Secondary	✓				
25. TALS Batch Information Screen documentation is complete	✓				
26. TALS Status set to appropriate review level	✓				
<b>E. Final Report and NCMs (2<sup>nd</sup> level review only)</b>					
27. Were all job/project requirements met?					
28. Results for samples and QC correct on final report?					
29. Are all necessary scanned documents in TALS?					
30. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?					

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2<sup>nd</sup> Reviewer: \_\_\_\_\_ Review Date: \_\_\_\_\_

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0008.d  
 Lims ID: ICV  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 12-Apr-2017 12:56:00 ALS Bottle#: 0 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-008  
 Misc. Info.: 30159  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist:  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:20:03 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.526	3.526	0.000	27237551	4.00	3.96	
2 Chloride	5.217	5.217	0.000	437497702	80.0	81.7	
3 Nitrite as N	6.276	6.276	0.000	35146546	4.00	3.77	
4 Bromide	8.101	8.101	0.000	6822101	4.00	3.92	
5 Nitrate as N	9.492	9.492	0.000	40503487	4.00	3.87	
7 Orthophosphate as P	12.267	12.267	0.000	17039534	4.00	4.05	
6 Sulfate	14.784	14.784	0.000	269566357	80.0	80.5	

Reagents:

IC ICV 5\_00170 Amount Added: 0.40 Units: mL  
 IC SO4 ICV\_00016 Amount Added: 0.40 Units: mL  
 IC CL ICV\_00013 Amount Added: 0.40 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0008.d

Injection Date: 12-Apr-2017 12:56:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ICV

Worklist Smp#: 8

Client ID:

Injection Vol: 10.0 ul

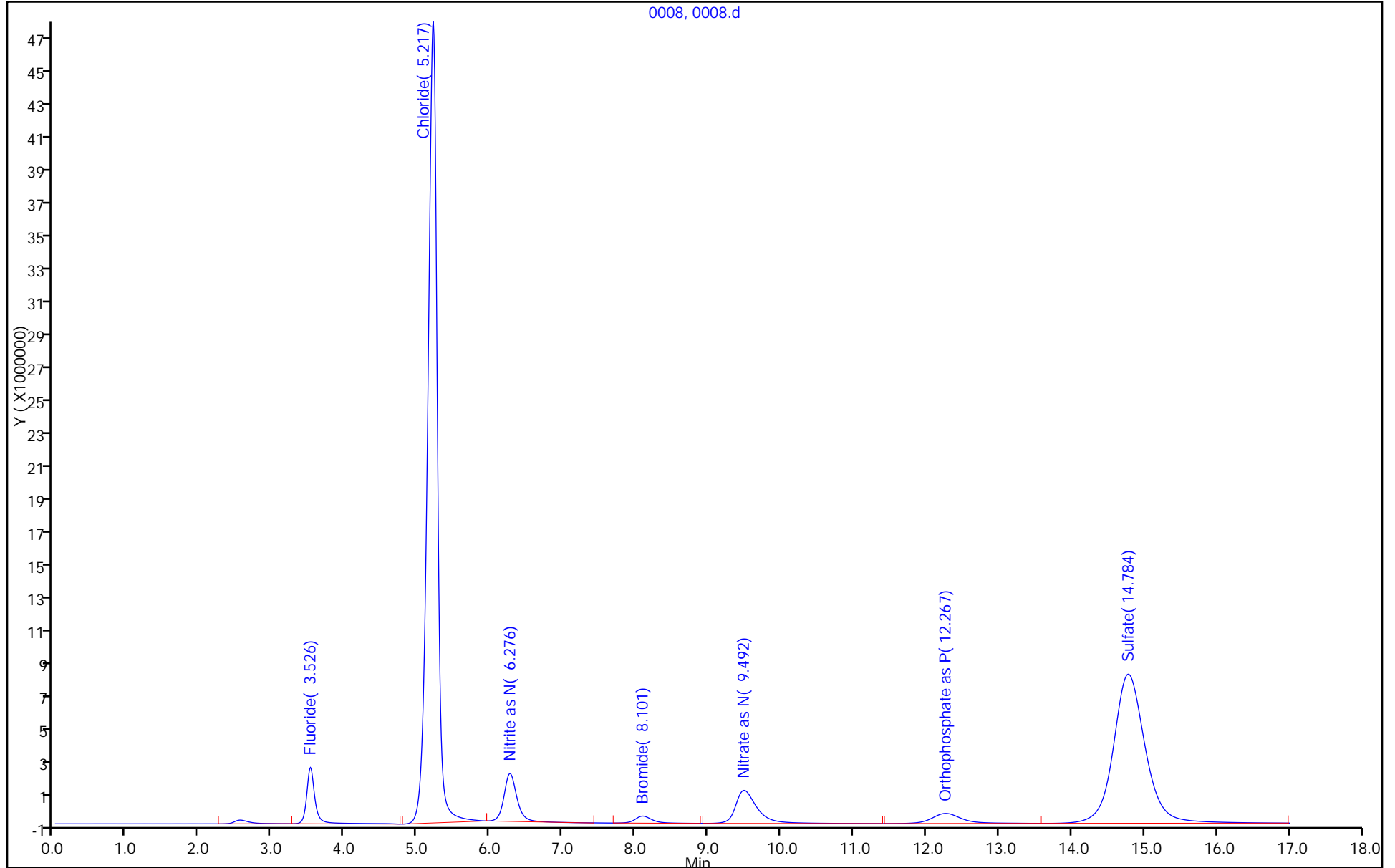
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D

0008, 0008.d





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0009.d  
 Lims ID: ICB  
 Client ID:  
 Sample Type: ICB  
 Inject. Date: 12-Apr-2017 13:15:00 ALS Bottle#: 0 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-009  
 Misc. Info.: 9711  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 13-Apr-2017 11:20:03 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride		3.526				ND	
2 Chloride	5.159	5.217	-0.058	283752		0.5967	
3 Nitrite as N		6.276				ND	
4 Bromide		8.101				ND	
5 Nitrate as N		9.492				ND	
7 Orthophosphate as P	12.292	12.267	0.025	797356		0.0246	
6 Sulfate	14.817	14.784	0.033	137505		0.3118	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0009.d

Injection Date: 12-Apr-2017 13:15:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ICB

Worklist Smp#: 9

Client ID:

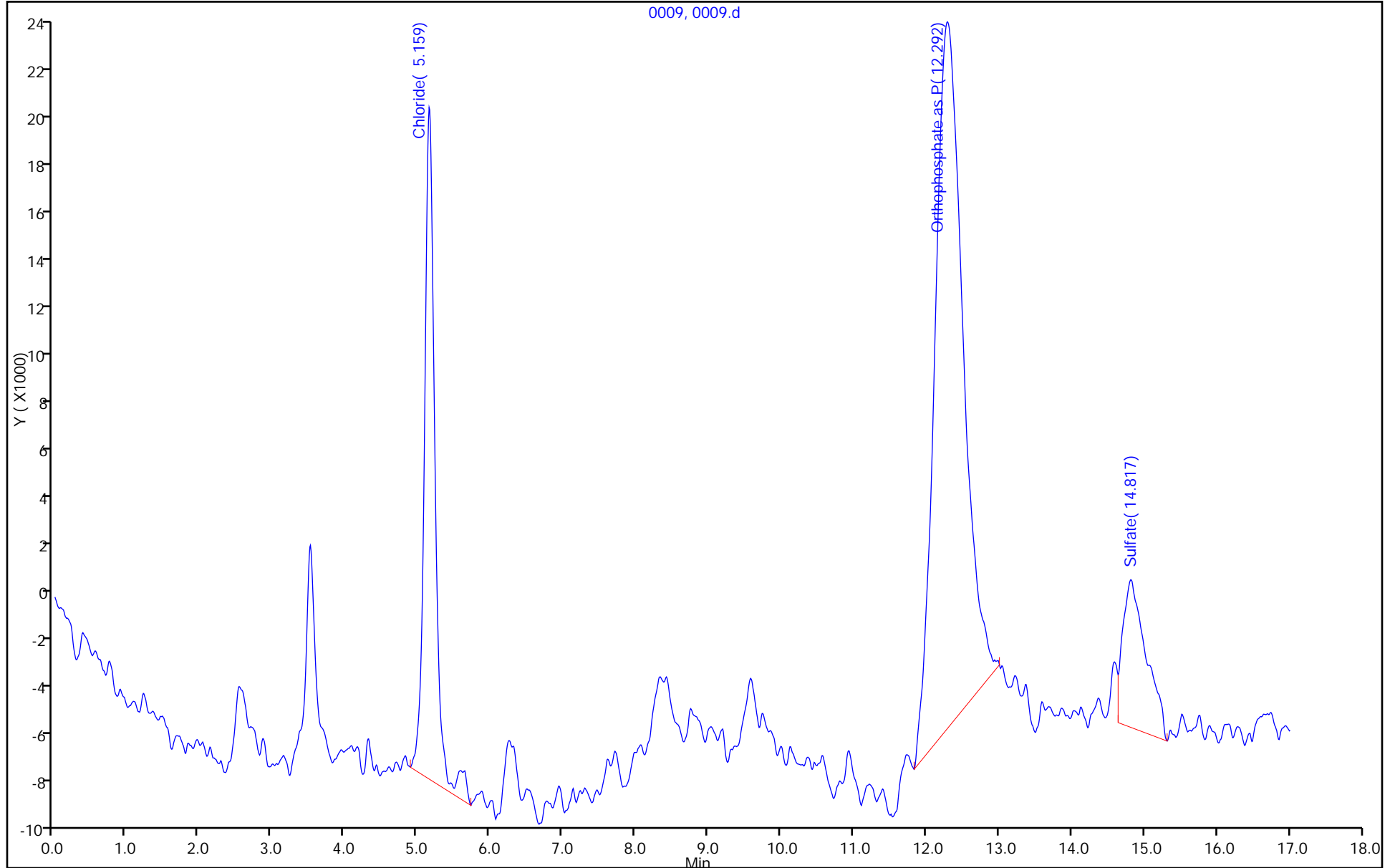
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0009.d  
 Lims ID: ICB  
 Client ID:  
 Sample Type: ICB  
 Inject. Date: 12-Apr-2017 13:15:00 ALS Bottle#: 0 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0057469-009  
 Misc. Info.: 9711  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 13-Apr-2017 11:20:03 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK005

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride		3.526				ND	
2 Chloride	5.159	5.217	-0.058	283752		0.5967	
3 Nitrite as N		6.276				ND	
4 Bromide		8.101				ND	
5 Nitrate as N		9.492				ND	
7 Orthophosphate as P	12.292	12.267	0.025	797356		0.0246	
6 Sulfate	14.817	14.784	0.033	137505		0.3118	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0009.d

Injection Date: 12-Apr-2017 13:15:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ICB

Worklist Smp#: 9

Client ID:

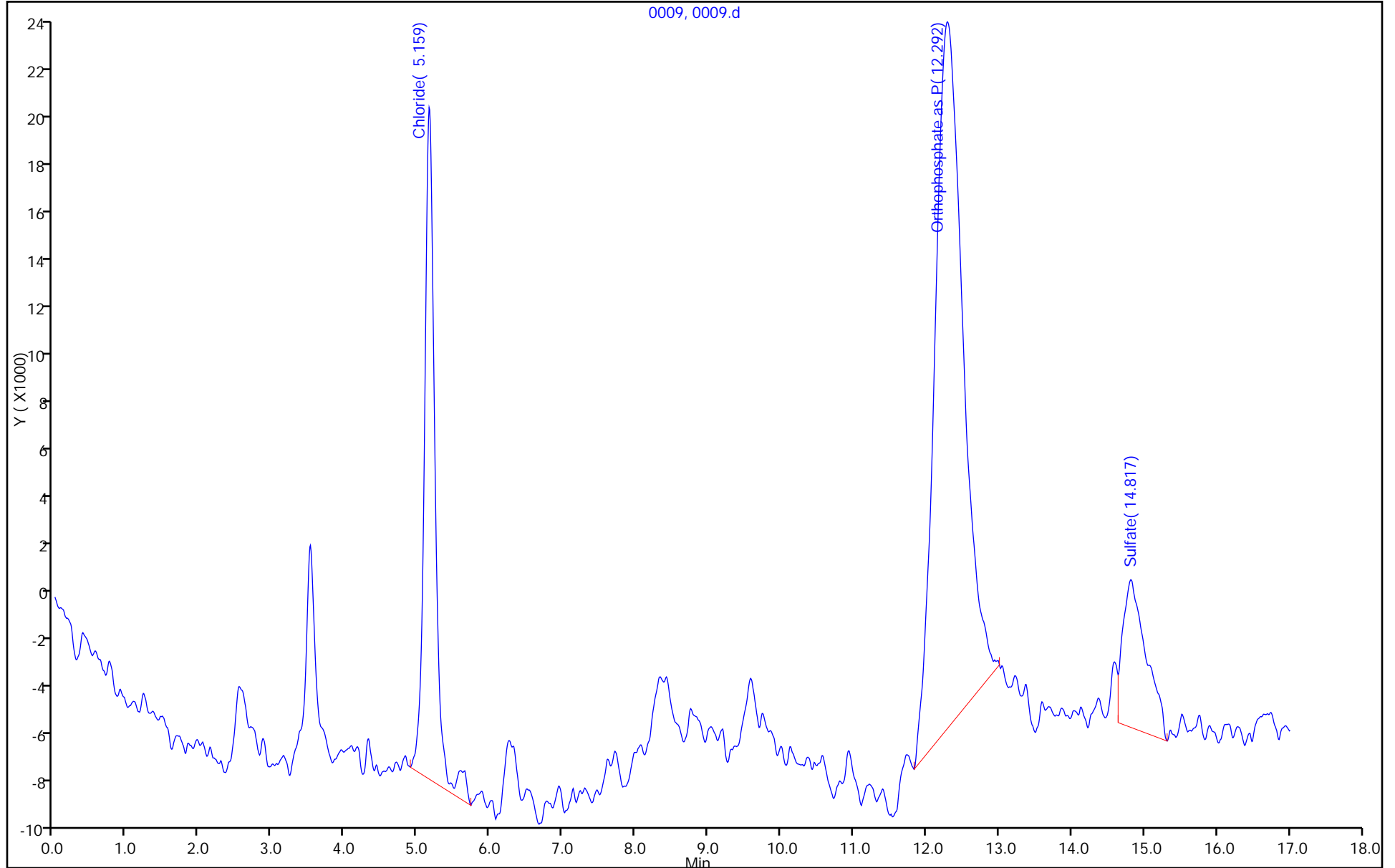
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



**Ion Chromatography Data Review Checklist**

LIMS Batch Number: <u>372161-62</u>	Worklist #: <u>58203</u>	Instrument ID: <u>IC11</u>
Analyst/1 <sup>st</sup> Reviewer/Date: <u>AB-TP/AB 5-5-17</u>	Method (circle): <u>900.D</u> 9056 <u>9056A</u> DV-WC-0077	QC Type (circle): <u>Standard</u> <del>DOD QA</del> <del>DoD QS</del> QAPP Other <u>Q3</u>
Matrix (circle): <u>Water</u> Solid Leachate		

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
<b>A. Calibration/Instrument Run QC</b>					
1. Verify intermediate standards for correct concentration stated in SOP (ICAL pts at correct concentration)	✓			✓	
2. Calibrated with at least 5 standards & a blank	✓			✓	
3. Elution order of analytes in ICAL confirmed to be correct	✓			✓	
4. Linearity and intercept: $r \geq 0.995$ ( $r^2 > 0.99$ ) & $ x\text{-intercept}  < \frac{1}{2} \text{RL}$ (absolute value)	✓			✓	
5. ICV, second source: run before samples 90-110% recovery / 80-120% recovery (Hydrazine)	✓			✓	
6. CCV: 10% frequency & closing 90-110% recovery / 80-120% recovery (Hydrazine)	✓			✓	
7. ICB/CCB: run before samples, 10% freq. & closing	✓			✓	
8. Result $< \frac{1}{2} \text{RL}$	✓			✓	
9. RL-level check standard (Anions) run before samples 50-150% Recovery	✓			✓	
10. RT Window set based on midpoint of ICAL or initial CCV?	✓			✓	
<b>B. Client Sample and QC Sample Results</b>					
11. Samples with results > linear range diluted and reanalyzed?	✓			✓	Comments:
12. Manual integrations done & documented appropriately? (before & after chruns, date, initial, & reason)	✓			✓	Comments:
<b>C. Preparation/Matrix QC</b>					
13. If samples are lab filtered are QC samples also filtered?	✓			✓	
14. Method Blank: one per preparation batch Result $< \frac{1}{2} \text{RL}$ If no, list blank ID & explain:	✓			✓	<input type="checkbox"/> No analyte > RL in associated samples <input type="checkbox"/> Sample results >10x blank <input type="checkbox"/> Insufficient sample for reanalysis
15. LCS: one per preparation batch 90-110% recovery (routine) / Lab limits (Hydrazine) If no, list LCS ID & explain:	✓			✓	<input type="checkbox"/> Insufficient sample for reanalysis <input type="checkbox"/> LCS %R > QC limits & samples < RL
16. Matrix Retention Time Spike: one per sample (Hydrazine) MS/MSD freq.: a pair per 20 samples (Hydrazine) MS/MSD and Dup freq.: a pair per 10 samples (Anions) If no, list QC ID & explain:	✓			✓	<input type="checkbox"/> Insufficient sample

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
17. MS/MSD recovery & RPD: 80-120% recovery (Anions) Lab limits (Hydrazine) 20% RPD If no, list MS or MSD ID & explain:	✓			✓	<input type="checkbox"/> LCS acceptable – matrix effects <input type="checkbox"/> Native analyte > 4x spike level <input type="checkbox"/> Matrix effect and native analyte > 4x spike  NCM 340384, 340385, 340397, 340393.
<b>D. Raw Data &amp; TALS Data Entry</b>					
18. Raw Data					
a. Unused data is clearly identified (with reason)	✓			✓	
b. All cross outs are initialed and dated	✓			✓	
c. Out of control QC is clearly identified	✓			✓	
d. Any data that has a qualifier is commented on with appropriate action taken	✓			✓	
e. The first page of the run includes the filename, instrument, and analyst initials/signature	✓			✓	
19. Run Log					
a. Unused data is clearly identified	✓			✓	
b. All cross outs are initialed and dated	✓			✓	
c. Analyst initials/signature provided	✓			✓	
20. TALS Samples Tab					
a. LIMS Sample IDs / Containers are correct	✓			✓	
b. Method and matrix are correct	✓			✓	
c. Date and time match raw data	✓			✓	
d. Dilutions are correct	✓			✓	
e. Correct suffix designated (where applicable)	✓			✓	
21. TALS Worksheet Tab is complete and correct	✓			✓	
22. TALS Reagent Tab is complete and correct	✓			✓	
23. TALS QC Links Tab is correct	✓			✓	
24. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted	✓			✓	
b. All reported analytes are marked Primary or Secondary	✓			✓	
25. TALS Batch Information Screen documentation is complete	✓			✓	
26. TALS Status set to appropriate review level	✓			✓	
<b>E. Final Report and NCMs (2<sup>nd</sup> level review only)</b>					
27. Were all job/project requirements met?	✓			✓	
28. Results for samples and QC correct on final report?	✓			✓	
29. Are all necessary scanned documents in TALS?	✓			✓	
30. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?	✓			✓	

Comments: Dilution - Matrix NCM 340383, 340386.

PR 5/8/17

2<sup>nd</sup> Reviewer: Panida R Review Date: 5/8/17

IC Instrument Information

WL: 58203 Inst ID: 11 Analysis Date: 5-4-17 Analyst: AK

Rush	Job No.	Samples	Anions	QC Req	HT Exp
<input type="checkbox"/>	<u>96682</u> ✓	<u>1</u>	F Cl <del>NO2</del> Br <del>NO3</del> PO4 <del>SO4</del>	<del>MS/D</del>	<u>5.5</u>
<input type="checkbox"/>	<u>96683</u> ✓	<u>2</u>	<del>F Cl NO2 Br NO3 PO4 SO4</del>	MS/D	<u>5.6</u>
<input type="checkbox"/>	<u>96686</u> ✓	<u>4</u>	F Cl NO2 Br <del>NO3</del> PO4 <del>SO4</del>	<del>MS/D</del> S	
<input type="checkbox"/>	<u>96695</u> ✓	<u>2</u>	<del>F Cl NO2 Br NO3 PO4 SO4</del>	MS/D	
<input type="checkbox"/>	<u>96689</u> ✓	<u>2</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96688</u> ✓	<u>3</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96688</u>	<u>05/04/17 TP</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96697</u> ✓	<u>3</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96694</u> ✓	<u>3</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	

Dilutions

Job No.	Samples	Anions	Dilution	Reason
<u>96683</u>	<u>1, 2</u>	F Cl NO2 Br NO3 PO4 SO4	<u>100x</u>	<u>high</u>
<del><u>96686</u></del>	<del><u>13</u></del>	<del>F Cl NO2 Br NO3 PO4 SO4</del>	<del><u>10x</u></del>	<del><u>high</u></del> 05/04/17 TP
<u>96688</u>	<u>#1</u>	F Cl NO2 Br NO3 PO4 SO4	<u>5x</u>	
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		

Note: Compare 1x & 10x dilution for NO3 - 96686-13 05/04/17 TP

1 324

TestAmerica Denver  
Priority Form

Log-in Number: 96682  
Client: Cardno Ravenna

Project Manager: McEntee, Pat

Receiving	Initials: <u>RD</u>	Date/Time: <u>5-4-17 0855</u>
Dept. Rep. / Analyst	<u>DSM</u>	<u>5-4-17 1203</u>

Time Zone:

<input checked="" type="radio"/> EDT/EST	<input type="radio"/> CDT/CST	<input type="radio"/> MDT/MST	<input type="radio"/> PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (14 h) [Circle Method]</u>	100	3500-Cr B/D or 7196A	<u>1, 4-7</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B	<u>NO3-4</u>	
	Orthophosphate by Spec.	50	365.1*	<u>+</u>	
	<u>Nitrate by IC</u>	50	300.0/9056	<u>1</u>	
	<u>Nitrite by IC</u>	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>2</sub>, NO<sub>3</sub>  
SO<sub>4</sub>

Crush:

8260 Encores  
Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>														
Date	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>														
Time	<u>1400</u>	<u>1537</u>	<u>1451</u>	<u>1430</u>	<u>1521</u>														

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.



1 6.360  
2 6240

TestAmerica Denver  
Priority Form

Log-in Number: 96683  
Client: WM

Project Manager: Betsy

Receiving	Initials: <u>SPL</u>	Date/Time: <u>5-8-17 0855</u>
Dept. Rep. / Analyst	<u>IU</u>	<u>05/04/17 12:16</u>

Time Zone:

EDT/EST	CDT/CST	MDT/MST	<u>PDT/PSI</u>
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (2 h)</u> [Circle Method]	100	3500-Cr B/D or <u>(7196A)</u>	<u>1,2</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1,2</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>3</sub>, Cl, F, SO<sub>4</sub>

Crush:

8260 Encores  
Terracores  Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>2</u>																			
Date	<u>5-8-17</u>																				
Time	<u>12:15</u>	<u>5</u>																			

Sample																						
Date																						
Time																						

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

5-96  
 10-414 **TestAmerica Denver**  
**Priority Form**

11-304  
 13-1499

Log-in Number: 96686  
 Client: Arcoadis

Project Manager: Donna

Time Zone:  
 EDT/EST     CDT/CST     MDT/MST     PDT/PST  
 Other:

Receiving	Initials: <u>ST</u>	Date/Time: <u>5/11/17 0855</u>
Dept. Rep. / Analyst	<u>TH</u>	<u>SLY 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>ST-5 5/10/17</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>3</sub> 804

Crush:

8260 Encores  
 Terracores  
 Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>5</u>	<u>10</u>	<u>11</u>	<u>13</u>															
Date	<u>5/3</u>																		
Time	<u>1305</u>	<u>1000</u>	<u>1035</u>	<u>1405</u>															

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2 - 2973 TestAmerica Denver  
Priority Form

3 - 1842

Log-in Number: 96695

Project Manager: Sara, Betsy

Client: WM Midway

Time Zone:  
 EDT/EST    CDT/CST    MDT/MST    PDT/PST  
 Other:

Initials:	<u>RP</u>	Date/Time:	<u>5-4-17 1010</u>
Receiving	<u>RP</u>		
Dept. Rep. / Analyst	<u>RP</u>	<u>5/4</u>	<u>1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	<u>pH (water)</u>	100	<u>4500-H</u> / 9040/9045	<u>2, 3</u>	
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NB2 NB3  
FCI 804

Crush:

8260 Encores  
 Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>2</u>	<u>3</u>																	
Date	<u>5-3</u>	<u>5</u>																	
Time	<u>1215</u>	<u>1302</u>																	

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

TestAmerica Denver

4-436 **Priority Form**

5-419

Log-in Number: 96689

Project Manager: Jance

Client: CH2M

Time Zone: EDT/EST CDT/CST MDT/MST PDT/PST  
Other:

Receiving	Initials: <u>SPW</u>	Date/Time: <u>5-17 0855</u>
Dept. Rep. / Analyst	<u>TR</u>	<u>514 152</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Cirele Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (eBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<u>T/S</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO3 C1 804

Crush:

8260 Encores  
Terracores  
 Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>F S</u>																				
Date	<u>5-3-17</u>																				
Time	<u>1515</u>																				

Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\* methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

TestAmerica Denver

1 - 1921 **Priority Form**

3 - 1076

4 - 736

Log-in Number: 96688

Project Manager: Rt

Client: North Wind

Time Zone:

EDT/EST CDT/CST MDT/MST PDT/PST

Other:

Receiving	Initials: <u>SP</u>	Date/Time: <u>5-17 0855</u>
Dept. Rep. / Analyst	<u>JP</u>	<u>SLY</u> <u>1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1,3,7</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NB3 CI SO4

Crush:

8260 Encores  
Terracores  
 Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>1570</u>	<u>1700</u>																
Time	<u>1355</u>	<u>1570</u>	<u>1700</u>																

Sample																			
Date																			
Time																			

Tests	Samples		Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

Panida R  
5/8/17

2-857 TestAmerica Denver  
 3-580 Priority Form  
 4-1632

Log-in Number: 96697  
 Client: WM Midway Semi-Dewater

Project Manager: Sara, Betsy

Time Zone:  
 EDT/EST    CDT/CST    MDT/MST    PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 1010</u>
Dept. Rep. / Analyst	<u>R</u>	<u>514 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/056</u>	<u>2-4</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/056</u>	<u>2-4</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
Ferrous Iron	100	3500-FE D			
8260 Encores Terracores	<input type="checkbox"/> <b>Check if required:</b> Coring device un-extruded which requires extrusion and freezing within 48 hours. <input type="checkbox"/> <b>Check if required:</b> A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation				

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO2 NO3  
Cl 804

Crush:

Sample	<u>2</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>→</u>																	
Time	<u>0927</u>	<u>1040</u>	<u>1139</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

1 - 911 TestAmerica Denver  
Priority Form  
 2 - 719  
 3 - 763

Log-in Number: 96694  
 Client: Sundance Consulting

Project Manager: Michelle

Receiving	Initials: <u>GP</u>	Date/Time: <u>5/4/17 0855</u>
Dept. Rep. / Analyst	<u>JI</u>	<u>5/4 1520</u>

Time Zone:

EDT/EST	CDT/CST	<u>MDT/MST</u>	PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Turbidity	50	180.1			
Priority III	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
Ferrous Iron	100	3500-FE D			

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO2 NO3

Crush:

8260 Encores  
 Terracores  
 **Check if required:** Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 **Check if required:** A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>2</u>	<u>3</u>																
Date	<u>5/3</u>	<u>→</u>																	
Time	<u>807</u>	<u>1111</u>	<u>1111</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

*Parida R*  
*5/8/17*

TestAmerica Laboratories  
Worklist Report

Worklist Name: 050417  
 Instrument Name: WC\_IonChrom11  
 Injection Volume: 10.00  
 Analysis Type: Semi VOA  
 Batch Directory: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b  
 Upload Directory: \\CORPTALSAPP16\280-DN-RawData\WetChem\IonChrom1\1300.0\_28D







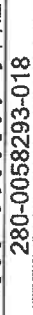

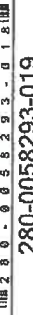













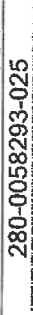

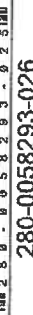











Worklist Number: 58293  
 Chrom Method: Anions\_IC11  
 Units: ul

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-001	# 1 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-002	# 2 ccb 		CCB	1.000	
280-0058293-003	# 3 mrl 	IC CAL cl/so4_00148 IC Cal low_00292	MRL	1.000	
280-0058293-004	# 4 lcs 	IC LCS_00897	LCS	1.000	
280-0058293-005	# 5 lcsd 	IC LCS_00897	LCS	1.000	
280-0058293-006	# 6 mb 		MB	1.000	
280-0058293-007	# 7 280-96682-E-1 		Client	1.000	
280-0058293-008	# 8 280-96682-E-1 DU 		DU	1.000	
280-0058293-009	# 9 280-96682-E-1 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-010	# 10 280-96682-E-1 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-011	# 11 280-96683-N-1 		Client	5.000	
280-0058293-012	# 12 280-96683-N-2 		Client	5.000	
280-0058293-013	# 13 280-96686-F-5 		Client	1.000	
280-0058293-014	# 14 280-96686-F-5 DU 		DU	1.000	










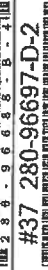














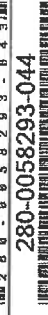

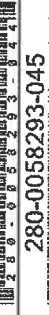









Panida R  
5/8/17


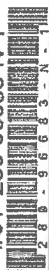








Panida R  
5/8/17

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-015 	#15 280-96686-F-5 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-016 	#16 280-96686-F-5 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-017 	#17 ccb 	IC LCS_00897	CCV	1.000	
280-0058293-018 	#18 ccb 		CCB	1.000	
280-0058293-019 	#19 280-96686-D-10 		Client	1.000	
280-0058293-020 	#20 280-96686-D-11 		Client	1.000	
280-0058293-021 	#21 280-96686-D-13 		Client	1.000	
280-0058293-022 	#22 280-96686-D-13 		Client	5.000	
280-0058293-023 	#23 280-96695-A-2 		Client	1.000	
280-0058293-024 	#24 280-96695-A-2 		Client	20.00	
280-0058293-025 	#25 280-96695-A-3 		Client	1.000	
280-0058293-026 	#26 280-96695-A-3 		Client	20.00	
280-0058293-027 	#27 280-96689-D-4 		Client	1.000	
280-0058293-028 	#28 280-96689-D-5 		Client	1.000	
280-0058293-029 	#29 ccb 	IC LCS_00897	CCV	1.000	
280-0058293-030 	#30 ccb 		CCB	1.000	
280-0058293-031 	#31 280-96688-B-1 		Client	1.000	
280-0058293-032 	#32 280-96688-B-1 		Client	5.000	

banda k  
5/8/17

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-033 	#33 280-96688-B-3 		Client	1.000	
280-0058293-034 	#34 280-96688-B-3 		Client	5.000	
280-0058293-035 	#35 280-96688-B-4 		Client	1.000	
280-0058293-036 	#36 280-96688-B-4 		Client	5.000	
280-0058293-037 	#37 280-96697-D-2 		Client	1.000	
280-0058293-038 	#38 280-96697-D-2 		Client	5.000	
280-0058293-039 	#39 280-96697-D-3 		Client	1.000	
280-0058293-040 	#40 280-96697-D-3 		Client	5.000	
280-0058293-041 	#41 CCV 	IC LCS_00897	CCV	1.000	
280-0058293-042 	#42 ccb 		CCB	1.000	
280-0058293-043 	#43 280-96697-D-4 		Client	1.000	
280-0058293-044 	#44 280-96697-D-4 		Client	5.000	
280-0058293-045 	#45 280-96694-E-1 		Client	1.000	
280-0058293-046 	#46 280-96694-E-1 		Client	5.000	
280-0058293-047 	#47 280-96694-E-2 		Client	1.000	
280-0058293-048 	#48 280-96694-E-2 		Client	5.000	
280-0058293-049 	#49 280-96694-E-3 		Client	1.000	
280-0058293-050 	#50 280-96694-E-3 		Client	5.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-051 	#51 280-96683-N-1 		Client	100.0	
280-0058293-052 	#52 280-96683-N-2 		Client	100.0	
280-0058293-053 	#53 CCV 	IC LCS_00897	CCV	1.000	
280-0058293-054 	#54 ccb 		CCB	1.000	

Amida R.  
5/8/17

### IC Instrument Information

WL: 58293 Inst ID: 11 Analysis Date: 5-4-17 Analyst: [Signature]

Rush	Job No.	Samples	Anions	QC Req	HT Exp
<input type="checkbox"/>	<u>96682</u> ✓	<u>1</u>	F Cl <del>NO2</del> Br <del>NO3</del> PO4 <del>SO4</del>	<del>MS/D</del>	<u>5.5</u>
<input type="checkbox"/>	<u>96683</u> ✓	<u>2</u>	<del>F Cl</del> NO2 Br <del>NO3</del> PO4 <del>SO4</del>	MS/D	<u>5.6</u>
<input type="checkbox"/>	<u>96686</u> ✓	<u>4</u>	F Cl NO2 Br <u>NO3</u> PO4 <u>SO4</u>	<u>MS/D</u>	
<input type="checkbox"/>	<u>96695</u> ✓	<u>2</u>	<u>F</u> <u>Cl</u> <u>NO2</u> Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<u>96689</u> ✓	<u>2</u>	<u>F</u> <u>Cl</u> NO2 Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<u>96688</u> ✓	<u>3</u>	F <u>Cl</u> NO2 Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<del>96688</del>	<u>05/04/17 TP</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96697</u> ✓	<u>3</u>	F <u>Cl</u> <u>NO2</u> Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<u>96694</u> ✓	<u>3</u>	F Cl <u>NO2</u> Br <u>NO3</u> PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	

### Dilutions

Job No.	Samples	Anions	Dilution	Reason
<u>96683</u>	<u>1, 2</u>	F <u>Cl</u> NO2 Br NO3 PO4 <u>SO4</u>	<u>100x</u>	<u>high</u>
<del>96686</del>	<del>13</del>	<del>F <u>Cl</u> NO2 Br NO3 PO4 SO4</del>	<del>10x</del>	<del>high</del> 05/04/17 TP
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		

Note ~~Component 1 x 10x dilution for NO3 - 96686-13 05/04/17 TP~~

1 324

TestAmerica Denver  
Priority Form

Log-in Number: 96682  
Client: Cardno Ravenna

Project Manager: McEntee, Pat

Time Zone:  
 EDT/EST     CDT/CST     MDT/MST     PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 0855</u>
Dept. Rep. / Analyst	<u>DSM</u>	<u>5-4-17 1203</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (24 h) [Circle Method]</u>	100	3500-Cr B/D or 7196A	<u>1, 4-7</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B	<u>RP 5-4</u>	
	Orthophosphate by Spec.	50	365.1*	<u>+</u>	
	<u>Nitrate by IC</u>	50	300.0/9056	<u> </u>	
	<u>Nitrite by IC</u>	50	300.0/9056	<u> </u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
Ferrous Iron	100	3500-FE D			

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>2</sub>, NO<sub>3</sub>  
SO<sub>4</sub>

Crush:

8260 Encores  
Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>														
Date	<u>8-3</u>	<u>5-3</u>	<u>→</u>																
Time	<u>1400</u>	<u>1537</u>	<u>1451</u>	<u>1436</u>	<u>1521</u>														

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

1 6,360  
2 6240

TestAmerica Denver  
Priority Form

Log-in Number: 96683

Project Manager: Betsy

Client: WM

Time Zone:  EDT/EST  CDT/CST  MDT/MST  PDT/PST  
Other:

Receiving	Initials: <u>SPL</u>	Date/Time: <u>5-9-17 0855</u>
Dept. Rep. / Analyst	<u>IU</u>	<u>05/04/17 12:16</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (24 h) [Circle Method]</u>	100	3500-Cr B/D or <u>(196A)</u>	<u>1,2</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1,2</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>3</sub>, Cl, F, SO<sub>4</sub>

Crush:

8260 Encores  
Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>2</u>																		
Date	<u>5-9-17</u>	<u>→</u>																		
Time	<u>1215</u>	<u>→</u>																		

Sample																				
Date																				
Time																				

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

5-96

TestAmerica Denver

10-614

Priority Form

11-304

13-1499

Log-in Number: 96686  
Client: Arcadis

Project Manager: Donna

Time Zone:

Receiving	Initials: JT	Date/Time: 5/4/17 0855
Dept. Rep. / Analyst	TA	5/4 1520

<input checked="" type="checkbox"/> EDT/EST	<input type="checkbox"/> CDT/CST	<input type="checkbox"/> MDT/MST	<input type="checkbox"/> PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<del>S-13</del> 5, 10, 11, 13	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):	<input type="checkbox"/>
Preserve:	<input type="checkbox"/>
Filter:	<input type="checkbox"/>
Split:	<input type="checkbox"/>
Composite: NO3 804	<input type="checkbox"/>
Crush:	<input type="checkbox"/>

8260 Encores  
Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	5	10	11	13															
Date	5/3																		
Time	1305	1000	1035	1405															

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2-2973 TestAmerica Denver  
Priority Form

3-1842

Log-in Number: 96695

Project Manager: Sara, Betsy

Client: WM Midway

Time Zone: EDT/EST CDT/CST MDT/MST PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 1010</u>
Dept. Rep. / Analyst	<u>JP</u>	<u>5/4 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	<u>pH (water)</u>	100	<u>500-H B/9040/9045</u>	<u>2, 3</u>	
	pH (soil Hanford)	5 g	9045C		
Ferrous Iron	100	3500-FE D			

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO<sub>2</sub> NO<sub>3</sub>  
F Cl 804

Crush:

8260 Encores  
 Terracores  Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>2</u>	<u>3</u>																	
Date	<u>5-3</u>	<u>5</u>																	
Time	<u>1215</u>	<u>1302</u>																	

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.



TestAmerica Denver

4-436 Priority Form

5-419

Log-in Number: 96689

Project Manager: Jamie

Client: CH2M

Time Zone: EDT/EST CDT/CST MDT/MST PDT/PST  
Other:

Receiving	Initials:	Date/Time:
Dept. Rep. / Analyst	<u>SPW</u>	<u>5-17 0855</u>
	<u>TR</u>	<u>5/17 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<u>T/S</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO3 CI 804

Crush:

8250 Encores Terracores  Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>4</u>	<u>5</u>																			
Date	<u>5-3</u>	<u>-</u>	<u>-</u>																		
Time	<u>1505</u>	<u>-</u>	<u>-</u>																		

Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\* methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

TestAmerica Denver

1 - 1921 **Priority Form**

3 - 1076

4 - 736

Log-in Number: 96688

Project Manager: RJ+

Client: North Wood

Time Zone:

Receiving	Initials: <u>SPW</u>	Date/Time: <u>5-17 0855</u>
Dept. Rep. / Analyst	<u>TF</u>	<u>SLY</u> <u>1520</u>

EDT/EST	CDT/CST	<u>MDT/MST</u>	PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<u>1,3,7</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: N63 CI 504

Crush:

8260 Encores Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>																
Time	<u>1355</u>	<u>1570</u>	<u>1701</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2-857 TestAmerica Denver  
 3-580 Priority Form  
 4-11632

Log-in Number: 96697  
 Client: WM Midway Semi-Dechlor

Project Manager: Sara, Betsy

Time Zone:  
 EDT/EST    CDT/CST    MDT/MST    PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 1010</u>
Dept. Rep. / Analyst	<u>TR</u>	<u>5/4 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	Nitrate by IC	50	300.0/9056	<u>2-4</u>	
	Nitrite by IC	50	300.0/9056	<u>2-4</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO<sub>2</sub> NO<sub>3</sub>  
CI 804

Crush:

8260 Encores  
 Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>2</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>→</u>																	
Time	<u>0927</u>	<u>1040</u>	<u>1139</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

1 - 911 TestAmerica Denver

**Priority Form**

2 - 719

3 - 763

Log-in Number: 96694

Project Manager: Michelle

Client: Sundance Consulting

Time Zone:

EDT/EST	CDT/CST	<b>MDT/MST</b>	PDT/PST
Other:			

Receiving	Initials: <u>GP</u>	Date/Time: <u>5/4/17 0855</u>
Dept. Rep. / Analyst	<u>TH</u>	<u>SLY 152</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.I		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

<b>Potentially Dissolved Metals</b> (wait 8-96 hours to filter):	<input type="checkbox"/>
<b>Preserve:</b>	<input type="checkbox"/>
<b>Filter:</b>	<input type="checkbox"/>
<b>Split:</b>	<input type="checkbox"/>
<b>Composite:</b> <u>NO<sub>2</sub> NO<sub>3</sub></u>	<input type="checkbox"/>
<b>Crush:</b>	<input type="checkbox"/>

8260 Ecores  
Terracores

**Check if required:** Coring device un-extruded which requires extrusion and freezing within 48 hours.

**Check if required:** A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	1	2	3																
Date	<u>5/3</u>	<u>→</u>																	
Time	<u>807</u>	<u>1111</u>	<u>1111</u>																

Sample																			
Date																			
Time																			









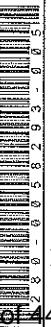




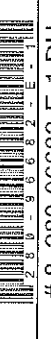
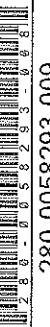
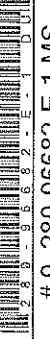


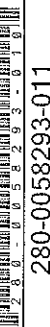
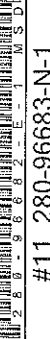
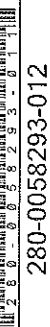

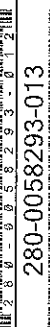
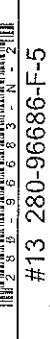
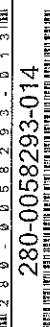
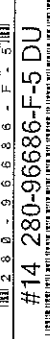
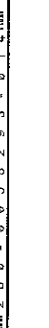
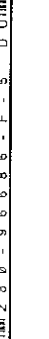
Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

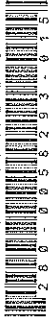
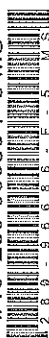






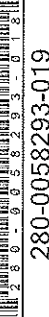
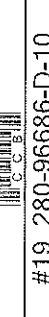
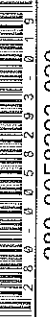
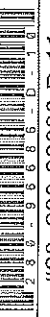






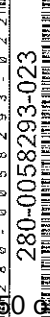
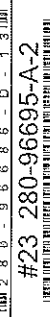
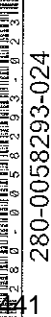









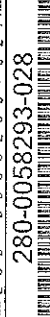

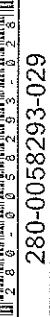

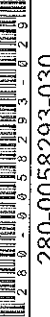

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.







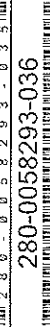
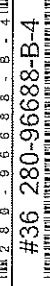
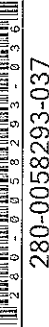

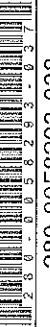








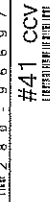
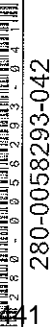
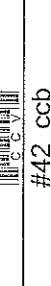
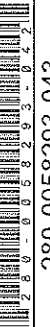
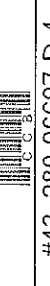






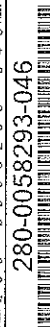
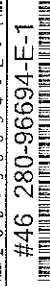
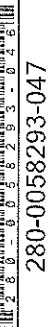
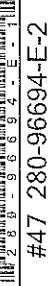
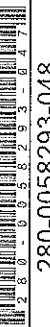

TestAmerica Laboratories  
Worklist Report



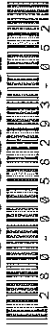





Worklist Name: 050417  
 Instrument Name: WC\_IonChrom11  
 Injection Volume: 10.00  
 Analysis Type: Semi VOA  
 Batch Directory: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b  
 Upload Directory: \\CORPTALSAPP16\280-DN-RawData\WetChem\IonChrom11\300.0\_28D

Worklist Number: 58293  
 Chrom Method: Anions\_IC11  
 Units: ul

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-001 	# 1 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-002 	# 2 ccb 		CCB	1.000	
280-0058293-003 	# 3 mrl 	IC CAL cl/so4_00148 IC Cal low_00292	MRL	1.000	
280-0058293-004 	# 4 lcs 	IC LCS_00897	LCS	1.000	
280-0058293-005 	# 5 lcsd 	IC LCS_00897	LCSd	1.000	
280-0058293-006 	# 6 mb 		MB	1.000	
280-0058293-007 	# 7 280-96682-E-1 		Client	1.000	
280-0058293-008 	# 8 280-96682-E-1 DU 		DU	1.000	
280-0058293-009 	# 9 280-96682-E-1 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-010 	# 10 280-96682-E-1 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-011 	# 11 280-96683-N-1 		Client	5.000	
280-0058293-012 	# 12 280-96683-N-2 		Client	5.000	
280-0058293-013 	# 13 280-96686-F-5 		Client	1.000	
280-0058293-014 	# 14 280-96686-F-5 DU 		DU	1.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-015 	#15 280-96686-F-5 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-016 	#16 280-96686-F-5 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-017 	#17 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-018 	#18 ccb 		CCB	1.000	
280-0058293-019 	#19 280-96686-D-10 		Client	1.000	
280-0058293-020 	#20 280-96686-D-11 		Client	1.000	
280-0058293-021 	#21 280-96686-D-13 		Client	1.000	
280-0058293-022 	#22 280-96686-D-13 		Client	5.000	
280-0058293-023 	#23 280-96695-A-2 		Client	1.000	
280-0058293-024 	#24 280-96695-A-2 		Client	20.00	
280-0058293-025 	#25 280-96695-A-3 		Client	1.000	
280-0058293-026 	#26 280-96695-A-3 		Client	20.00	
280-0058293-027 	#27 280-96689-D-4 		Client	1.000	
280-0058293-028 	#28 280-96689-D-5 		Client	1.000	
280-0058293-029 	#29 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-030 	#30 ccb 		CCB	1.000	
280-0058293-031 	#31 280-96688-B-1 		Client	1.000	
280-0058293-032 	#32 280-96688-B-1 		Client	5.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-033 	#33 280-96688-B-3 		Client	1.000	
280-0058293-034 	#34 280-96688-B-3 		Client	5.000	
280-0058293-035 	#35 280-96688-B-4 		Client	1.000	
280-0058293-036 	#36 280-96688-B-4 		Client	5.000	
280-0058293-037 	#37 280-96697-D-2 		Client	1.000	
280-0058293-038 	#38 280-96697-D-2 		Client	5.000	
280-0058293-039 	#39 280-96697-D-3 		Client	1.000	
280-0058293-040 	#40 280-96697-D-3 		Client	5.000	
280-0058293-041 	#41 CCV 	IC LCS_00897	CCV	1.000	
280-0058293-042 	#42 ccb 		CCB	1.000	
280-0058293-043 	#43 280-96697-D-4 		Client	1.000	
280-0058293-044 	#44 280-96697-D-4 		Client	5.000	
280-0058293-045 	#45 280-96694-E-1 		Client	1.000	
280-0058293-046 	#46 280-96694-E-1 		Client	5.000	
280-0058293-047 	#47 280-96694-E-2 		Client	1.000	
280-0058293-048 	#48 280-96694-E-2 		Client	5.000	
280-0058293-049 	#49 280-96694-E-3 		Client	1.000	
280-0058293-050 	#50 280-96694-E-3 		Client	5.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-051 	#51 280-96683-N-1 		Client	100.0	
280-0058293-052 	#52 280-96683-N-2 		Client	100.0	
280-0058293-053 	#53 ccb 	IC LCS_00897	CCV	1.000	
280-0058293-054 	#54 ccb 		CCB	1.000	



TestAmerica Laboratories  
Initial Calibration Summary Report

Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Instrument: WC\_IonChrom11 Lims Location: 280  
 Lock State: Unlocked Cpnd Order: Retention Time  
 Integrator: Falcon Last Modified: 12-Apr-2017 12:45:49  
 No.Compounds:7

Initial Calibration Batches

Ical Batch: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b  
 Inj Date : 12-Apr-2017 10:22:00, Sublist: chrom-Anions\_IC11\*sub1

Detector 1: 0005

Compound	Wet - Anions				Wet - Anions 28D			
	b	M1	M2	Err	b	M1	M2	Err
1 Fluoride	-252910	694056E		0.999	-252910	694056E		0.999
2 Chloride	-293484	539393E		0.996	-293484	539393E		0.996
3 Nitrite as N	-199541	937653E		1.000	-199541	937653E		1.000
4 Bromide	40528	173094E		1.000	40528	173094E		1.000
5 Nitrate as N	-295815	105558E		1.000	-295815	105558E		1.000
7 Orthophosphate as P	698159	403809E		0.999	698159	403809E		0.999
6 Sulfate	-910279	335998E		0.998	-910279	335998E		0.998

Panida R  
5/8/17

TestAmerica Laboratories  
Initial Calibration Summary Report

Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m

Instrument: WC\_IonChrom11

Lims Location: 280

Lock State: Unlocked

Cpnd Order: Retention Time

Integrator: Falcon

Last Modified: 12-Apr-2017 12:45:49

No.Compounds:7

Initial Calibration Batches

Ical Batch: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b

Inj Date : 12-Apr-2017 10:22:00, Sublist: chrom-Anions\_IC11\*sub1

Detector 1: 0005

Compound	Wet - Anions				Wet - Anions 28D			
	b	M1	M2	Err	b	M1	M2	Err
1 Fluoride	-252910	6940565		0.999	-252910	6940565		0.999
2 Chloride	-293484	5393933		0.996	-293484	5393933		0.996
3 Nitrite as N	-199541	9376536		1.000	-199541	9376536		1.000
4 Bromide	40528	1730942		1.000	40528	1730942		1.000
5 Nitrate as N	-295815	1055587		1.000	-295815	1055587		1.000
7 Orthophosphate as P	698159	4038096		0.999	698159	4038096		0.999
6 Sulfate	-910279	3359983		0.998	-910279	3359983		0.998

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0001.d  
 Lims ID: ccv  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 04-May-2017 09:26:00 ALS Bottle#: 0 Worklist Smp#: 1  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-001  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	33941098	5.00	4.93	
2 Chloride	5.042	5.042	0.000	559403316	100.0	104.3	
3 Nitrite as N	5.992	5.992	0.000	48123541	5.00	5.15	
4 Bromide	7.642	7.642	0.000	8850575	5.00	5.09	
5 Nitrate as N	8.875	8.875	0.000	52426039	5.00	4.99	
7 Orthophosphate as P	11.434	11.434	0.000	20597076	5.00	4.93	
6 Sulfate	13.700	13.700	0.000	350242911	100.0	104.5	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0001.d

Injection Date: 04-May-2017 09:26:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccv

Worklist Smp#: 1

Client ID:

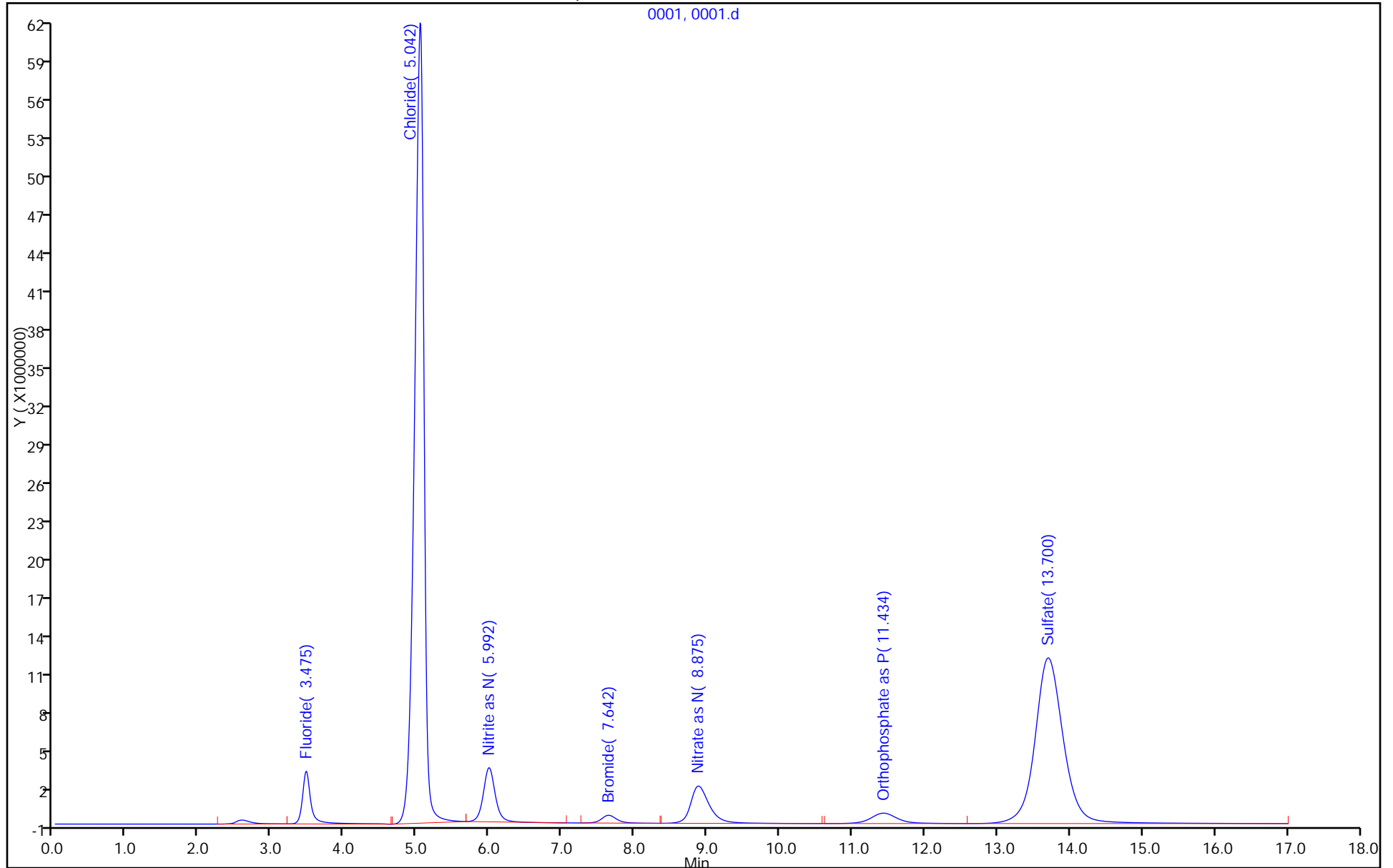
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



**Ion Chromatography Data Review Checklist**

LIMS Batch Number: <u>372161-62</u>	Worklist #: <u>58203</u>	Instrument ID: <u>IC11</u>
Analyst/1 <sup>st</sup> Reviewer/Date: <u>AB-TP/AB 5-5-17</u>	Method (circle): <u>300.D</u> 9056 <u>9056A</u> DV-WC-0077	QC Type (circle): <u>Standard</u> <del>DOD QA</del> <del>DoD QS</del> QAPP Other <u>Q3</u>
Matrix (circle): <u>Water</u> Solid Leachate		

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
<b>A. Calibration/Instrument Run QC</b>					
1. Verify intermediate standards for correct concentration stated in SOP (ICAL pts at correct concentration)	✓			✓	
2. Calibrated with at least 5 standards & a blank	✓			✓	
3. Elution order of analytes in ICAL confirmed to be correct	✓			✓	
4. Linearity and intercept: $r \geq 0.995$ ( $r^2 > 0.99$ ) & $ x\text{-intercept}  < \frac{1}{2} \text{RL}$ (absolute value)	✓			✓	
5. ICV, second source: run before samples 90-110% recovery / 80-120% recovery (Hydrazine)	✓			✓	
6. CCV: 10% frequency & closing 90-110% recovery / 80-120% recovery (Hydrazine)	✓			✓	
7. ICB/CCB: run before samples, 10% freq. & closing	✓			✓	
8. Result $< \frac{1}{2} \text{RL}$	✓			✓	
9. RL-level check standard (Anions) run before samples 50-150% Recovery	✓			✓	
10. RT Window set based on midpoint of ICAL or initial CCV?	✓			✓	
<b>B. Client Sample and QC Sample Results</b>					
11. Samples with results > linear range diluted and reanalyzed?	✓			✓	Comments:
12. Manual integrations done & documented appropriately? (before & after chroms, date, initial, & reason)	✓			✓	Comments:
<b>C. Preparation/Matrix QC</b>					
13. If samples are lab filtered are QC samples also filtered?	✓			✓	
14. Method Blank: one per preparation batch Result $< \frac{1}{2} \text{RL}$ If no, list blank ID & explain:	✓			✓	<input type="checkbox"/> No analyte > RL in associated samples <input type="checkbox"/> Sample results >10x blank <input type="checkbox"/> Insufficient sample for reanalysis
15. LCS: one per preparation batch 90-110% recovery (routine) / Lab limits (Hydrazine) If no, list LCS ID & explain:	✓			✓	<input type="checkbox"/> Insufficient sample for reanalysis <input type="checkbox"/> LCS %R > QC limits & samples < RL
16. Matrix Retention Time Spike: one per sample (Hydrazine) MS/MSD freq.: a pair per 20 samples (Hydrazine) MS/MSD and Dup freq.: a pair per 10 samples (Anions) If no, list QC ID & explain:	✓			✓	<input type="checkbox"/> Insufficient sample

Review Items	Yes	No	NA	2 <sup>nd</sup> Rev	If No, why is data reportable?
17. MS/MSD recovery & RPD: 80-120% recovery (Anions) Lab limits (Hydrazine) 20% RPD If no, list MS or MSD ID & explain:	✓			✓	<input type="checkbox"/> LCS acceptable – matrix effects <input type="checkbox"/> Native analyte > 4x spike level <input type="checkbox"/> Matrix effect and native analyte > 4x spike  NCM 340384, 340385, 340397, 340393.
<b>D. Raw Data &amp; TALS Data Entry</b>					
18. Raw Data					
a. Unused data is clearly identified (with reason)	✓			✓	
b. All cross outs are initialed and dated	✓			✓	
c. Out of control QC is clearly identified	✓			✓	
d. Any data that has a qualifier is commented on with appropriate action taken	✓			✓	
e. The first page of the run includes the filename, instrument, and analyst initials/signature	✓			✓	
19. Run Log					
a. Unused data is clearly identified	✓			✓	
b. All cross outs are initialed and dated	✓			✓	
c. Analyst initials/signature provided	✓			✓	
20. TALS Samples Tab					
a. LIMS Sample IDs / Containers are correct	✓			✓	
b. Method and matrix are correct	✓			✓	
c. Date and time match raw data	✓			✓	
d. Dilutions are correct	✓			✓	
e. Correct suffix designated (where applicable)	✓			✓	
21. TALS Worksheet Tab is complete and correct	✓			✓	
22. TALS Reagent Tab is complete and correct	✓			✓	
23. TALS QC Links Tab is correct	✓			✓	
24. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted	✓			✓	
b. All reported analytes are marked Primary or Secondary	✓			✓	
25. TALS Batch Information Screen documentation is complete	✓			✓	
26. TALS Status set to appropriate review level	✓			✓	
<b>E. Final Report and NCMs (2<sup>nd</sup> level review only)</b>					
27. Were all job/project requirements met?	✓			✓	
28. Results for samples and QC correct on final report?	✓			✓	
29. Are all necessary scanned documents in TALS?	✓			✓	
30. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?	✓			✓	

Comments: Dilution - Matrix NCM 340383, 340386.

PR 5/8/17

2<sup>nd</sup> Reviewer: Panida R Review Date: 5/8/17

IC Instrument Information

WL: 58203 Inst ID: 11 Analysis Date: 5-4-17 Analyst: AK

Rush	Job No.	Samples	Anions	QC Req	HT Exp
<input type="checkbox"/>	<u>96682</u> ✓	<u>1</u>	F Cl <del>NO2</del> Br <del>NO3</del> PO4 <del>SO4</del>	<del>MS/D</del>	<u>5.5</u>
<input type="checkbox"/>	<u>96683</u> ✓	<u>2</u>	<del>F Cl NO2 Br NO3 PO4 SO4</del>	MS/D	<u>5.6</u>
<input type="checkbox"/>	<u>96686</u> ✓	<u>4</u>	F Cl NO2 Br <del>NO3</del> PO4 <del>SO4</del>	<del>MS/D</del> S	
<input type="checkbox"/>	<u>96695</u> ✓	<u>2</u>	<del>F Cl NO2 Br NO3 PO4 SO4</del>	MS/D	
<input type="checkbox"/>	<u>96689</u> ✓	<u>2</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96688</u> ✓	<u>3</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96688</u>	<u>05/04/17 TP</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96697</u> ✓	<u>3</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96694</u> ✓	<u>3</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	

Dilutions

Job No.	Samples	Anions	Dilution	Reason
<u>96683</u>	<u>1, 2</u>	F Cl NO2 Br NO3 PO4 SO4	<u>100x</u>	<u>high</u>
<del>96686</del>	<del>13</del>	<del>F Cl NO2 Br NO3 PO4 SO4</del>	<del>10x</del>	<del>high</del> 05/04/17 TP
<u>96688</u>	<u>#1</u>	F Cl NO2 Br NO3 PO4 SO4	<u>5x</u>	
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		

Note: Compare 1x & 10x dilution for NO3 - 96686-13 05/04/17 TP

Panida P  
5/8/17

1 324

**TestAmerica Denver  
Priority Form**

Log-in Number: 96682  
Client: Cardno Ravenna

Project Manager: McEntee, Pat

Receiving	Initials: <u>RD</u>	Date/Time: <u>5-4-17 0855</u>
Dept. Rep. / Analyst	<u>DSM</u>	<u>5-4-17 1203</u>

Time Zone:

<input checked="" type="radio"/> EDT/EST	<input type="radio"/> CDT/CST	<input type="radio"/> MDT/MST	<input type="radio"/> PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (14 h) [Circle Method]</u>	100	3500-Cr B/D or 7196A	<u>1, 4-7</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B	<u>NO3-4</u>	
	Orthophosphate by Spec.	50	365.1*	<u>+</u>	
	<u>Nitrate by IC</u>	50	300.0/9056	<u>1</u>	
	<u>Nitrite by IC</u>	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>2</sub>, NO<sub>3</sub>  
SO<sub>4</sub>

Crush:

8260 Encores  
Terracores  Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>														
Date	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>														
Time	<u>1400</u>	<u>1537</u>	<u>1451</u>	<u>1430</u>	<u>1521</u>														

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.



1 6.360  
2 6240

TestAmerica Denver  
Priority Form

Log-in Number: 96683  
Client: WM

Project Manager: Betsy

Receiving	Initials: <u>SPL</u>	Date/Time: <u>5-8-17 0855</u>
Dept. Rep. / Analyst	<u>IU</u>	<u>05/04/17 12:16</u>

Time Zone:

EDT/EST	CDT/CST	MDT/MST	<input checked="" type="radio"/> PDT/PSI
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (2 h)</u> [Circle Method]	100	3500-Cr B/D or <u>(7196A)</u>	<u>1,2</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1,2</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
	Turbidity	50	180.1		
	Priority III	Dissolved Oxygen	100	4500-O G	
Free Carbon Dioxide (CO <sub>2</sub> )		100	4500-CO <sub>2</sub>		
Sulfite (SO <sub>3</sub> <sup>2-</sup> )		100	4500-SO <sub>3</sub> B		
pH (water)		100	4500-H B/9040/9045		
pH (soil Hanford)		5 g	9045C		
Ferrous Iron		100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):	<input type="checkbox"/>
Preserve:	<input type="checkbox"/>
Filter:	<input type="checkbox"/>
Split:	<input type="checkbox"/>
Composite: <u>NO<sub>3</sub>, Cl, F SO<sub>4</sub></u>	<input type="checkbox"/>
Crush:	<input type="checkbox"/>

8260 Encores  
Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>2</u>																		
Date	<u>5-8-17</u>																			
Time	<u>12:15</u>	<u>5</u>																		

Sample																				
Date																				
Time																				

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

5-96  
 10-414 **TestAmerica Denver**  
**Priority Form**

11-304  
 13-1499

Log-in Number: 96686  
 Client: Arcoadis

Project Manager: Donna

Time Zone:  
 EDT/EST     CDT/CST     MDT/MST     PDT/PST  
 Other:

Receiving	Initials: <u>ST</u>	Date/Time: <u>5/11/17 0855</u>
Dept. Rep. / Analyst	<u>TH</u>	<u>SLY 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>ST-5 5/10/17</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>3</sub> 804

Crush:

8260 Encores  
 Terracores  
 Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>5</u>	<u>10</u>	<u>11</u>	<u>13</u>															
Date	<u>5/3</u>																		
Time	<u>1305</u>	<u>1000</u>	<u>1035</u>	<u>1405</u>															

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2 - 2973 TestAmerica Denver  
Priority Form

3 - 1842

Log-in Number: 96695

Project Manager: Sara, Betsy

Client: WM Midway

Initials:	<u>RP</u>	Date/Time:	<u>5-4-17 1010</u>
Receiving	<u>RP</u>		
Dept. Rep. / Analyst	<u>RP</u>	<u>5/4</u>	<u>1520</u>

Time Zone:

EDT/EST	CDT/CST	<u>MDT/MST</u>	PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	<u>pH (water)</u>	100	<u>4500-H</u> / 9040/9045	<u>2, 3</u>	
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NB2 NB3  
FCI 804

Crush:

8260 Encores  
 Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>2</u>	<u>3</u>																	
Date	<u>5-3</u>	<u>5</u>																	
Time	<u>1215</u>	<u>1302</u>																	

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

*panida &  
5/8/17*

TestAmerica Denver

4-436 **Priority Form**

5-419

Log-in Number: 96689

Project Manager: Jance

Client: CH2M

Time Zone: EDT/EST CDT/CST MDT/MST PDT/PST  
Other:

Receiving	Initials: <u>SPW</u>	Date/Time: <u>5-17 0855</u>
Dept. Rep. / Analyst	<u>TR</u>	<u>514 152</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Cirele Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (eBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<u>T/S</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO3 C1 804

Crush:

8260 Encores  Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
Terracores  Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>F S</u>								
Date	<u>5-3-17</u>								
Time	<u>1515</u>								
Location									
Other:									
Samples									
Rapidly Expiring									
24 TAT									
48 TAT									
72 TAT									

\* methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

TestAmerica Denver

1 - 1921 **Priority Form**

3 - 1076

4 - 736

Log-in Number: 96688

Project Manager: Rat

Client: North Wind

Time Zone:

EDT/EST CDT/CST MDT/MST PDT/PST

Other:

Receiving	Initials: <u>SP</u>	Date/Time: <u>5-17 0855</u>
Dept. Rep. / Analyst	<u>JP</u>	<u>SLY 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1,3,7</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NB3 CI SO4

Crush:

8260 Encores  
Terracores  
 Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>1570</u>	<u>1700</u>																
Time	<u>1355</u>	<u>1570</u>	<u>1700</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2-857 TestAmerica Denver  
 3-580 Priority Form  
 4-1632

Log-in Number: 96697  
 Client: WM Midway Semi-Dewater

Project Manager: Sara, Betsy

Time Zone:  
 EDT/EST    CDT/CST    MDT/MST    PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 1010</u>
Dept. Rep. / Analyst	<u>R</u>	<u>514 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>2-4</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>2-4</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
Ferrous Iron	100	3500-FE D			
8260 Encores Tetracores	<input type="checkbox"/> <b>Check if required:</b> Coring device un-extruded which requires extrusion and freezing within 48 hours. <input type="checkbox"/> <b>Check if required:</b> A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation				

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO2 NO3  
Cl 804

Crush:

Sample	<u>2</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>→</u>																	
Time	<u>0927</u>	<u>1040</u>	<u>1139</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

1 - 911 TestAmerica Denver  
Priority Form  
 2 - 719  
 3 - 763

Log-in Number: 96694  
 Client: Sundance Consulting

Project Manager: Michelle

Receiving	Initials: <u>GP</u>	Date/Time: <u>5/4/17 0855</u>
Dept. Rep. / Analyst	<u>JI</u>	<u>5/4 1520</u>

Time Zone:

EDT/EST	CDT/CST	<u>MDT/MST</u>	PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO2 NO3

Crush:

8260 Encores  
 Terracores  
 **Check if required:** Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 **Check if required:** A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>2</u>	<u>3</u>																
Date	<u>5/3</u>	<u>→</u>																	
Time	<u>807</u>	<u>1111</u>	<u>1111</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
-------	---------	------------------	--------	--------	--------	--------















\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

*Parida R*  
*5/8/17*

TestAmerica Laboratories  
Worklist Report

Worklist Name: 050417  
 Instrument Name: WC\_IonChrom11  
 Injection Volume: 10.00  
 Analysis Type: Semi VOA  
 Batch Directory: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b  
 Upload Directory: \\CORPTALSAPP16\280-DN-RawData\WetChem\IonChrom1\1300.0\_28D







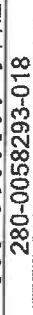

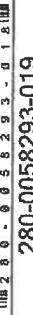













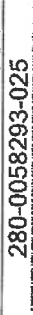

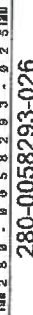











Worklist Number: 58293  
 Chrom Method: Anions\_IC11  
 Units: ul

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-001	# 1 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-002	# 2 ccb 		CCB	1.000	
280-0058293-003	# 3 mrl 	IC CAL cl/so4_00148 IC Cal low_00292	MRL	1.000	
280-0058293-004	# 4 lcs 	IC LCS_00897	LCS	1.000	
280-0058293-005	# 5 lcsd 	IC LCS_00897	LCS	1.000	
280-0058293-006	# 6 mb 		MB	1.000	
280-0058293-007	# 7 280-96682-E-1 		Client	1.000	
280-0058293-008	# 8 280-96682-E-1 DU 		DU	1.000	
280-0058293-009	# 9 280-96682-E-1 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-010	#10 280-96682-E-1 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-011	#11 280-96683-N-1 		Client	5.000	
280-0058293-012	#12 280-96683-N-2 		Client	5.000	
280-0058293-013	#13 280-96686-F-5 		Client	1.000	
280-0058293-014	#14 280-96686-F-5 DU 		DU	1.000	

Panida R  
5/8/17


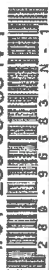








Panida R  
5/8/17

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-015 	#15 280-96686-F-5 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-016 	#16 280-96686-F-5 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-017 	#17 ccb 	IC LCS_00897	CCV	1.000	
280-0058293-018 	#18 ccb 		CCB	1.000	
280-0058293-019 	#19 280-96686-D-10 		Client	1.000	
280-0058293-020 	#20 280-96686-D-11 		Client	1.000	
280-0058293-021 	#21 280-96686-D-13 		Client	1.000	
280-0058293-022 	#22 280-96686-D-13 		Client	5.000	
280-0058293-023 	#23 280-96695-A-2 		Client	1.000	
280-0058293-024 	#24 280-96695-A-2 		Client	20.00	
280-0058293-025 	#25 280-96695-A-3 		Client	1.000	
280-0058293-026 	#26 280-96695-A-3 		Client	20.00	
280-0058293-027 	#27 280-96689-D-4 		Client	1.000	
280-0058293-028 	#28 280-96689-D-5 		Client	1.000	
280-0058293-029 	#29 ccb 	IC LCS_00897	CCV	1.000	
280-0058293-030 	#30 ccb 		CCB	1.000	
280-0058293-031 	#31 280-96688-B-1 		Client	1.000	
280-0058293-032 	#32 280-96688-B-1 		Client	5.000	

Handg R  
5/8/17

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-033	#33 280-96688-B-3		Client	1.000	
280-0058293-034	#34 280-96688-B-3		Client	5.000	
280-0058293-035	#35 280-96688-B-4		Client	1.000	
280-0058293-036	#36 280-96688-B-4		Client	5.000	
280-0058293-037	#37 280-96697-D-2		Client	1.000	
280-0058293-038	#38 280-96697-D-2		Client	5.000	
280-0058293-039	#39 280-96697-D-3		Client	1.000	
280-0058293-040	#40 280-96697-D-3		Client	5.000	
280-0058293-041	#41 CCV	IC LCS_00897	CCV	1.000	
280-0058293-042	#42 ccb		CCB	1.000	
280-0058293-043	#43 280-96697-D-4		Client	1.000	
280-0058293-044	#44 280-96697-D-4		Client	5.000	
280-0058293-045	#45 280-96694-E-1		Client	1.000	
280-0058293-046	#46 280-96694-E-1		Client	5.000	
280-0058293-047	#47 280-96694-E-2		Client	1.000	
280-0058293-048	#48 280-96694-E-2		Client	5.000	
280-0058293-049	#49 280-96694-E-3		Client	1.000	
280-0058293-050	#50 280-96694-E-3		Client	5.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-051 	#51 280-96683-N-1 		Client	100.0	
280-0058293-052 	#52 280-96683-N-2 		Client	100.0	
280-0058293-053 	#53 CCV 	IC LCS_00897	CCV	1.000	
280-0058293-054 	#54 ccb 		CCB	1.000	

Amida R.  
5/8/17

### IC Instrument Information

WL: 58293 Inst ID: 11 Analysis Date: 5-4-17 Analyst: [Signature]

Rush	Job No.	Samples	Anions	QC Req	HT Exp
<input type="checkbox"/>	<u>96682</u> ✓	<u>1</u>	F Cl <del>NO2</del> Br <del>NO3</del> PO4 <del>SO4</del>	<del>MS/D</del>	<u>5.5</u>
<input type="checkbox"/>	<u>96683</u> ✓	<u>2</u>	<del>F Cl</del> NO2 Br <del>NO3</del> PO4 <del>SO4</del>	MS/D	<u>5.6</u>
<input type="checkbox"/>	<u>96686</u> ✓	<u>4</u>	F Cl NO2 Br <u>NO3</u> PO4 <u>SO4</u>	<u>MS/D</u>	
<input type="checkbox"/>	<u>96695</u> ✓	<u>2</u>	<u>F</u> <u>Cl</u> <u>NO2</u> Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<u>96689</u> ✓	<u>2</u>	<u>F</u> <u>Cl</u> NO2 Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<u>96688</u> ✓	<u>3</u>	F <u>Cl</u> NO2 Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<del>96688</del>	<u>05/04/17 TP</u>	F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>	<u>96697</u> ✓	<u>3</u>	F <u>Cl</u> <u>NO2</u> Br <u>NO3</u> PO4 <u>SO4</u>	MS/D	
<input type="checkbox"/>	<u>96694</u> ✓	<u>3</u>	F Cl <u>NO2</u> Br <u>NO3</u> PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	
<input type="checkbox"/>			F Cl NO2 Br NO3 PO4 SO4	MS/D	

### Dilutions

Job No.	Samples	Anions	Dilution	Reason
<u>96683</u>	<u>1, 2</u>	F <u>Cl</u> NO2 Br NO3 PO4 <u>SO4</u>	<u>100x</u>	<u>high</u>
<del>96686</del>	<del>13</del>	<del>F <u>Cl</u> NO2 Br NO3 PO4 SO4</del>	<del>10x</del>	<del>high</del> <u>05/04/17 TP</u>
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		
		F Cl NO2 Br NO3 PO4 SO4		

Note ~~Component 1 x 10x dilution for NO3 - 96686-13 05/04/17 TP~~

1 324

TestAmerica Denver  
Priority Form

Log-in Number: 96682  
Client: Cardno Ravenna

Project Manager: McEntee, Pat

Time Zone:  
 EDT/EST   
 CDT/CST   
 MDT/MST   
 PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 0855</u>
Dept. Rep. / Analyst	<u>DSM</u>	<u>5-4-17 1203</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (24 h) [Circle Method]</u>	100	3500-Cr B/D or 7196A	<u>1, 4-7</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B	<u>RP 5-4</u>	
	Orthophosphate by Spec.	50	365.1*	<u>+</u>	
	<u>Nitrate by IC</u>	50	300.0/9056	<u> </u>	
	<u>Nitrite by IC</u>	50	300.0/9056	<u> </u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: NO<sub>2</sub>, NO<sub>3</sub>  
SO<sub>4</sub>

Crush:

8260 Encores  
Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>															
Date	<u>8-3</u>	<u>5-3</u>	<u>→</u>																	
Time	<u>1400</u>	<u>1537</u>	<u>1451</u>	<u>1436</u>	<u>1521</u>															

Sample																				
Date																				
Time																				

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:
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\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

1 6,360  
2 6240

TestAmerica Denver  
Priority Form

Log-in Number: 96683

Project Manager: Betsy

Client: WM

Time Zone:

Receiving	Initials: <u>SPL</u>	Date/Time: <u>5-9-17 0855</u>
Dept. Rep. / Analyst	<u>IU</u>	<u>05/04/17 12:16</u>

EDT/EST	CDT/CST	MDT/MST	<u>PDT/PST</u>
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	<u>Chromium (VI) (24 h) [Circle Method]</u>	100	3500-Cr B/D or <u>(196A)</u>	<u>1,2</u>	
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1,2</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO<sub>3</sub>, Cl, F  
SO<sub>4</sub>

Crush:

8260 Encores	<input type="checkbox"/> Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.
Terracores	<input type="checkbox"/> Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>2</u>																		
Date	<u>5-9-17</u>	<u>→</u>																		
Time	<u>1215</u>	<u>→</u>																		

Sample																				
Date																				
Time																				

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

5-96

TestAmerica Denver

10-614 Priority Form

11-304

13-1499

Log-in Number: 96686  
Client: Arcoadis

Project Manager: Donna

Time Zone:

Receiving	Initials: <u>JS</u>	Date/Time: <u>5/4/17 0855</u>
Dept. Rep. / Analyst	<u>TA</u>	<u>SLY 1520</u>

<input checked="" type="checkbox"/> EDT/EST	<input type="checkbox"/> CDT/CST	<input type="checkbox"/> MDT/MST	<input type="checkbox"/> PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<u>S-13 5, 10, 11, 13</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):	<input type="checkbox"/>
Preserve:	<input type="checkbox"/>
Filter:	<input type="checkbox"/>
Split:	<input type="checkbox"/>
Composite: <u>NO3 804</u>	<input type="checkbox"/>
Crush:	<input type="checkbox"/>

8260 Encores  
Terracores

**Check if required:** Coring device un-extruded which requires extrusion and freezing within 48 hours.

**Check if required:** A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>5</u>	<u>10</u>	<u>11</u>	<u>13</u>															
Date	<u>5/3</u>																		
Time	<u>1305</u>	<u>1000</u>	<u>1035</u>	<u>1405</u>															

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2-2973 TestAmerica Denver  
Priority Form

3-1842

Log-in Number: 96695

Project Manager: Sara, Betsy

Client: WM Midway

Time Zone: EDT/EST CDT/CST MDT/MST PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17 1010</u>
Dept. Rep. / Analyst	<u>JP</u>	<u>5/4 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>2, 3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	<u>pH (water)</u>	100	<u>500-H 3/9040/9045</u>	<u>2, 3</u>	
	pH (soil Hanford)	5 g	9045C		
Ferrous Iron	100	3500-FE D			

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO<sub>2</sub> NO<sub>3</sub>  
F Cl 804

Crush:

8260 Encores  
 Terracores  Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.  
 Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>2</u>	<u>3</u>																		
Date	<u>5-3</u>	<u>5</u>																		
Time	<u>1215</u>	<u>1302</u>																		

Sample																				
Date																				
Time																				

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.



4-436 **Priority Form**

5-419

Log-in Number: 96689

Project Manager: Jamie

Client: CH2M

Time Zone:

EDT/EST CDT/CST MDT/MST PDT/PST

Other:

Receiving	Initials:	Date/Time:
Dept. Rep. / Analyst	<u>SPW</u>	<u>5-17 0855</u>
	<u>TR</u>	<u>5/17 1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>7.5</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

**Potentially Dissolved Metals** (wait 8-96 hours to filter):

**Preserve:**

**Filter:**

**Split:**

**Composite:**  
NO3 CI 804

**Crush:**

8250 Encores  
Terracores

**Check if required:** Coring device un-extruded which requires extrusion and freezing within 48 hours.

**Check if required:** A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	4	5																		
Date	5-3-17																			
Time	1505																			

Samples	24	48	72	Other:
	TAT	TAT	TAT	

\* methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

TestAmerica Denver

1 - 1921 Priority Form

3 - 1076

4 - 736

Log-in Number: 96688

Project Manager: RJ+

Client: North Wood

Time Zone:

Receiving	Initials: <u>SPW</u>	Date/Time: <u>5-17 0855</u>
Dept. Rep. / Analyst	<u>TF</u>	<u>SLY</u> <u>1520</u>

EDT/EST	CDT/CST	<u>MDT/MST</u>	PDT/PST
Other:			

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	300.0/9056	<u>1,3,7</u>	
	Nitrite by IC	50	300.0/9056		
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite: N63 CI 504

Crush:

8260 Encores Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>1</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>5-3</u>	<u>5-3</u>																
Time	<u>1355</u>	<u>1570</u>	<u>1701</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

2-857 TestAmerica Denver  
 3-580 Priority Form  
 4-11632

Log-in Number: 96697  
 Client: WM Midway Semi-Dechlor

Project Manager: Sara, Betsy

Time Zone:  
 EDT/EST    CDT/CST    MDT/MST    PDT/PST  
 Other:

Receiving	Initials: <u>RP</u>	Date/Time: <u>5-4-17</u> <u>1010</u>
Dept. Rep. / Analyst	<u>TR</u>	<u>5/4</u> <u>1520</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	Nitrate by IC	50	300.0/9056	<u>2-4</u>	
	Nitrite by IC	50	300.0/9056	<u>2-4</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):

Preserve:

Filter:

Split:

Composite:  
NO<sub>2</sub> NO<sub>3</sub>  
Cl 804

Crush:

8260 Encores  
 Terracores

Check if required: Coring device un-extruded which requires extrusion and freezing within 48 hours.

Check if required: A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	<u>2</u>	<u>3</u>	<u>4</u>																
Date	<u>5-3</u>	<u>→</u>																	
Time	<u>0927</u>	<u>1040</u>	<u>1139</u>																

Sample																			
Date																			
Time																			

Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.

1 - 911 TestAmerica Denver

**Priority Form**

2 - 719

3 - 763

Log-in Number: 96694

Project Manager: Michelle

Client: Sundance Consulting

Time Zone:

EDT/EST	CDT/CST	<b>MDT/MST</b>	PDT/PST
Other:			

Receiving	Initials: <u>GP</u>	Date/Time: <u>5/4/17 0855</u>
Dept. Rep. / Analyst	<u>TH</u>	<u>SLY 152</u>

HT	Analysis	Min Volume needed (mL)	Method	Sample(s)	MS/MSD Required
Priority I	Chromium (VI) (24 h) [Circle Method]	100	3500-Cr B/D or 7196A		
	Hydrazine (Waters & Solids)	100	Denver		
	Biological Oxygen Demand	1000	5210 B		
	Carbonaceous BOD (cBOD)	1000	5210 B		
Priority II (48 h)	Cyanide Preservation	100	335.4 / 4500-CN		
	Color	100	2120 B		
	Nitrite by Spec (COC May Only list Nitrate)	100	353.2/4500-NO <sub>2</sub> B		
	Orthophosphate by Spec.	50	365.1*		
	<u>Nitrate by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	<u>Nitrite by IC</u>	50	<u>300.0/9056</u>	<u>1-3</u>	
	Orthophosphate by IC	50	300.0/9056*		
	Settleable Solids	1000	SM2540F		
Priority III	Turbidity	50	180.1		
	Dissolved Oxygen	100	4500-O G		
	Free Carbon Dioxide (CO <sub>2</sub> )	100	4500-CO <sub>2</sub>		
	Sulfite (SO <sub>3</sub> <sup>2-</sup> )	100	4500-SO <sub>3</sub> B		
	pH (water)	100	4500-H B/9040/9045		
	pH (soil Hanford)	5 g	9045C		
	Ferrous Iron	100	3500-FE D		

Potentially Dissolved Metals (wait 8-96 hours to filter):	<input type="checkbox"/>
Preserve:	<input type="checkbox"/>
Filter:	<input type="checkbox"/>
Split:	<input type="checkbox"/>
Composite: <u>NO<sub>2</sub> NO<sub>3</sub></u>	<input type="checkbox"/>
Crush:	<input type="checkbox"/>

8260 Ecores  
Terracores

**Check if required:** Coring device un-extruded which requires extrusion and freezing within 48 hours.

**Check if required:** A plug of dirt in an empty vial -- place in the freezer within 48 hours for preservation

Sample	1	2	3																
Date	<u>5/3</u>																		
Time	<u>807</u>	<u>1111</u>	<u>1111</u>																

Sample																			
Date																			
Time																			




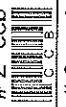

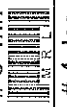
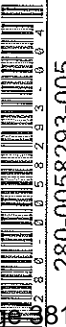

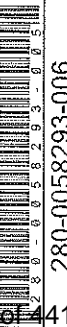
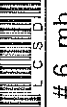








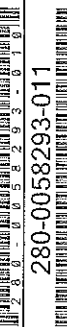





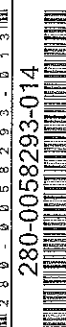
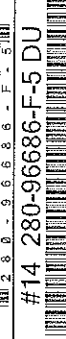
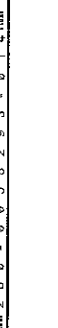
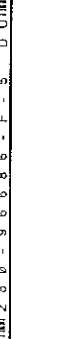
Tests	Samples	Rapidly Expiring	24 TAT	48 TAT	72 TAT	Other:

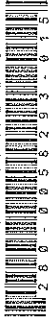







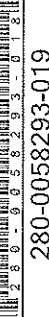
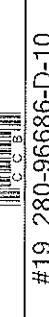
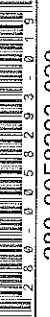
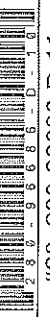






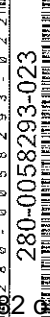
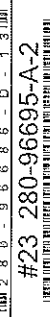
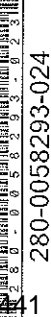









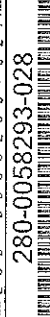

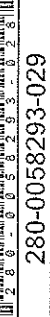

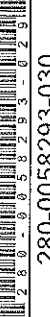

\*Orthophosphate by methods 300.0 and 365.1 require field filtration within 15 minutes of collection.







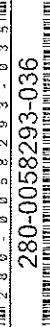
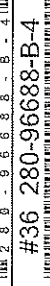
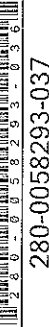

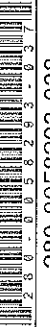








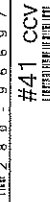
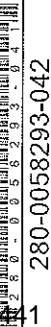
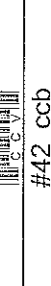
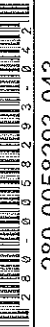
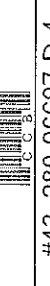






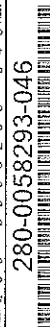
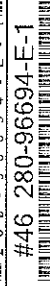
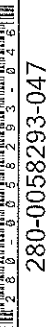
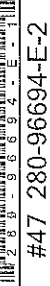
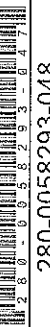

TestAmerica Laboratories  
Worklist Report



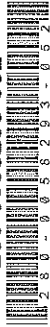





Worklist Name: 050417  
 Instrument Name: WC\_IonChrom11  
 Injection Volume: 10.00  
 Analysis Type: Semi VOA  
 Batch Directory: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b  
 Upload Directory: \\CORPTALSAPP16\280-DN-RawData\WetChem\IonChrom11\300.0\_28D

Worklist Number: 58293  
 Chrom Method: Anions\_IC11  
 Units: ul

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-001 	# 1 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-002 	# 2 ccb 		CCB	1.000	
280-0058293-003 	# 3 mrl 	IC CAL cl/so4_00148 IC Cal low_00292	MRL	1.000	
280-0058293-004 	# 4 lcs 	IC LCS_00897	LCS	1.000	
280-0058293-005 	# 5 lcsd 	IC LCS_00897	LCSd	1.000	
280-0058293-006 	# 6 mb 		MB	1.000	
280-0058293-007 	# 7 280-96682-E-1 		Client	1.000	
280-0058293-008 	# 8 280-96682-E-1 DU 		DU	1.000	
280-0058293-009 	# 9 280-96682-E-1 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-010 	# 10 280-96682-E-1 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-011 	# 11 280-96683-N-1 		Client	5.000	
280-0058293-012 	# 12 280-96683-N-2 		Client	5.000	
280-0058293-013 	# 13 280-96686-F-5 		Client	1.000	
280-0058293-014 	# 14 280-96686-F-5 DU 		DU	1.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-015 	#15 280-96686-F-5 MS 	ICMS/MSD WEEK_00468	MS	1.000	
280-0058293-016 	#16 280-96686-F-5 MSD 	ICMS/MSD WEEK_00468	MSD	1.000	
280-0058293-017 	#17 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-018 	#18 ccb 		CCB	1.000	
280-0058293-019 	#19 280-96686-D-10 		Client	1.000	
280-0058293-020 	#20 280-96686-D-11 		Client	1.000	
280-0058293-021 	#21 280-96686-D-13 		Client	1.000	
280-0058293-022 	#22 280-96686-D-13 		Client	5.000	
280-0058293-023 	#23 280-96695-A-2 		Client	1.000	
280-0058293-024 	#24 280-96695-A-2 		Client	20.00	
280-0058293-025 	#25 280-96695-A-3 		Client	1.000	
280-0058293-026 	#26 280-96695-A-3 		Client	20.00	
280-0058293-027 	#27 280-96689-D-4 		Client	1.000	
280-0058293-028 	#28 280-96689-D-5 		Client	1.000	
280-0058293-029 	#29 ccv 	IC LCS_00897	CCV	1.000	
280-0058293-030 	#30 ccb 		CCB	1.000	
280-0058293-031 	#31 280-96688-B-1 		Client	1.000	
280-0058293-032 	#32 280-96688-B-1 		Client	5.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-033 	#33 280-96688-B-3 		Client	1.000	
280-0058293-034 	#34 280-96688-B-3 		Client	5.000	
280-0058293-035 	#35 280-96688-B-4 		Client	1.000	
280-0058293-036 	#36 280-96688-B-4 		Client	5.000	
280-0058293-037 	#37 280-96697-D-2 		Client	1.000	
280-0058293-038 	#38 280-96697-D-2 		Client	5.000	
280-0058293-039 	#39 280-96697-D-3 		Client	1.000	
280-0058293-040 	#40 280-96697-D-3 		Client	5.000	
280-0058293-041 	#41 CCV 	IC LCS_00897	CCV	1.000	
280-0058293-042 	#42 ccb 		CCB	1.000	
280-0058293-043 	#43 280-96697-D-4 		Client	1.000	
280-0058293-044 	#44 280-96697-D-4 		Client	5.000	
280-0058293-045 	#45 280-96694-E-1 		Client	1.000	
280-0058293-046 	#46 280-96694-E-1 		Client	5.000	
280-0058293-047 	#47 280-96694-E-2 		Client	1.000	
280-0058293-048 	#48 280-96694-E-2 		Client	5.000	
280-0058293-049 	#49 280-96694-E-3 		Client	1.000	
280-0058293-050 	#50 280-96694-E-3 		Client	5.000	

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Dil Fact
280-0058293-051 	#51 280-96683-N-1 		Client	100.0	
280-0058293-052 	#52 280-96683-N-2 		Client	100.0	
280-0058293-053 	#53 ccb 	IC LCS_00897	CCV	1.000	
280-0058293-054 	#54 ccb 		CCB	1.000	



TestAmerica Laboratories  
Initial Calibration Summary Report

Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m  
 Instrument: WC\_IonChrom11 Lims Location: 280  
 Lock State: Unlocked Cpnd Order: Retention Time  
 Integrator: Falcon Last Modified: 12-Apr-2017 12:45:49  
 No.Compounds:7

Initial Calibration Batches

Ical Batch: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b  
 Inj Date : 12-Apr-2017 10:22:00, Sublist: chrom-Anions\_IC11\*sub1

Detector 1: 0005

Compound	Wet - Anions				Wet - Anions 28D			
	b	M1	M2	Err	b	M1	M2	Err
1 Fluoride	-252910	694056E		0.999	-252910	694056E		0.999
2 Chloride	-293484	539393E		0.996	-293484	539393E		0.996
3 Nitrite as N	-199541	937653E		1.000	-199541	937653E		1.000
4 Bromide	40528	1730942		1.000	40528	1730942		1.000
5 Nitrate as N	-295815	1055587		1.000	-295815	1055587		1.000
7 Orthophosphate as P	698159	403809E		0.999	698159	403809E		0.999
6 Sulfate	-910279	335998E		0.998	-910279	335998E		0.998

Panida R  
5/8/17

TestAmerica Laboratories  
Initial Calibration Summary Report

Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\Anions\_IC11.m

Instrument: WC\_IonChrom11

Lims Location: 280

Lock State: Unlocked

Cpnd Order: Retention Time

Integrator: Falcon

Last Modified: 12-Apr-2017 12:45:49

No.Compounds:7

Initial Calibration Batches

Ical Batch: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b

Inj Date : 12-Apr-2017 10:22:00, Sublist: chrom-Anions\_IC11\*sub1

Detector 1: 0005

Compound	Wet - Anions				Wet - Anions 28D			
	b	M1	M2	Err	b	M1	M2	Err
1 Fluoride	-252910	6940565		0.999	-252910	6940565		0.999
2 Chloride	-293484	5393933		0.996	-293484	5393933		0.996
3 Nitrite as N	-199541	9376536		1.000	-199541	9376536		1.000
4 Bromide	40528	1730942		1.000	40528	1730942		1.000
5 Nitrate as N	-295815	1055587		1.000	-295815	1055587		1.000
7 Orthophosphate as P	698159	4038096		0.999	698159	4038096		0.999
6 Sulfate	-910279	3359983		0.998	-910279	3359983		0.998

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0001.d  
 Lims ID: ccv  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 04-May-2017 09:26:00 ALS Bottle#: 0 Worklist Smp#: 1  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-001  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	33941098	5.00	4.93	
2 Chloride	5.042	5.042	0.000	559403316	100.0	104.3	
3 Nitrite as N	5.992	5.992	0.000	48123541	5.00	5.15	
4 Bromide	7.642	7.642	0.000	8850575	5.00	5.09	
5 Nitrate as N	8.875	8.875	0.000	52426039	5.00	4.99	
7 Orthophosphate as P	11.434	11.434	0.000	20597076	5.00	4.93	
6 Sulfate	13.700	13.700	0.000	350242911	100.0	104.5	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0001.d

Injection Date: 04-May-2017 09:26:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccv

Worklist Smp#: 1

Client ID:

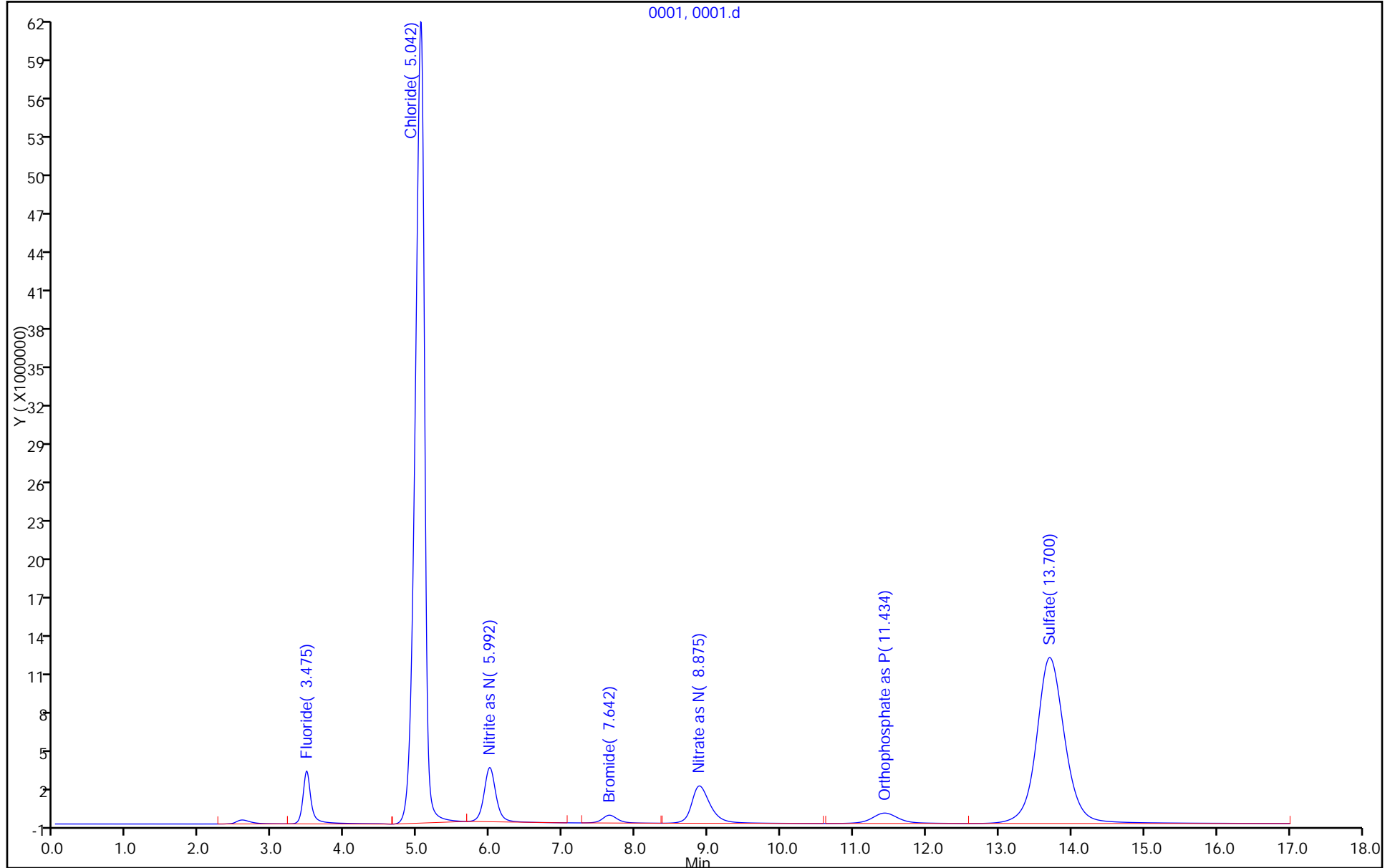
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0002.d  
 Lims ID: ccb  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 04-May-2017 09:46:00 ALS Bottle#: 0 Worklist Smp#: 2  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-002  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	119846		0.0537	
2 Chloride	4.984	5.042	-0.058	679553		0.6701	
3 Nitrite as N		5.992				ND	
4 Bromide		7.642				ND	
5 Nitrate as N	8.992	8.875	0.117	162878		0.0435	
7 Orthophosphate as P	11.467	11.434	0.033	553229		-0.0359	
6 Sulfate	13.792	13.700	0.092	421756		0.3964	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0002.d

Injection Date: 04-May-2017 09:46:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccb

Worklist Smp#: 2

Client ID:

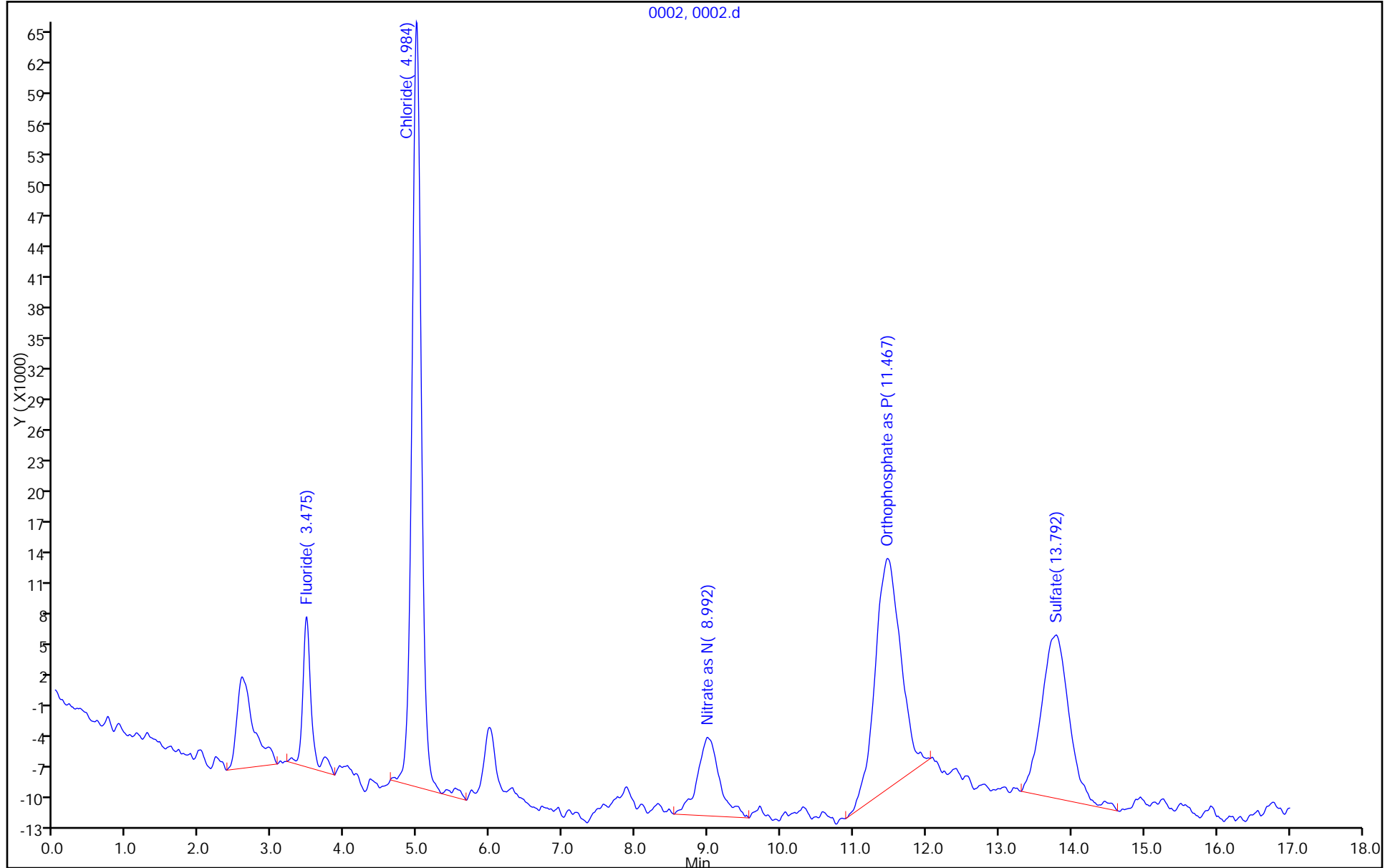
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0002.d  
 Lims ID: ccb  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 04-May-2017 09:46:00 ALS Bottle#: 0 Worklist Smp#: 2  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-002  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	119846		0.0537	
2 Chloride	4.984	5.042	-0.058	679553		0.6701	
3 Nitrite as N		5.992				ND	
4 Bromide		7.642				ND	
5 Nitrate as N	8.992	8.875	0.117	162878		0.0435	
7 Orthophosphate as P	11.467	11.434	0.033	553229		-0.0359	
6 Sulfate	13.792	13.700	0.092	421756		0.3964	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0002.d

Injection Date: 04-May-2017 09:46:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccb

Worklist Smp#: 2

Client ID:

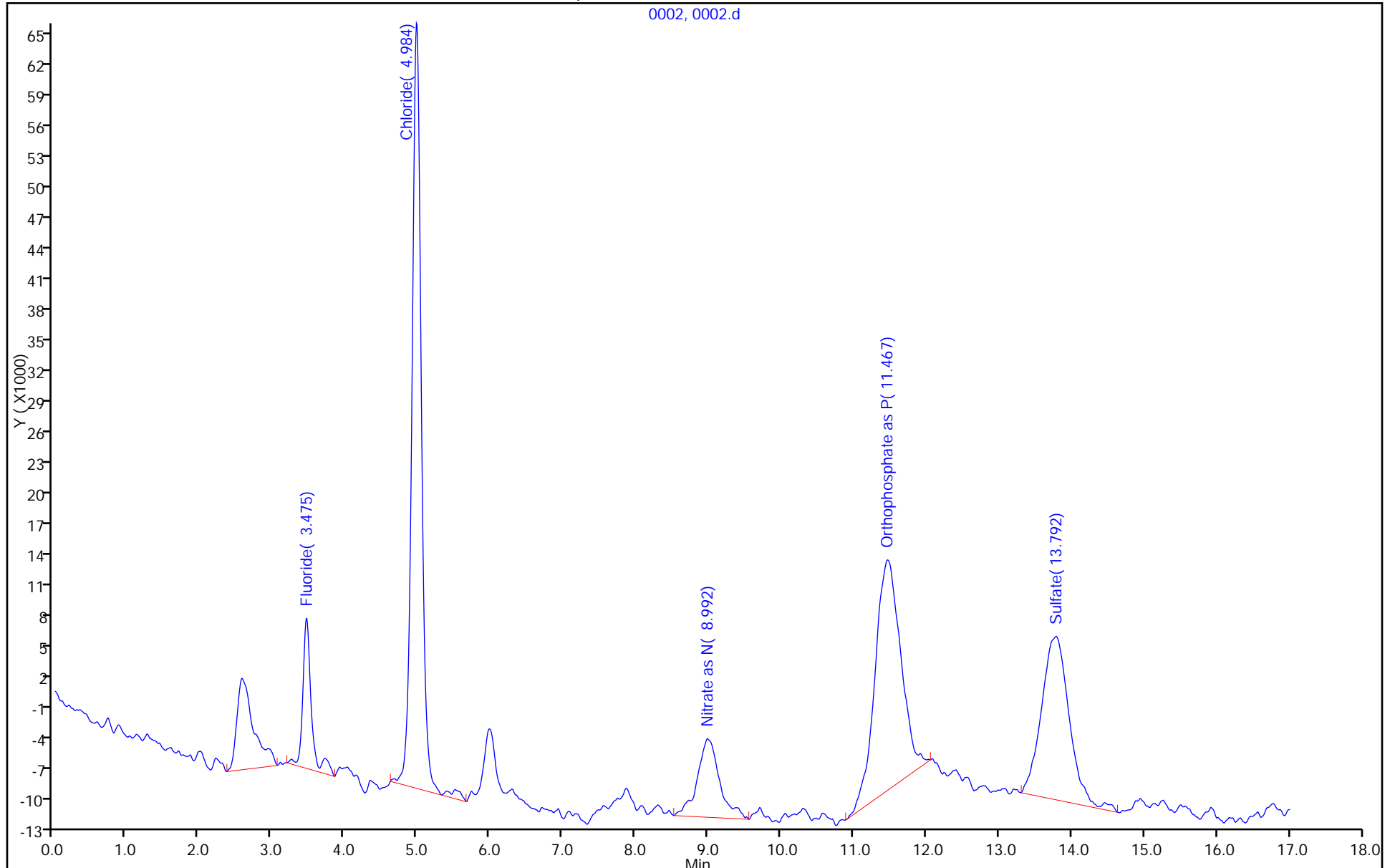
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0003.d  
 Lims ID: mrl  
 Client ID:  
 Sample Type: MRL  
 Inject. Date: 04-May-2017 10:06:00 ALS Bottle#: 0 Worklist Smp#: 3  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-003  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	1276567	0.2000	0.2204	
2 Chloride	4.992	5.042	-0.050	10045166	2.50	2.41	
3 Nitrite as N	5.992	5.992	0.000	1876719	0.2000	0.2214	
4 Bromide	7.659	7.642	0.017	429621	0.2000	0.2248	
5 Nitrate as N	8.967	8.875	0.092	2008597	0.2000	0.2183	
7 Orthophosphate as P	11.459	11.434	0.025	1148005	0.2000	0.1114	
6 Sulfate	13.775	13.700	0.075	7507130	2.50	2.51	

Reagents:

IC CAL cl/so4\_00148 Amount Added: 0.05 Units: mL  
 IC Cal low\_00292 Amount Added: 0.02 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0003.d

Injection Date: 04-May-2017 10:06:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: mrl

Worklist Smp#: 3

Client ID:

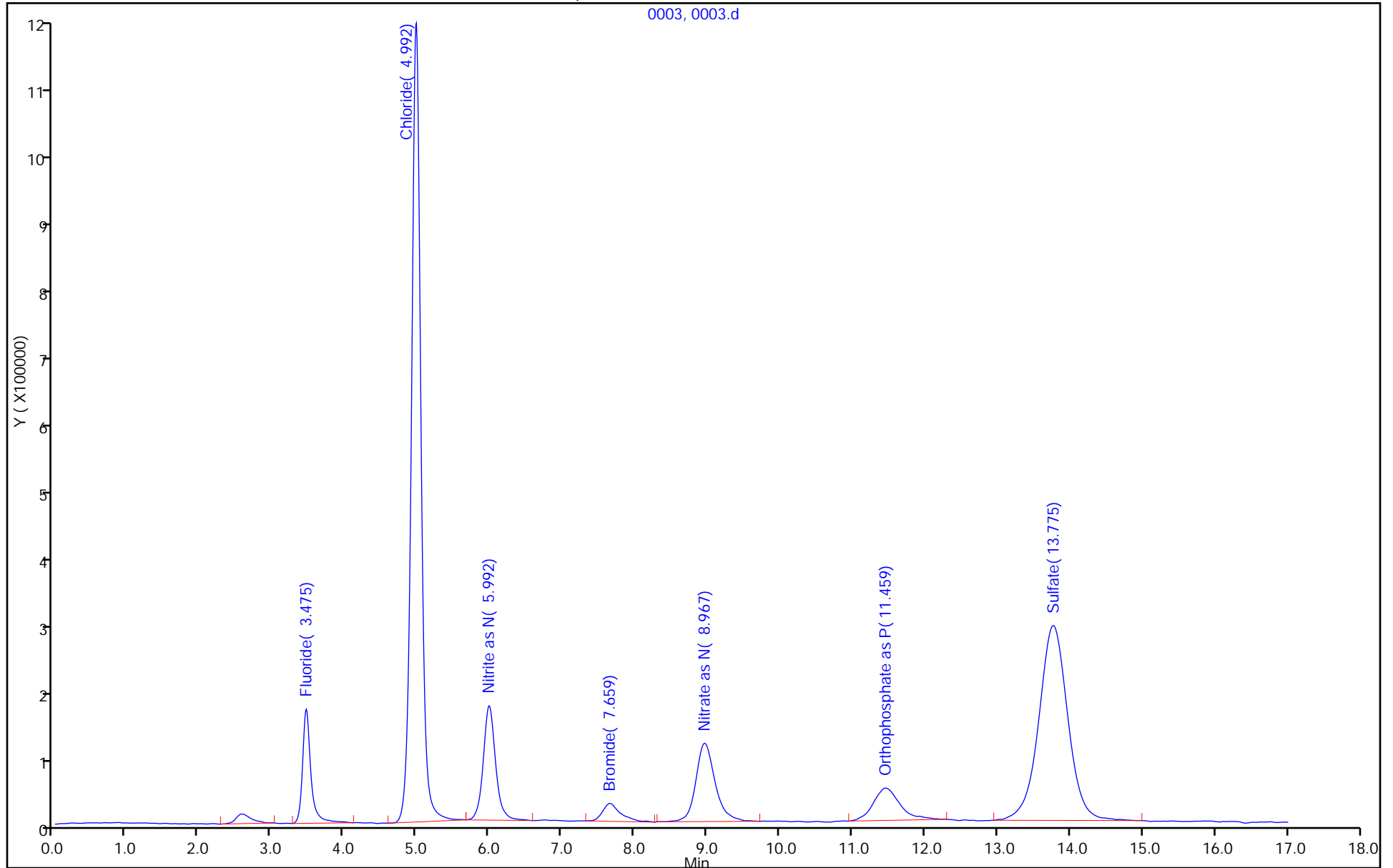
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0003.d  
 Lims ID: mrl  
 Client ID:  
 Sample Type: MRL  
 Inject. Date: 04-May-2017 10:06:00 ALS Bottle#: 0 Worklist Smp#: 3  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-003  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	1276567	0.2000	0.2204	
2 Chloride	4.992	5.042	-0.050	10045166	2.50	2.41	
3 Nitrite as N	5.992	5.992	0.000	1876719	0.2000	0.2214	
4 Bromide	7.659	7.642	0.017	429621	0.2000	0.2248	
5 Nitrate as N	8.967	8.875	0.092	2008597	0.2000	0.2183	
7 Orthophosphate as P	11.459	11.434	0.025	1148005	0.2000	0.1114	
6 Sulfate	13.775	13.700	0.075	7507130	2.50	2.51	

Reagents:

IC CAL cl/so4\_00148 Amount Added: 0.05 Units: mL  
 IC Cal low\_00292 Amount Added: 0.02 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0003.d

Injection Date: 04-May-2017 10:06:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: mrl

Worklist Smp#: 3

Client ID:

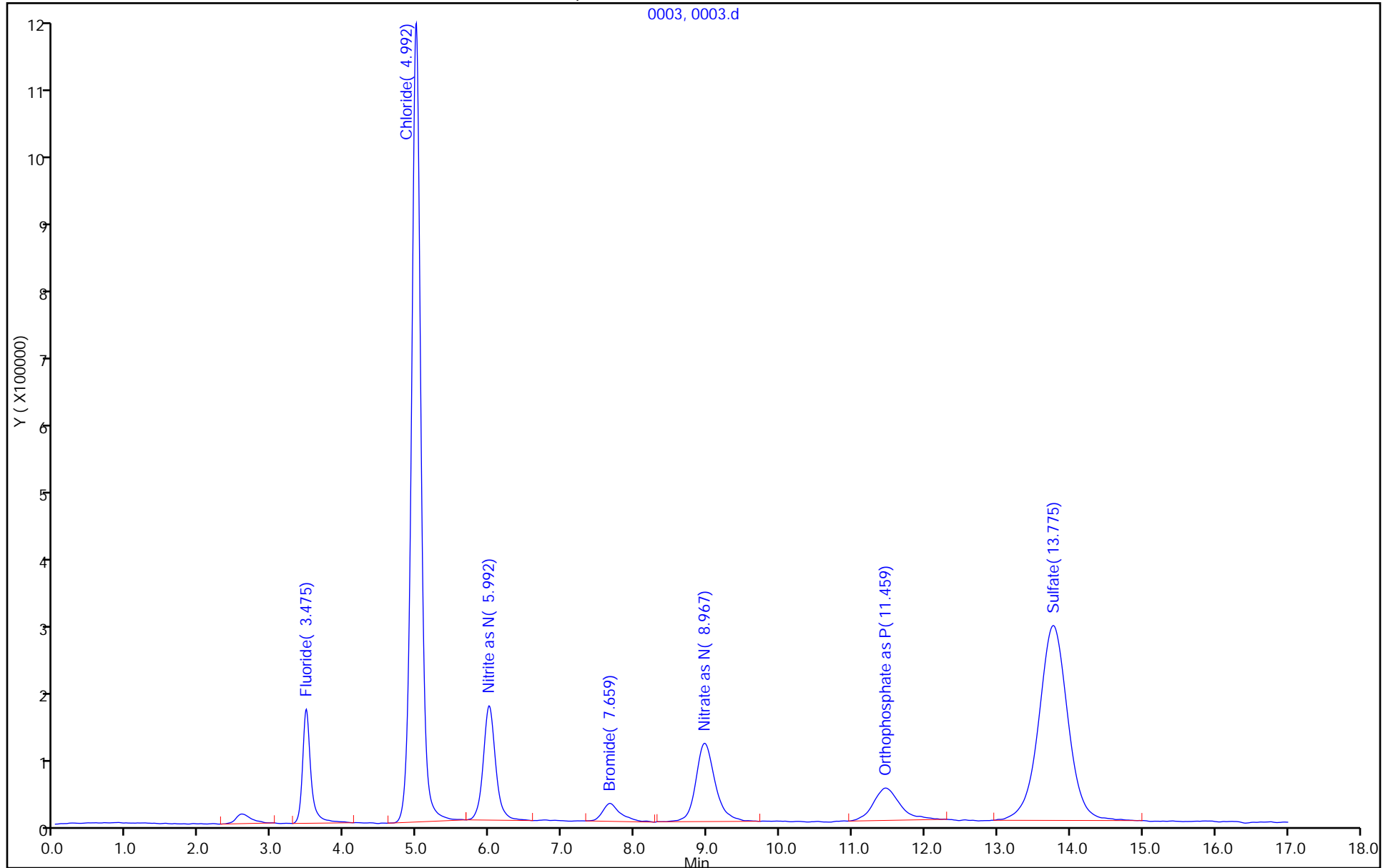
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0004.d  
 Lims ID: lcs  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 04-May-2017 10:25:00 ALS Bottle#: 0 Worklist Smp#: 4  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-004  
 Misc. Info.: 4 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	34062773	5.00	4.94	
2 Chloride	5.042	5.042	0.000	559410035	100.0	104.3	
3 Nitrite as N	5.992	5.992	0.000	48176151	5.00	5.16	
4 Bromide	7.634	7.642	-0.008	8915591	5.00	5.13	
5 Nitrate as N	8.867	8.875	-0.008	52575499	5.00	5.01	
7 Orthophosphate as P	11.434	11.434	0.000	20455169	5.00	4.89	
6 Sulfate	13.709	13.700	0.009	350165578	100.0	104.5	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0004.d

Injection Date: 04-May-2017 10:25:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: lcs

Worklist Smp#: 4

Client ID:

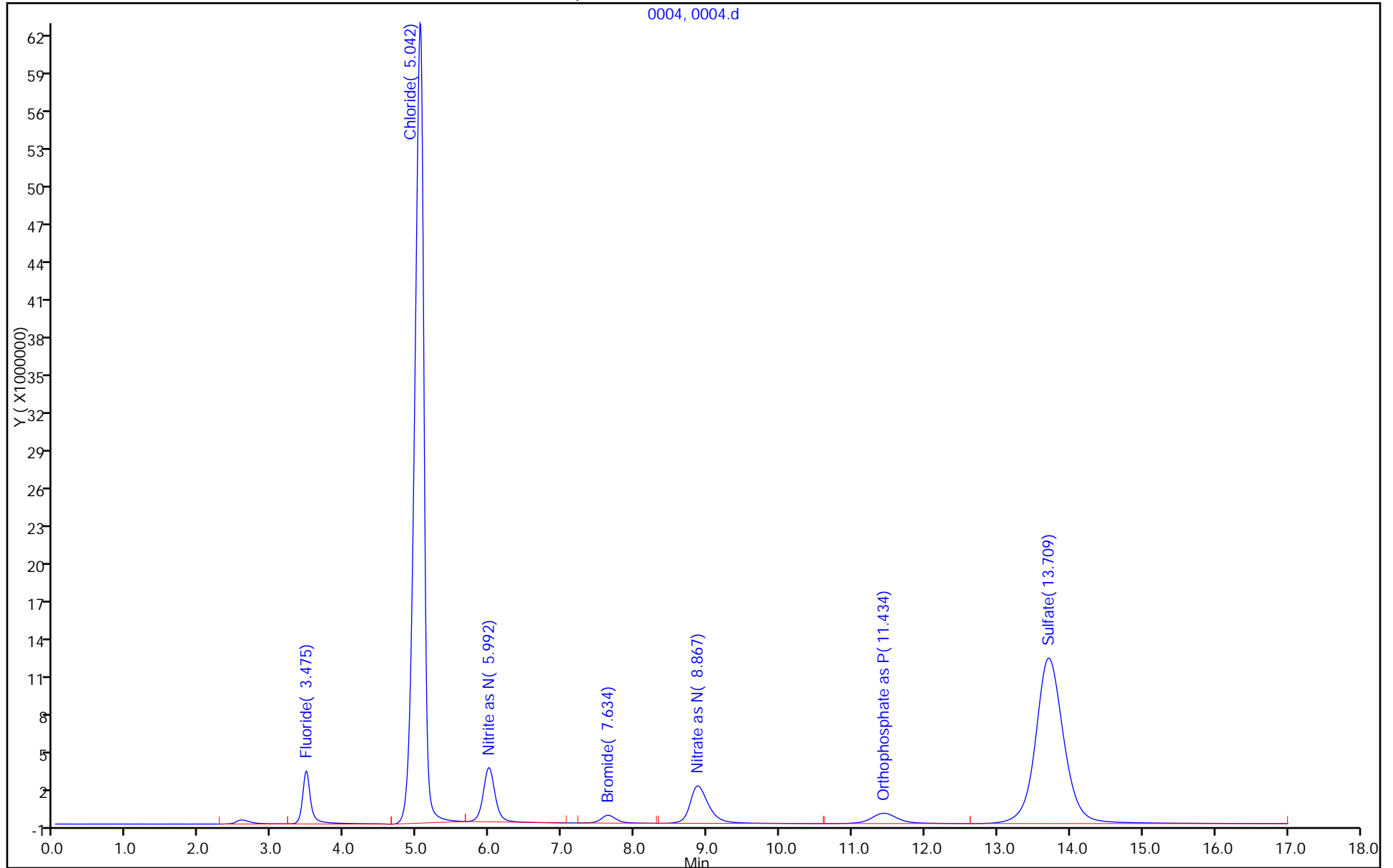
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0004.d  
 Lims ID: lcs  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 04-May-2017 10:25:00 ALS Bottle#: 0 Worklist Smp#: 4  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-004  
 Misc. Info.: 4 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	34062773	5.00	4.94	
2 Chloride	5.042	5.042	0.000	559410035	100.0	104.3	
3 Nitrite as N	5.992	5.992	0.000	48176151	5.00	5.16	
4 Bromide	7.634	7.642	-0.008	8915591	5.00	5.13	
5 Nitrate as N	8.867	8.875	-0.008	52575499	5.00	5.01	
7 Orthophosphate as P	11.434	11.434	0.000	20455169	5.00	4.89	
6 Sulfate	13.709	13.700	0.009	350165578	100.0	104.5	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0004.d

Injection Date: 04-May-2017 10:25:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: lcs

Worklist Smp#: 4

Client ID:

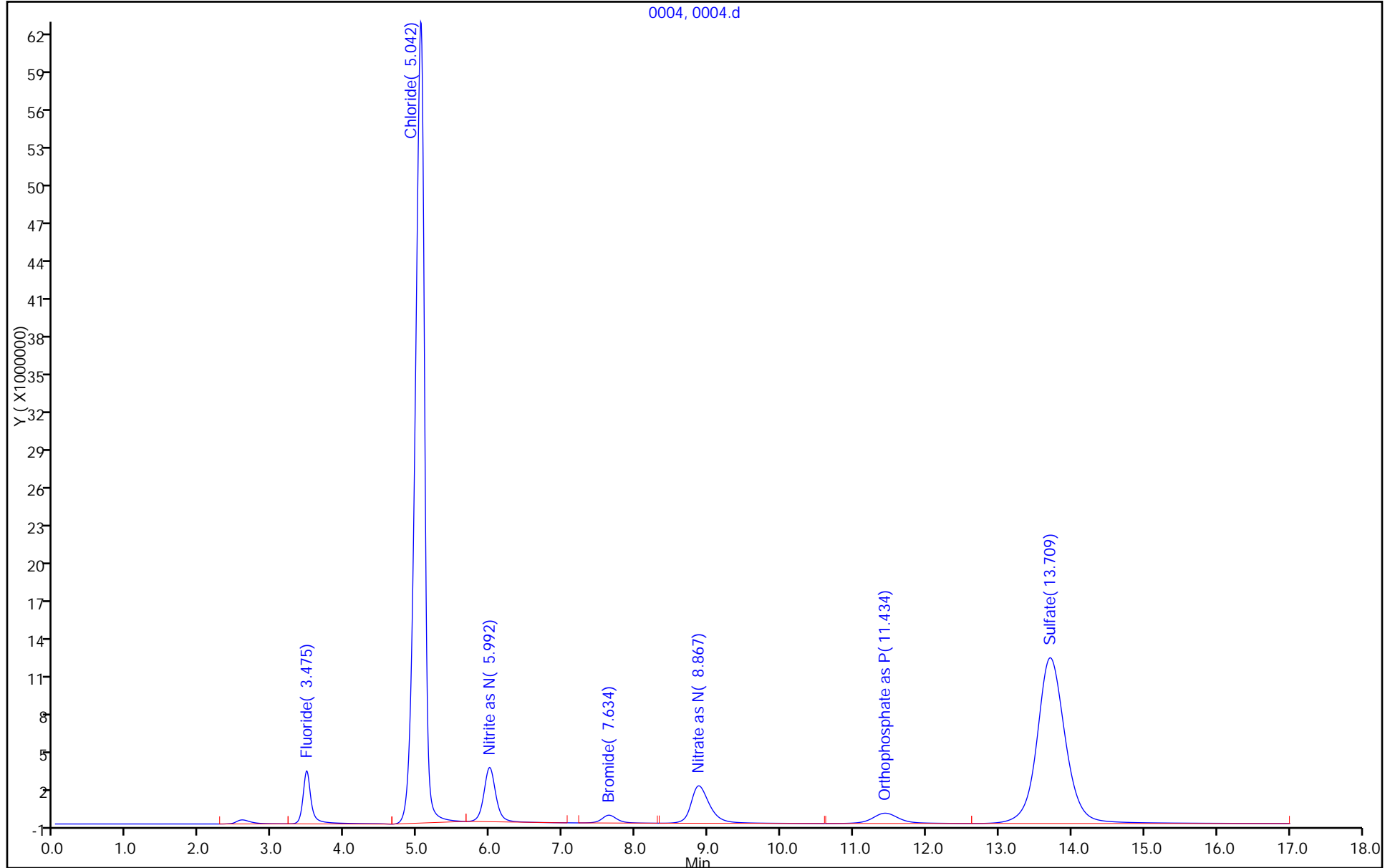
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0005.d  
 Lims ID: lcsd  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 04-May-2017 10:45:00 ALS Bottle#: 0 Worklist Smp#: 5  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-005  
 Misc. Info.: 5 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.476	3.475	0.001	33992618	5.00	4.93	
2 Chloride	5.042	5.042	0.000	559919720	100.0	104.3	
3 Nitrite as N	5.992	5.992	0.000	48256334	5.00	5.17	
4 Bromide	7.626	7.642	-0.016	8884590	5.00	5.11	
5 Nitrate as N	8.859	8.875	-0.016	52577830	5.00	5.01	
7 Orthophosphate as P	11.434	11.434	0.000	20844669	5.00	4.99	
6 Sulfate	13.709	13.700	0.009	350590923	100.0	104.6	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0005.d

Injection Date: 04-May-2017 10:45:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: lcsd

Worklist Smp#: 5

Client ID:

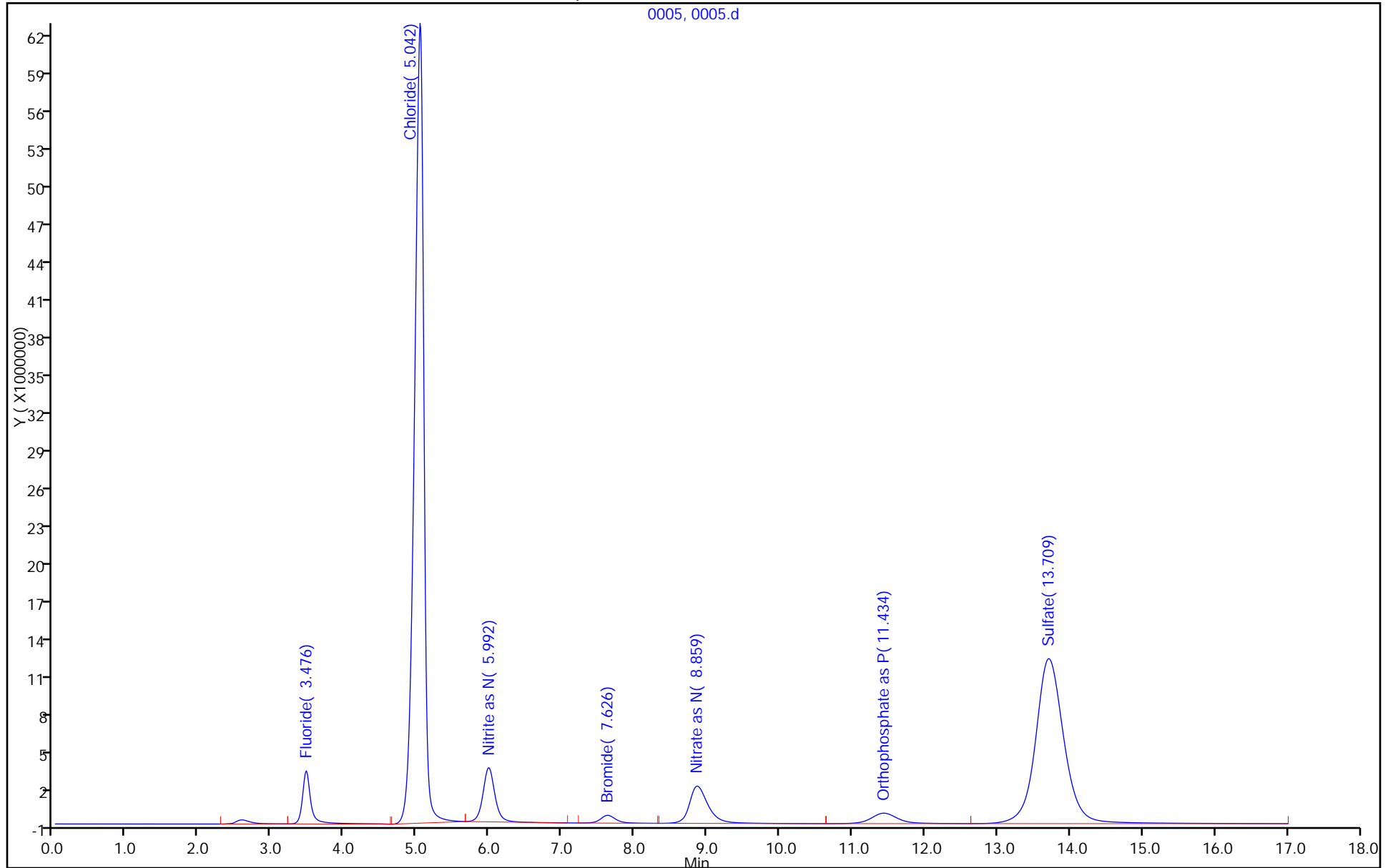
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0005.d  
 Lims ID: lcsd  
 Client ID:  
 Sample Type: LCSD  
 Inject. Date: 04-May-2017 10:45:00 ALS Bottle#: 0 Worklist Smp#: 5  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-005  
 Misc. Info.: 5 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.476	3.475	0.001	33992618	5.00	4.93	
2 Chloride	5.042	5.042	0.000	559919720	100.0	104.3	
3 Nitrite as N	5.992	5.992	0.000	48256334	5.00	5.17	
4 Bromide	7.626	7.642	-0.016	8884590	5.00	5.11	
5 Nitrate as N	8.859	8.875	-0.016	52577830	5.00	5.01	
7 Orthophosphate as P	11.434	11.434	0.000	20844669	5.00	4.99	
6 Sulfate	13.709	13.700	0.009	350590923	100.0	104.6	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0005.d

Injection Date: 04-May-2017 10:45:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: lcsd

Worklist Smp#: 5

Client ID:

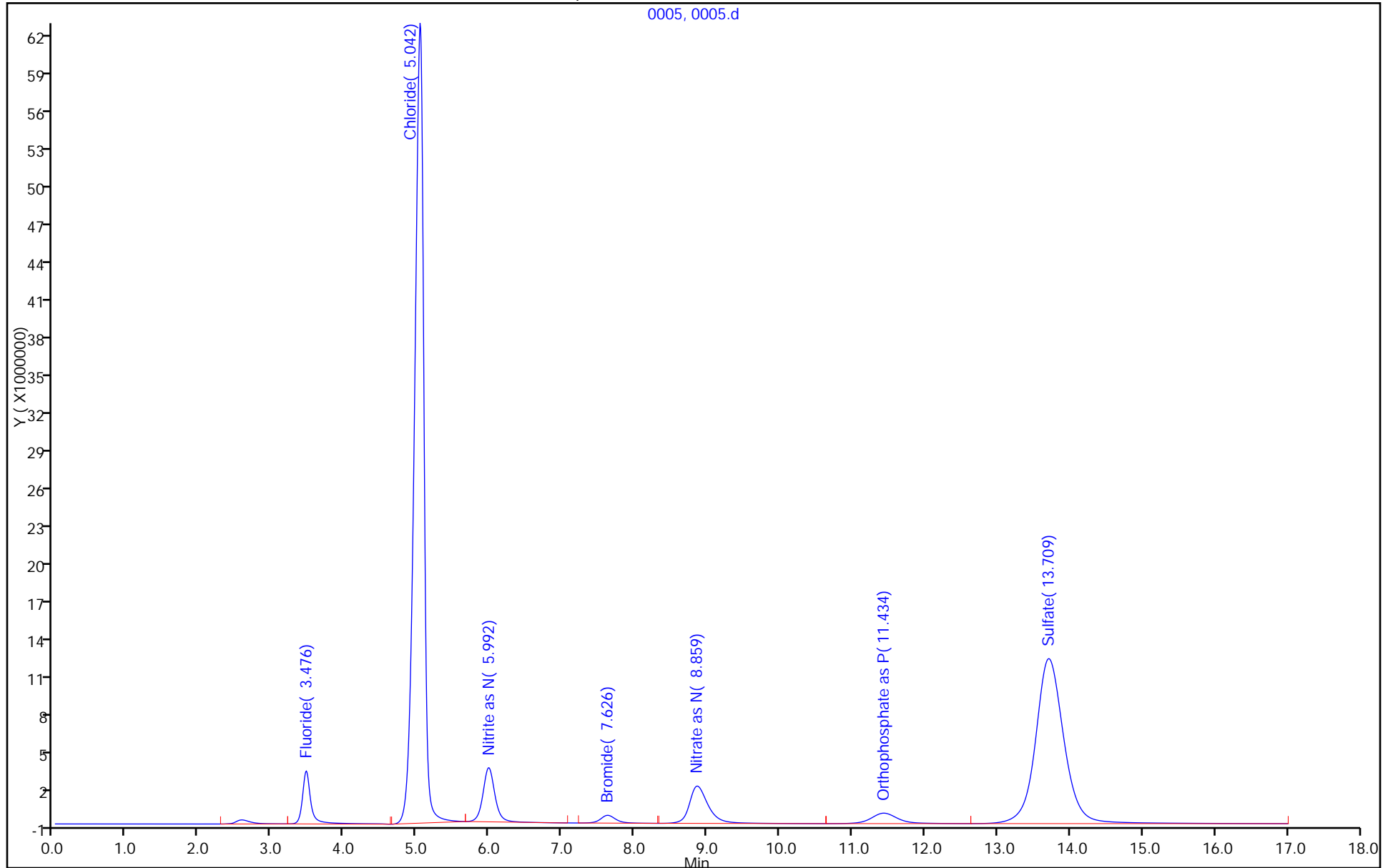
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0006.d  
 Lims ID: mb  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 04-May-2017 11:05:00 ALS Bottle#: 0 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-006  
 Misc. Info.: 6 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.467	3.475	-0.008	143772		0.0572	
2 Chloride	4.984	5.042	-0.058	510573		0.6388	
3 Nitrite as N		5.992				ND	
4 Bromide	7.859	7.642	0.217	171735		0.0758	
5 Nitrate as N		8.875				ND	
7 Orthophosphate as P	11.459	11.434	0.025	699572		0.000350	
6 Sulfate	13.775	13.700	0.075	304958		0.3617	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0006.d

Injection Date: 04-May-2017 11:05:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: mb

Worklist Smp#: 6

Client ID:

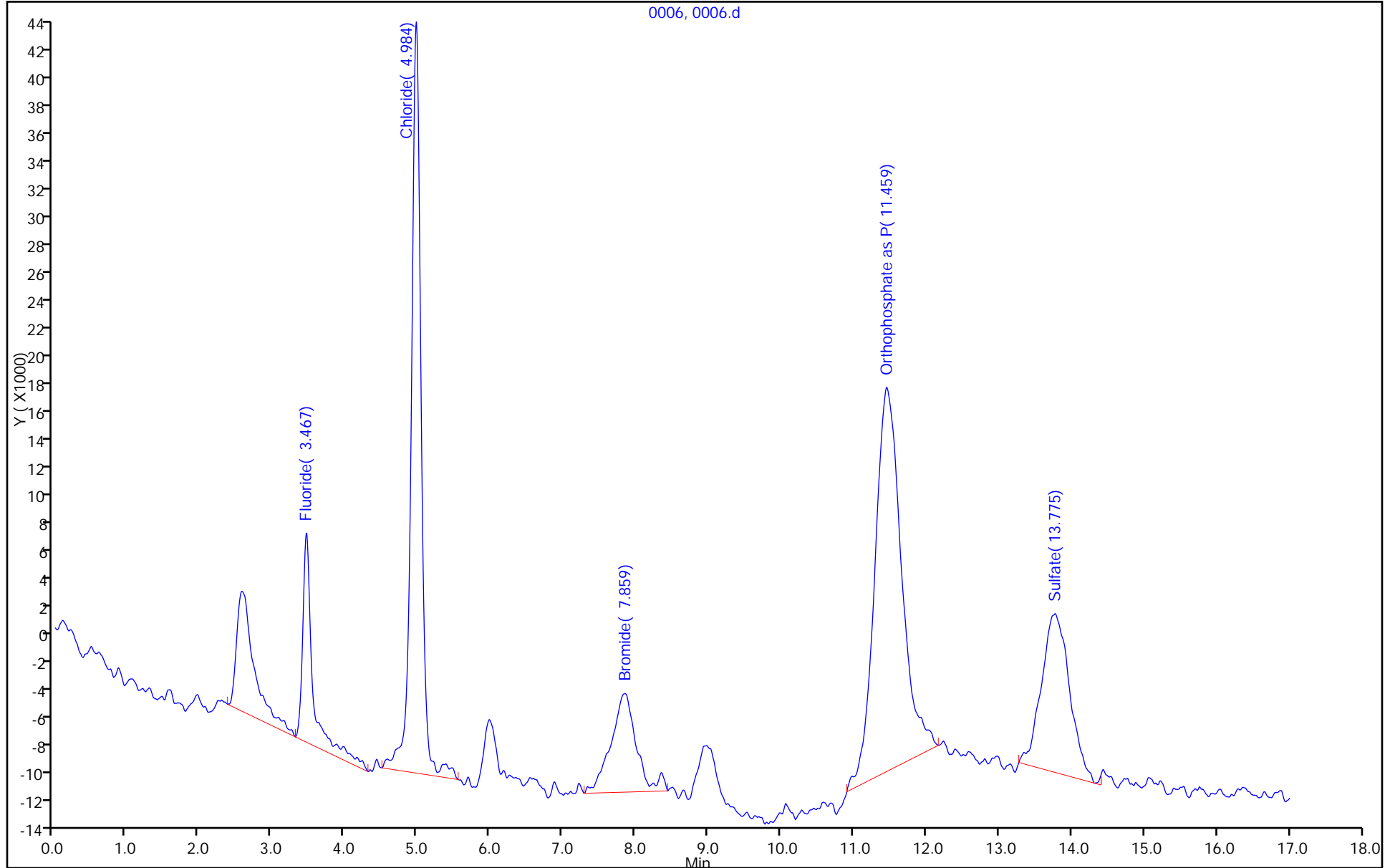
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0006.d  
 Lims ID: mb  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 04-May-2017 11:05:00 ALS Bottle#: 0 Worklist Smp#: 6  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-006  
 Misc. Info.: 6 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.467	3.475	-0.008	143772		0.0572	
2 Chloride	4.984	5.042	-0.058	510573		0.6388	
3 Nitrite as N		5.992				ND	
4 Bromide	7.859	7.642	0.217	171735		0.0758	
5 Nitrate as N		8.875				ND	
7 Orthophosphate as P	11.459	11.434	0.025	699572		0.000350	
6 Sulfate	13.775	13.700	0.075	304958		0.3617	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0006.d

Injection Date: 04-May-2017 11:05:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: mb

Worklist Smp#: 6

Client ID:

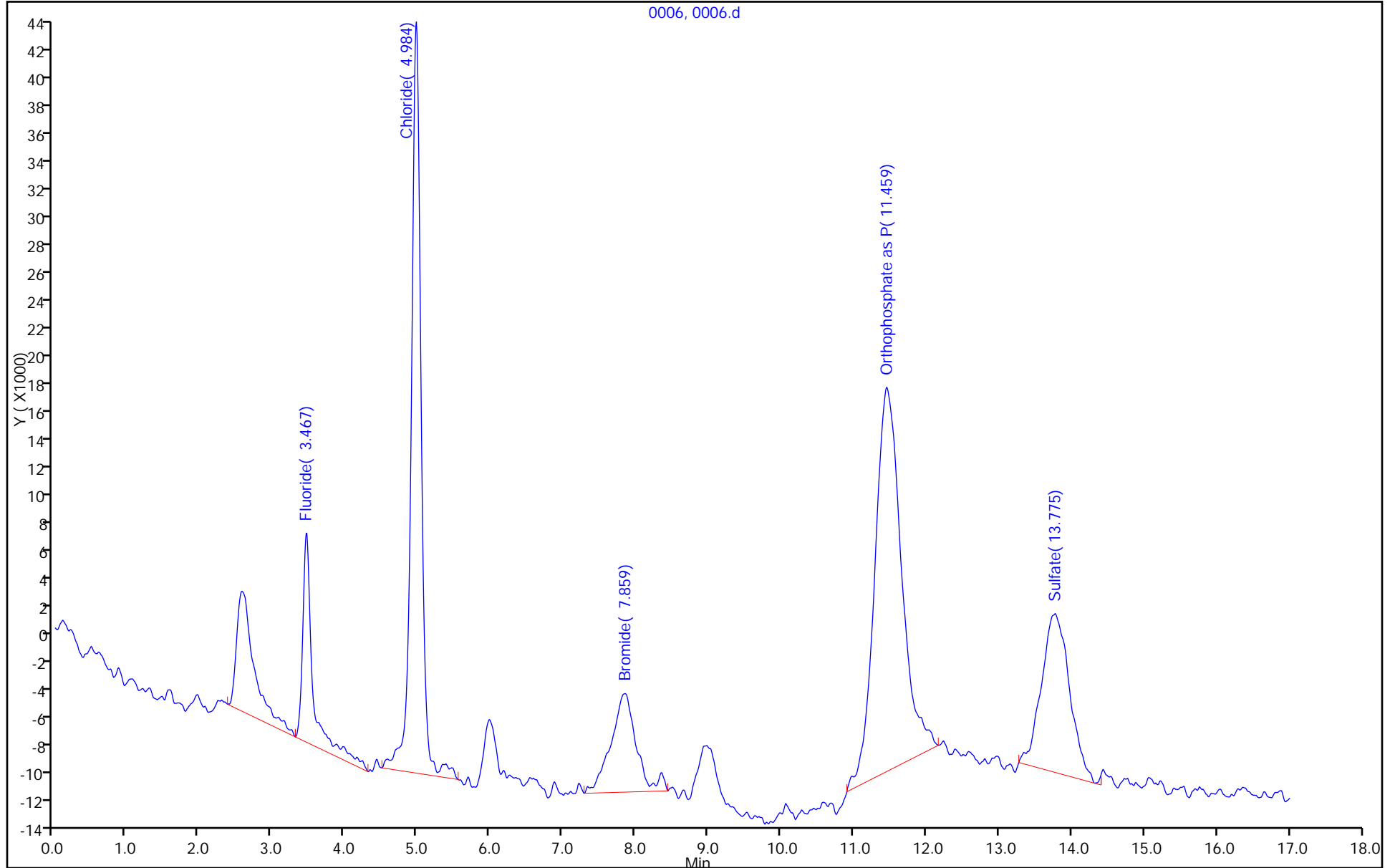
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0007.d  
 Lims ID: 280-96682-E-1  
 Client ID: RQLmw-012-050317-GW  
 Sample Type: Client  
 Inject. Date: 04-May-2017 13:56:00 ALS Bottle#: 0 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-007  
 Misc. Info.: 9033 324 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:42

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
1 Fluoride		3.475				ND
2 Chloride	5.000	5.042	-0.042	5618796	1.59	
3 Nitrite as N		5.992				ND
4 Bromide	7.817	7.642	0.175	117827	0.0447	
5 Nitrate as N	8.950	8.875	0.075	6445225	0.6386	
7 Orthophosphate as P	11.517	11.434	0.083	296978	-0.0993	
6 Sulfate	13.675	13.700	-0.025	633221977	188.7	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0007.d

Injection Date: 04-May-2017 13:56:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1

Lab Sample ID: 280-96682-1

Worklist Smp#: 7

Client ID: RQLmw-012-050317-GW

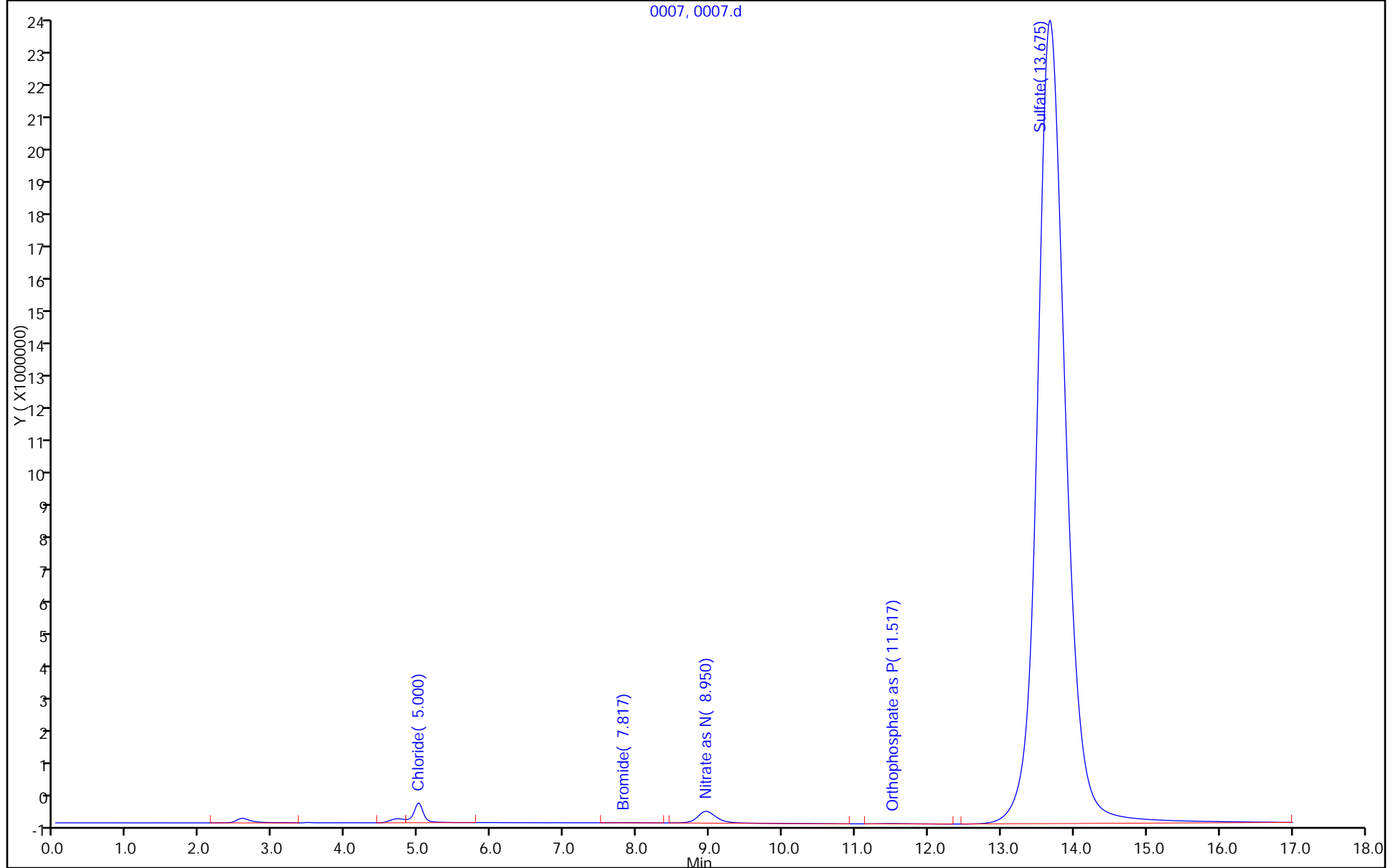
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0007.d  
 Lims ID: 280-96682-E-1  
 Client ID: RQLmw-012-050317-GW  
 Sample Type: Client  
 Inject. Date: 04-May-2017 13:56:00 ALS Bottle#: 0 Worklist Smp#: 7  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-007  
 Misc. Info.: 9033 324 F  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:42

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
1 Fluoride		3.475				ND
2 Chloride	5.000	5.042	-0.042	5618796	1.59	
3 Nitrite as N		5.992				ND
4 Bromide	7.817	7.642	0.175	117827	0.0447	
5 Nitrate as N	8.950	8.875	0.075	6445225	0.6386	
7 Orthophosphate as P	11.517	11.434	0.083	296978	-0.0993	
6 Sulfate	13.675	13.700	-0.025	633221977	188.7	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0007.d

Injection Date: 04-May-2017 13:56:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1

Lab Sample ID: 280-96682-1

Worklist Smp#: 7

Client ID: RQLmw-012-050317-GW

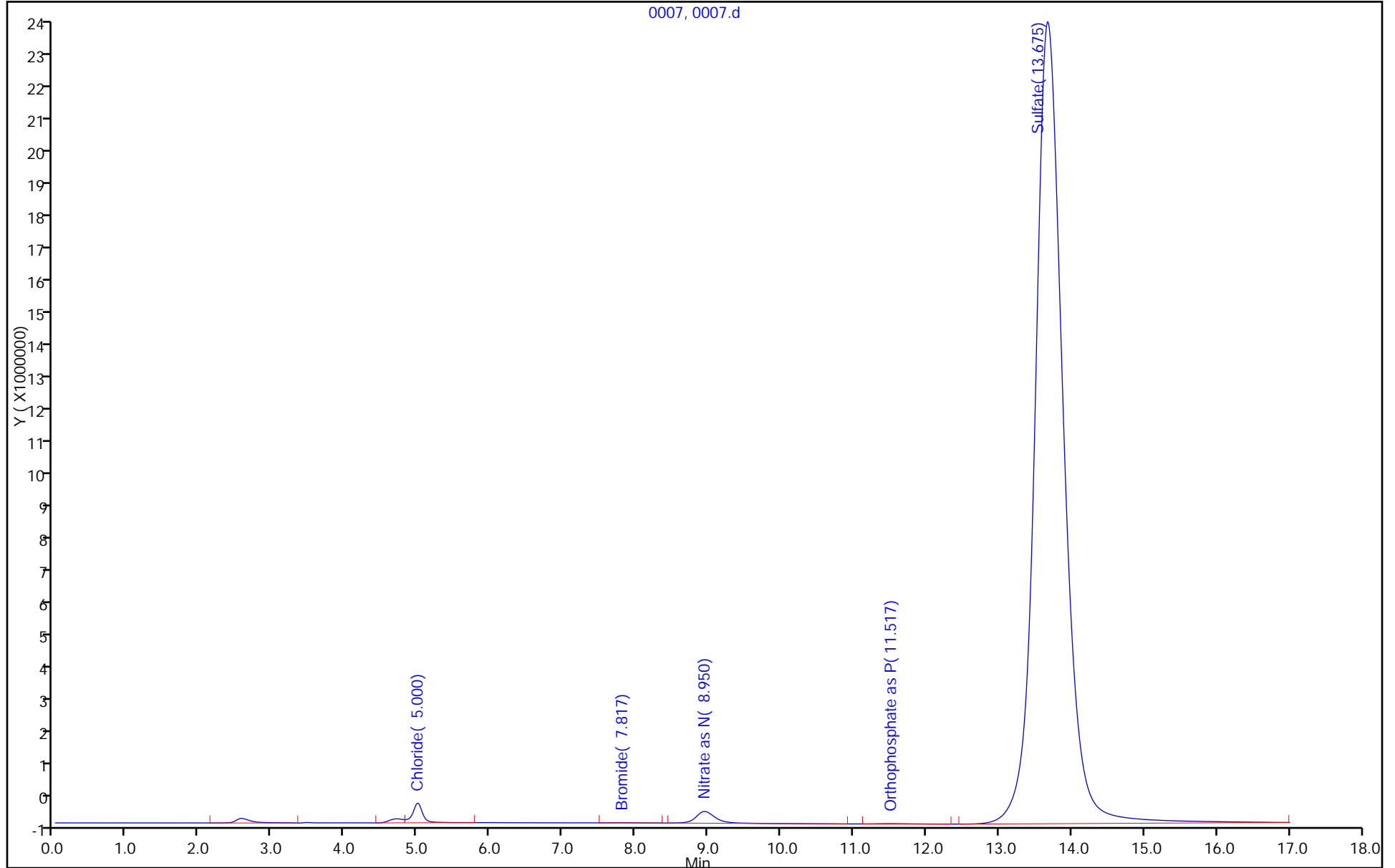
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0008.d  
 Lims ID: 280-96682-E-1 DU  
 Client ID:  
 Sample Type: DU  
 Inject. Date: 04-May-2017 14:16:00 ALS Bottle#: 0 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-008  
 Misc. Info.: 25539  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: benson Date: 05-May-2017 07:44:45

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride		3.475				ND	
2 Chloride	5.009	5.042	-0.033	5636946		1.59	
3 Nitrite as N		5.992				ND	
4 Bromide		7.642				ND	
5 Nitrate as N	8.959	8.875	0.084	6377329		0.6322	
7 Orthophosphate as P	11.592	11.434	0.158	271872		-0.1056	
6 Sulfate	13.709	13.700	0.009	633753983		188.9	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0008.d

Injection Date: 04-May-2017 14:16:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1 DU

Worklist Smp#: 8

Client ID:

Injection Vol: 10.0 ul

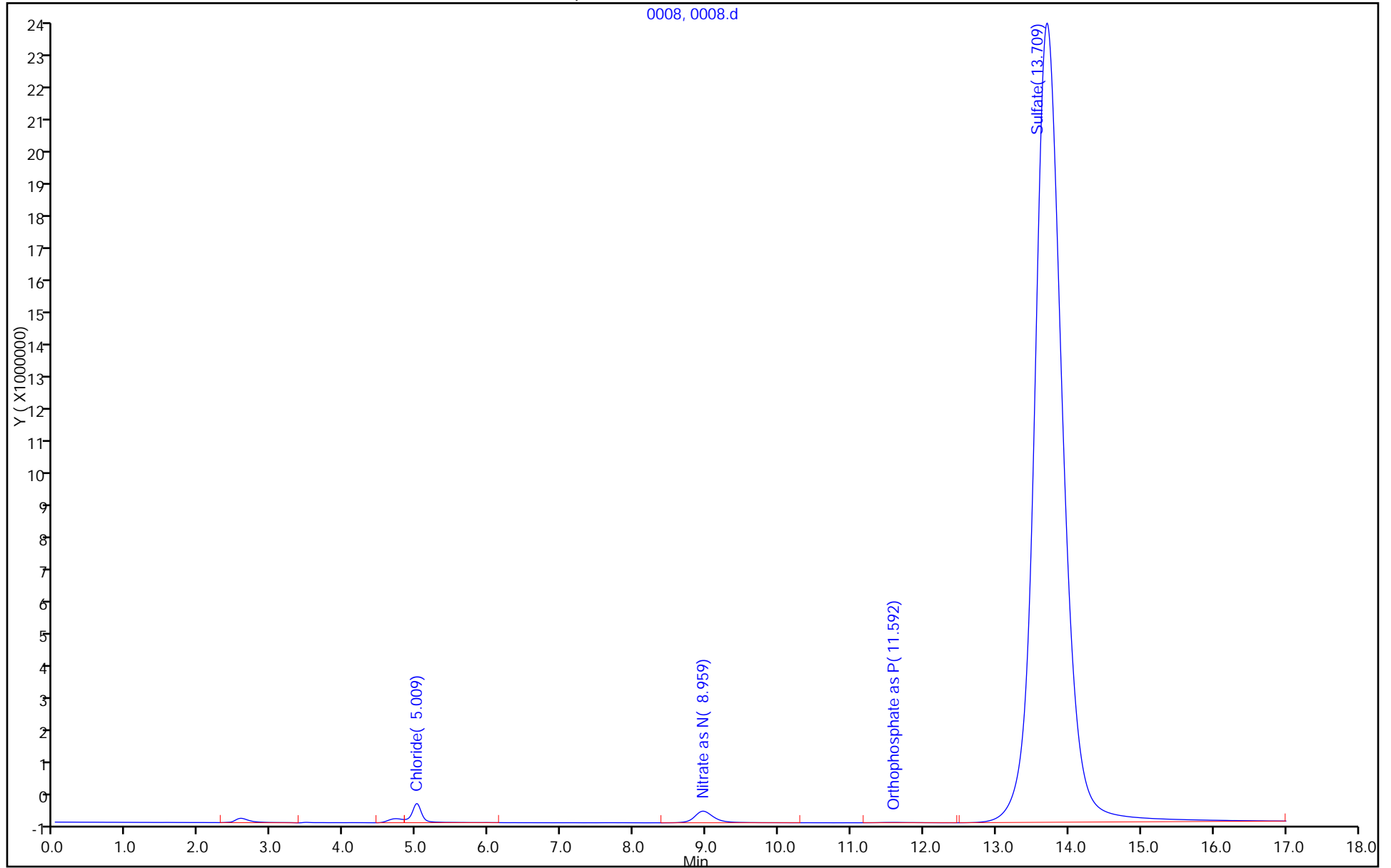
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions

0008, 0008.d



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0008.d  
 Lims ID: 280-96682-E-1 DU  
 Client ID:  
 Sample Type: DU  
 Inject. Date: 04-May-2017 14:16:00 ALS Bottle#: 0 Worklist Smp#: 8  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-008  
 Misc. Info.: 25539  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:45

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride		3.475				ND	
2 Chloride	5.009	5.042	-0.033	5636946		1.59	
3 Nitrite as N		5.992				ND	
4 Bromide		7.642				ND	
5 Nitrate as N	8.959	8.875	0.084	6377329		0.6322	
7 Orthophosphate as P	11.592	11.434	0.158	271872		-0.1056	
6 Sulfate	13.709	13.700	0.009	633753983		188.9	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0008.d

Injection Date: 04-May-2017 14:16:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1 DU

Worklist Smp#: 8

Client ID:

Injection Vol: 10.0 ul

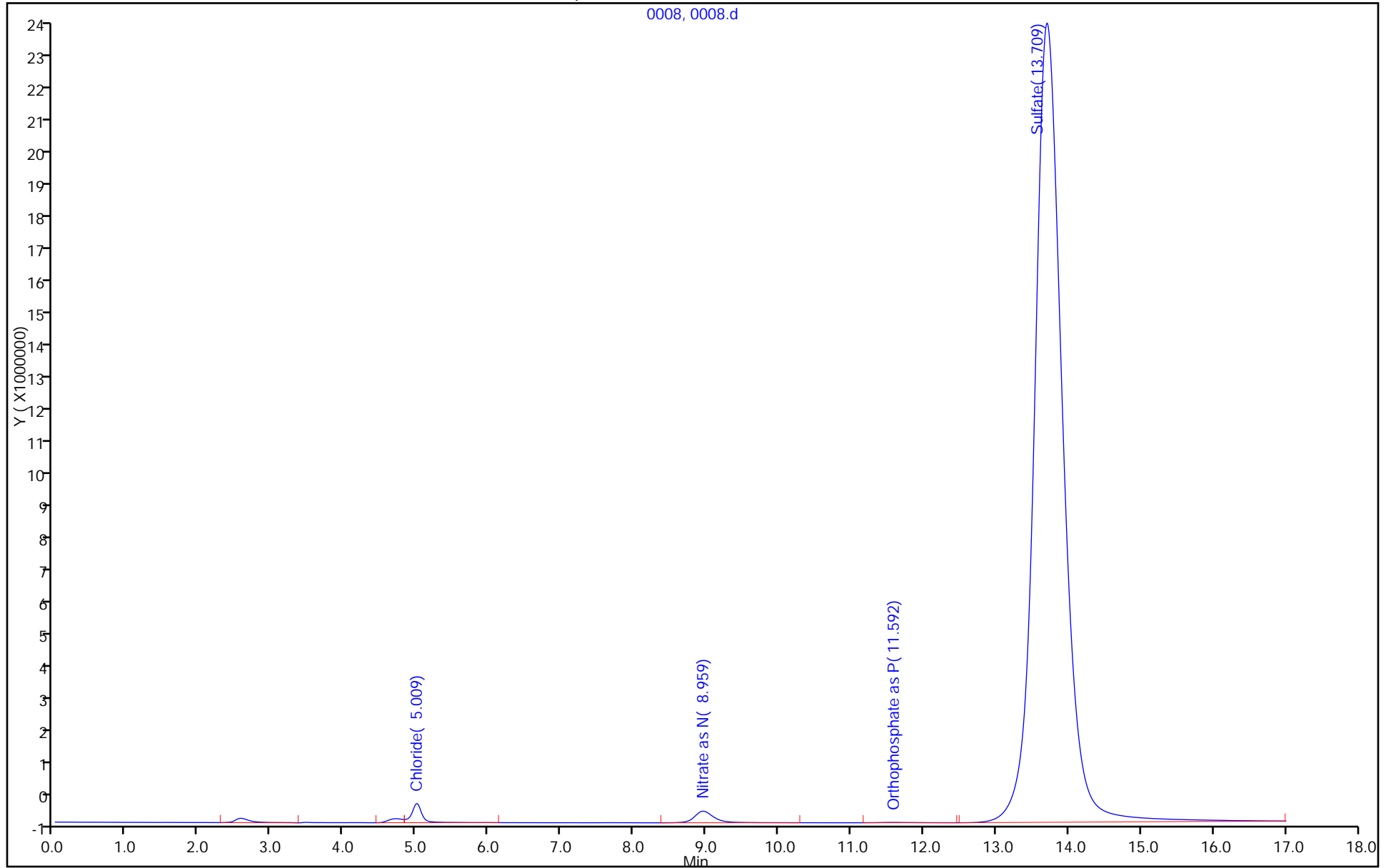
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D

0008, 0008.d





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0009.d  
 Lims ID: 280-96682-E-1 MS  
 Client ID:  
 Sample Type: MS  
 Inject. Date: 04-May-2017 14:36:00 ALS Bottle#: 0 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-009  
 Misc. Info.: 1960  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:50

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.476	3.475	0.001	32934879	5.00	4.78	
2 Chloride	5.017	5.042	-0.025	126246219	25.0	23.9	
3 Nitrite as N	6.001	5.992	0.009	47313786	5.00	5.07	
4 Bromide	7.642	7.642	0.000	9022671	5.00	5.19	
5 Nitrate as N	8.876	8.875	0.001	59404396	5.00	5.66	
7 Orthophosphate as P	11.542	11.434	0.108	41699159	5.00	10.2	E
6 Sulfate	13.692	13.700	-0.008	729910980	25.0	217.5	E

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

ICMS/MSD WEEK\_00468

Amount Added: 0.05

Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0009.d

Injection Date: 04-May-2017 14:36:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1 MS

Worklist Smp#: 9

Client ID:

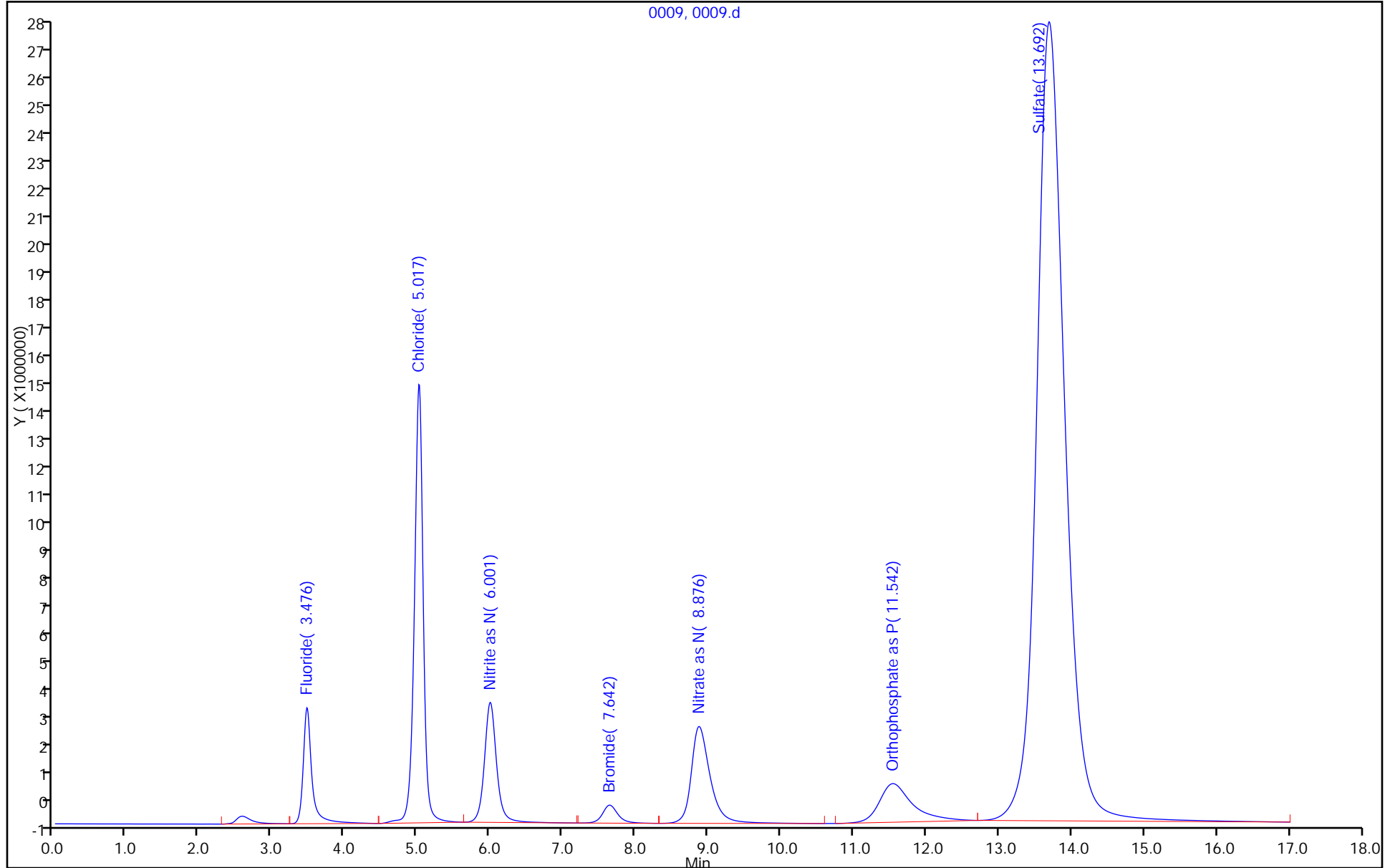
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0009.d  
 Lims ID: 280-96682-E-1 MS  
 Client ID:  
 Sample Type: MS  
 Inject. Date: 04-May-2017 14:36:00 ALS Bottle#: 0 Worklist Smp#: 9  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-009  
 Misc. Info.: 1960  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:50

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.476	3.475	0.001	32934879	5.00	4.78	
2 Chloride	5.017	5.042	-0.025	126246219	25.0	23.9	
3 Nitrite as N	6.001	5.992	0.009	47313786	5.00	5.07	
4 Bromide	7.642	7.642	0.000	9022671	5.00	5.19	
5 Nitrate as N	8.876	8.875	0.001	59404396	5.00	5.66	
7 Orthophosphate as P	11.542	11.434	0.108	41699159	5.00	10.2	E
6 Sulfate	13.692	13.700	-0.008	729910980	25.0	217.5	E

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

ICMS/MSD WEEK\_00468

Amount Added: 0.05

Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0009.d

Injection Date: 04-May-2017 14:36:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1 MS

Worklist Smp#: 9

Client ID:

Injection Vol: 10.0 ul

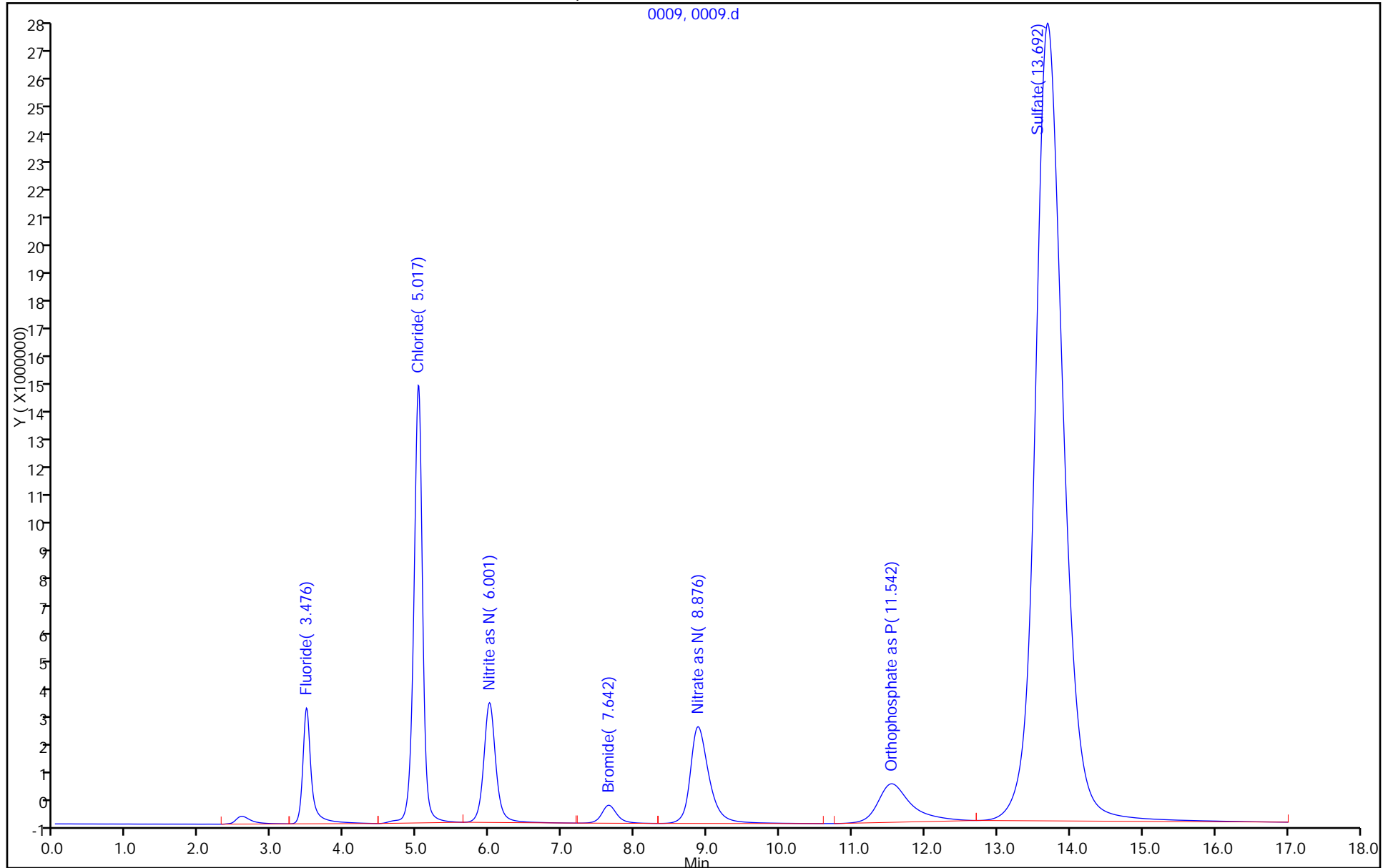
Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D

0009, 0009.d



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0010.d  
 Lims ID: 280-96682-E-1 MSD  
 Client ID:  
 Sample Type: MSD  
 Inject. Date: 04-May-2017 14:55:00 ALS Bottle#: 0 Worklist Smp#: 10  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-010  
 Misc. Info.: 25389  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:53

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	33686503	5.00	4.89	
2 Chloride	5.017	5.042	-0.025	127755799	25.0	24.2	
3 Nitrite as N	6.000	5.992	0.008	47905165	5.00	5.13	
4 Bromide	7.634	7.642	-0.008	9008462	5.00	5.18	
5 Nitrate as N	8.867	8.875	-0.008	60046317	5.00	5.72	
7 Orthophosphate as P	11.559	11.434	0.125	41963845	5.00	10.2	E
6 Sulfate	13.700	13.700	0.000	730950583	25.0	217.8	E

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

ICMS/MSD WEEK\_00468

Amount Added: 0.05

Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0010.d

Injection Date: 04-May-2017 14:55:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1 MSD

Worklist Smp#: 10

Client ID:

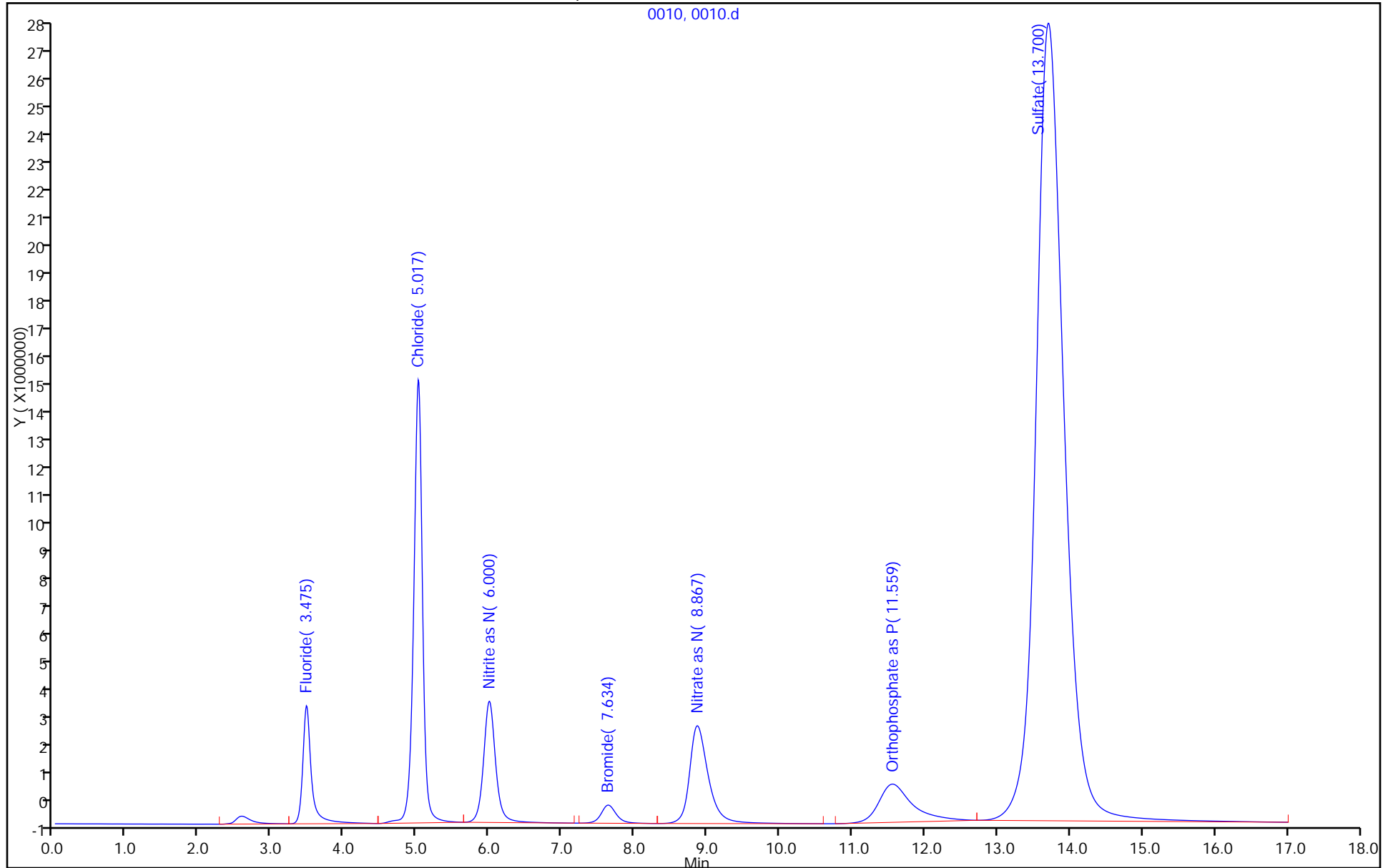
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0010.d  
 Lims ID: 280-96682-E-1 MSD  
 Client ID:  
 Sample Type: MSD  
 Inject. Date: 04-May-2017 14:55:00 ALS Bottle#: 0 Worklist Smp#: 10  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-010  
 Misc. Info.: 25389  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:16 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:44:53

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	33686503	5.00	4.89	
2 Chloride	5.017	5.042	-0.025	127755799	25.0	24.2	
3 Nitrite as N	6.000	5.992	0.008	47905165	5.00	5.13	
4 Bromide	7.634	7.642	-0.008	9008462	5.00	5.18	
5 Nitrate as N	8.867	8.875	-0.008	60046317	5.00	5.72	
7 Orthophosphate as P	11.559	11.434	0.125	41963845	5.00	10.2	E
6 Sulfate	13.700	13.700	0.000	730950583	25.0	217.8	E

**QC Flag Legend**

Processing Flags

E - Exceeded Maximum Amount

**Reagents:**

ICMS/MSD WEEK\_00468

Amount Added: 0.05

Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0010.d

Injection Date: 04-May-2017 14:55:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: 280-96682-E-1 MSD

Worklist Smp#: 10

Client ID:

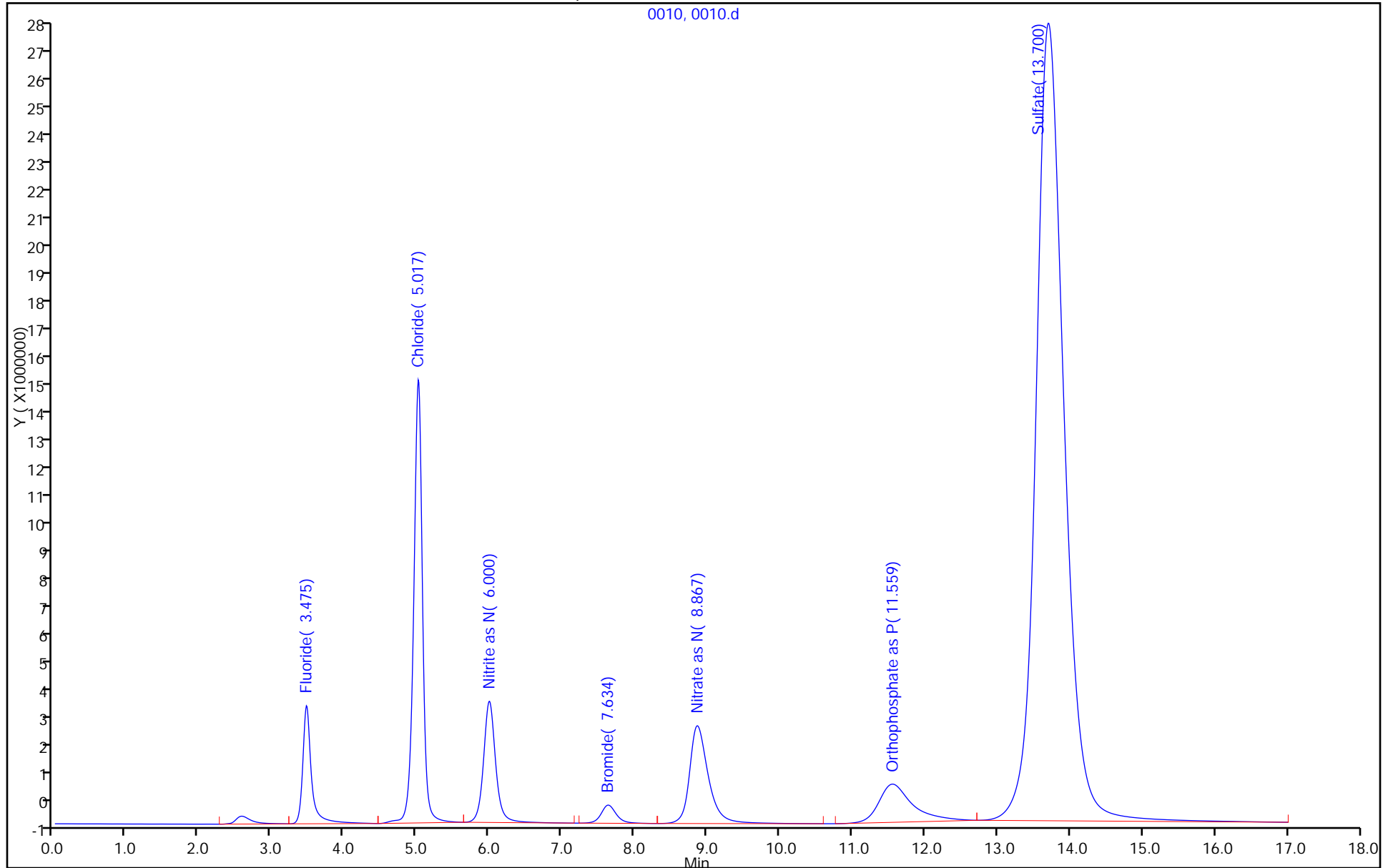
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0017.d  
 Lims ID: ccv  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 04-May-2017 17:58:00 ALS Bottle#: 0 Worklist Smp#: 17  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-017  
 Misc. Info.: 11005  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:33 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:46:21

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	33344991	5.00	4.84	
2 Chloride	5.042	5.042	0.000	546003398	100.0	101.8	
3 Nitrite as N	5.984	5.992	-0.008	47174279	5.00	5.05	
4 Bromide	7.617	7.642	-0.025	8608737	5.00	4.95	
5 Nitrate as N	8.842	8.875	-0.033	51472794	5.00	4.90	
7 Orthophosphate as P	11.492	11.434	0.058	23468988	5.00	5.64	
6 Sulfate	13.767	13.700	0.067	341701384	100.0	102.0	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0017.d

Injection Date: 04-May-2017 17:58:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccv

Worklist Smp#: 17

Client ID:

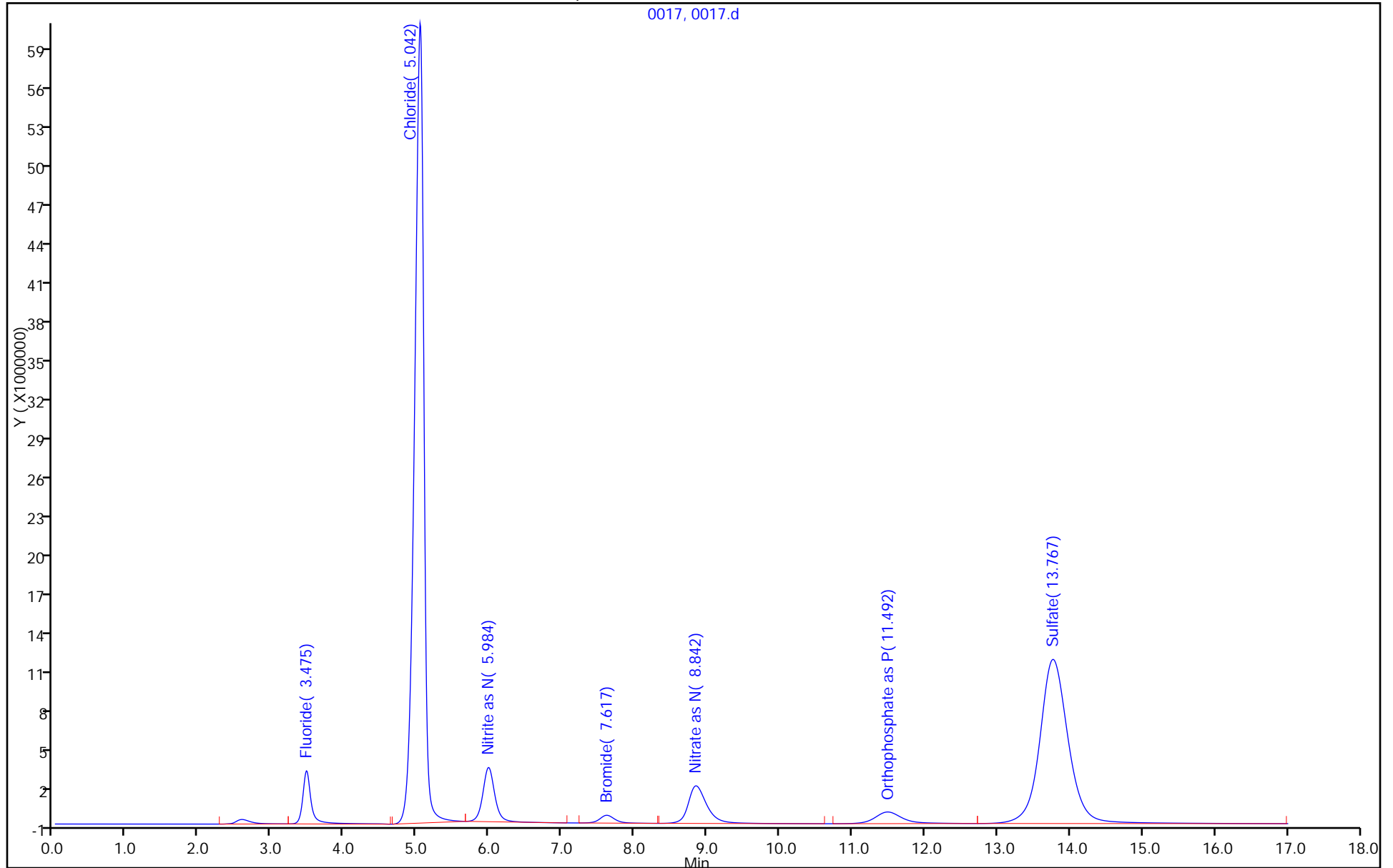
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0017.d  
 Lims ID: ccv  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 04-May-2017 17:58:00 ALS Bottle#: 0 Worklist Smp#: 17  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-017  
 Misc. Info.: 11005  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Sublist: chrom-Anions\_IC11\*sub1  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:33 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

First Level Reviewer: bensona Date: 05-May-2017 07:46:21

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	33344991	5.00	4.84	
2 Chloride	5.042	5.042	0.000	546003398	100.0	101.8	
3 Nitrite as N	5.984	5.992	-0.008	47174279	5.00	5.05	
4 Bromide	7.617	7.642	-0.025	8608737	5.00	4.95	
5 Nitrate as N	8.842	8.875	-0.033	51472794	5.00	4.90	
7 Orthophosphate as P	11.492	11.434	0.058	23468988	5.00	5.64	
6 Sulfate	13.767	13.700	0.067	341701384	100.0	102.0	

Reagents:

IC LCS\_00897 Amount Added: 5.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0017.d

Injection Date: 04-May-2017 17:58:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccv

Worklist Smp#: 17

Client ID:

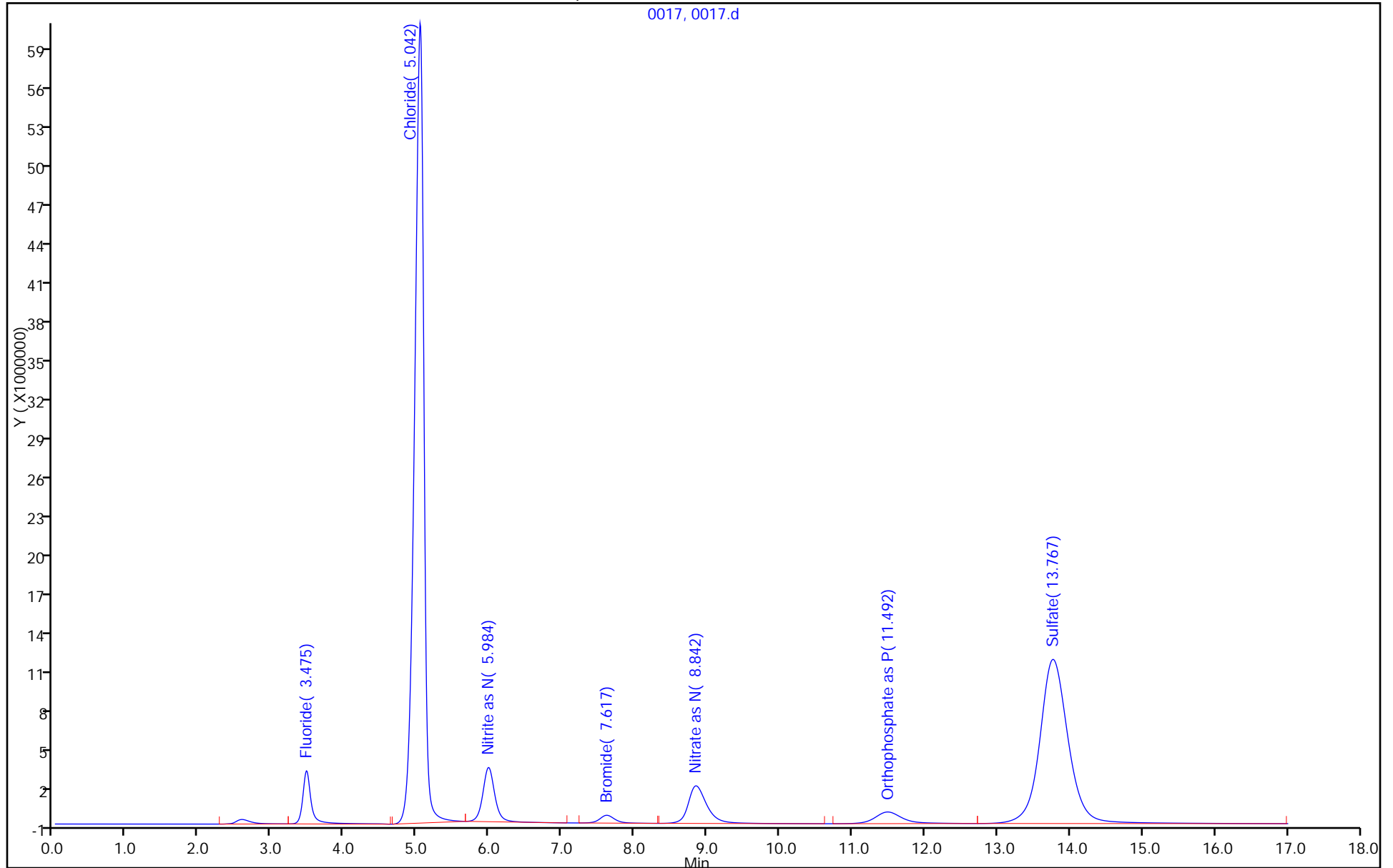
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D



TestAmerica Denver  
 Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0018.d  
 Lims ID: ccb  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 04-May-2017 18:18:00 ALS Bottle#: 0 Worklist Smp#: 18  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-018  
 Misc. Info.: 7724  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions  
 Last Update: 05-May-2017 07:51:33 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	287321		0.0778	
2 Chloride	4.984	5.042	-0.058	625499		0.6601	
3 Nitrite as N		5.992				ND	
4 Bromide		7.642				ND	
5 Nitrate as N		8.875				ND	
7 Orthophosphate as P	11.517	11.434	0.083	2107765		0.3491	
6 Sulfate	13.825	13.700	0.125	681313		0.4737	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0018.d

Injection Date: 04-May-2017 18:18:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccb

Worklist Smp#: 18

Client ID:

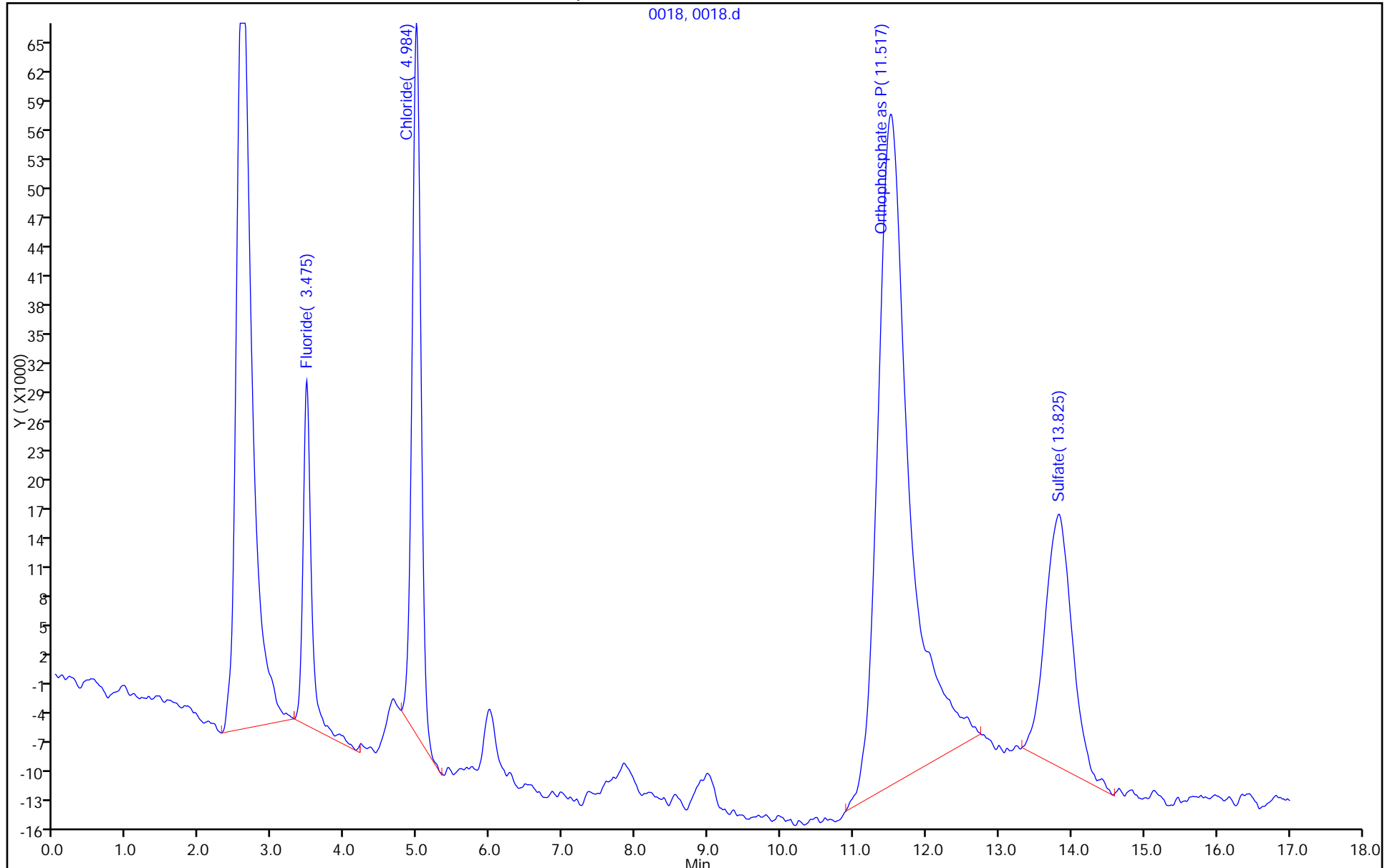
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0018.d  
 Lims ID: ccb  
 Client ID:  
 Sample Type: CCB  
 Inject. Date: 04-May-2017 18:18:00 ALS Bottle#: 0 Worklist Smp#: 18  
 Injection Vol: 10.0 ul Dil. Factor: 1.0000  
 Sample Info: 280-0058293-018  
 Misc. Info.: 7724  
 Operator ID: Instrument ID: WC\_IonChrom11  
 Method: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\Anions\_IC11.m  
 Limit Group: Wet - Anions 28D  
 Last Update: 05-May-2017 07:51:33 Calib Date: 12-Apr-2017 12:01:00  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170412-57469.b\0007.d  
 Column 1 : Det: 0005  
 Process Host: XAWRK034

Compound	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
1 Fluoride	3.475	3.475	0.000	287321		0.0778	
2 Chloride	4.984	5.042	-0.058	625499		0.6601	
3 Nitrite as N		5.992				ND	
4 Bromide		7.642				ND	
5 Nitrate as N		8.875				ND	
7 Orthophosphate as P	11.517	11.434	0.083	2107765		0.3491	
6 Sulfate	13.825	13.700	0.125	681313		0.4737	

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\WC\_IonChrom11\20170504-58293.b\0018.d

Injection Date: 04-May-2017 18:18:00

Instrument ID: WC\_IonChrom11

Operator ID:

Lims ID: ccb

Worklist Smp#: 18

Client ID:

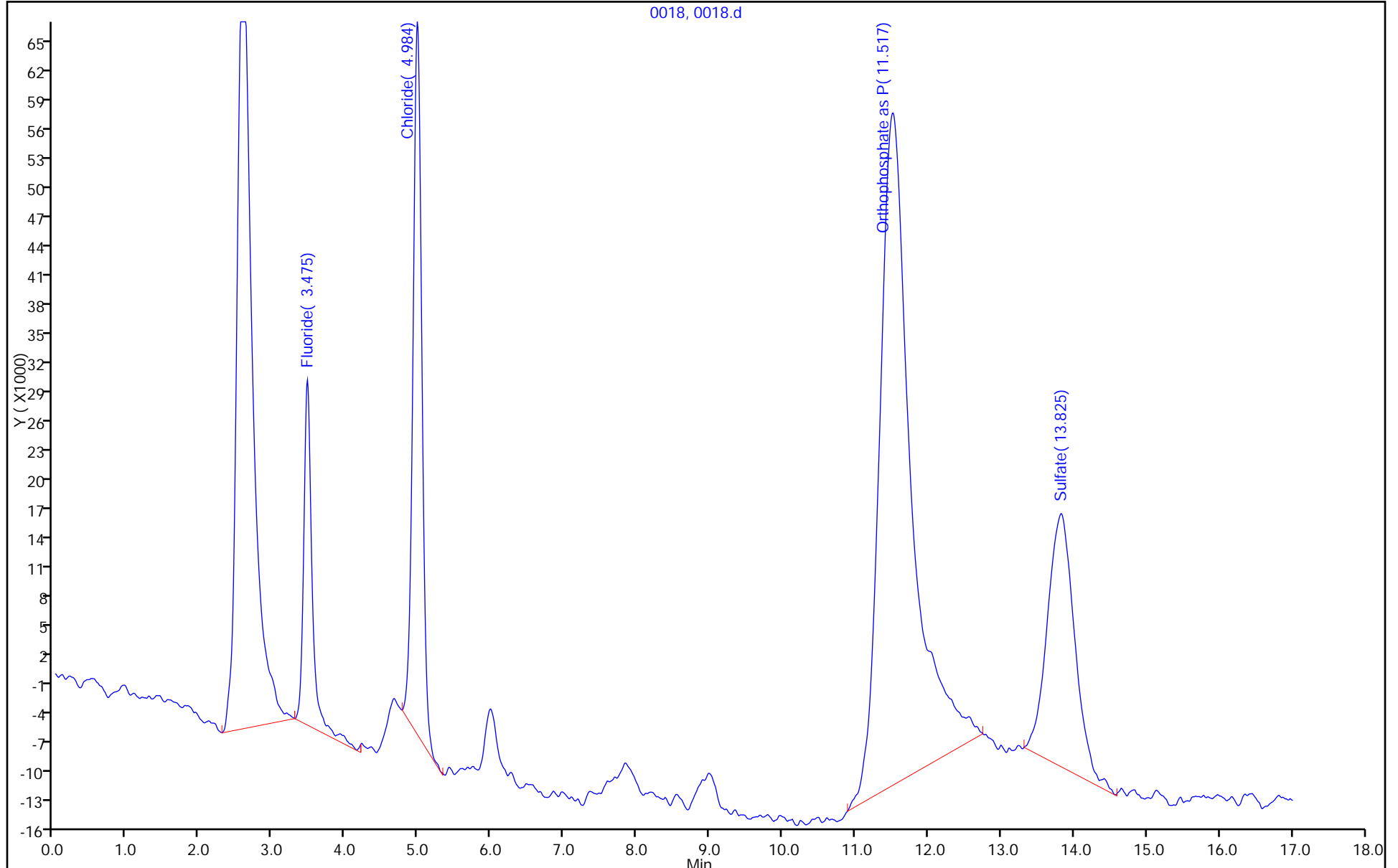
Injection Vol: 10.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: Anions\_IC11

Limit Group: Wet - Anions 28D





# Test America Water Analysis Report

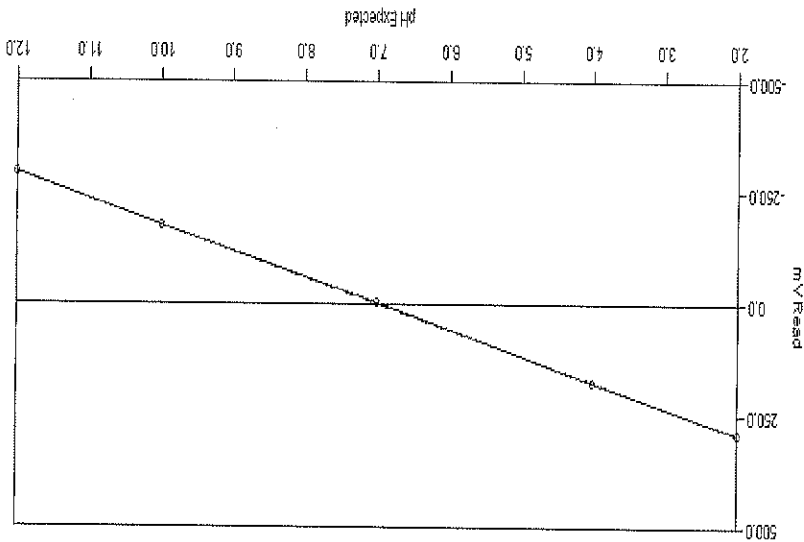
SampleID	RunDate	RunTime	Temp	cond (uS)	pH	pH2	pH3	Acid	20170509-2				hydr-ppm	(mL)@ 8.3	(mL)@ 4.5	(mL)@ 4.2	Conc (N)	
									paik-ppm	talk-ppm	bcarb-ppm	carb-ppm						
Run Number	3488	Order Number																
Rinse	5/9/2017	10:47 AM	21.67	-1.00	8.91	-1.00	-1.00	-1.00	-1.00	2.46	5.77	.86	4.91	.00	.06	.19	.23	.02
Buffer 7	5/9/2017	10:55 AM	21.58	-1.00	6.98	-1.00	-1.00	-1.00	-1.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
Initial check	5/9/2017	11:02 AM	21.51	-1.00	10.55	-1.00	-1.00	-1.00	-1.00	97.46	190.08	.00	185.25	4.84	2.44	4.75	-1.00	.02
LCS	5/9/2017	11:08 AM	21.22	-1.00	10.59	-1.00	-1.00	-1.00	-1.00	100.33	192.75	.00	184.83	7.92	2.51	4.82	-1.00	.02
MB	5/9/2017	11:14 AM	20.67	-1.00	9.40	-1.00	-1.00	-1.00	-1.00	1.06	2.66	.54	2.11	.00	.03	.11	.15	.02
280-96684-a-1	5/9/2017	11:21 AM	19.92	-1.00	8.00	-1.00	-1.00	-1.00	-1.00	.00	281.25	281.25	.00	.00	7.03	-1.00	.02	
DU 280-96684-a-1	5/9/2017	11:26 AM	19.56	-1.00	7.98	-1.00	-1.00	-1.00	-1.00	.00	256.28	256.28	.00	.00	6.41	-1.00	.02	
280-96684-a-2	5/9/2017	11:32 AM	18.92	-1.00	7.71	-1.00	-1.00	-1.00	-1.00	.00	285.83	285.83	.00	.00	7.15	-1.00	.02	
280-96684-a-3	5/9/2017	11:38 AM	18.96	-1.00	7.83	-1.00	-1.00	-1.00	-1.00	.00	216.83	216.83	.00	.00	5.42	-1.00	.02	
280-96684-a-4	5/9/2017	11:44 AM	18.89	-1.00	7.69	-1.00	-1.00	-1.00	-1.00	.00	302.98	302.98	.00	.00	7.57	-1.00	.02	
280-96684-a-5	5/9/2017	11:50 AM	18.81	-1.00	7.77	-1.00	-1.00	-1.00	-1.00	.00	257.40	257.40	.00	.00	6.43	-1.00	.02	
280-96695-a-2	5/9/2017	11:59 AM	18.91	-1.00	7.01	-1.00	-1.00	-1.00	-1.00	.00	.00	.00	.00	.00	.00	.00	.02	
280-96695-a-3	5/9/2017	12:08 PM	19.67	-1.00	7.26	-1.00	-1.00	-1.00	-1.00	.00	.00	.00	.00	.00	.00	.00	.02	
280-96697-d-2	5/9/2017	12:16 PM	19.63	-1.00	7.64	-1.00	-1.00	-1.00	-1.00	.00	669.05	669.05	.00	.00	16.73	-1.00	.02	
280-96697-d-3	5/9/2017	12:22 PM	19.17	-1.00	7.98	-1.00	-1.00	-1.00	-1.00	.00	317.53	317.53	.00	.00	7.94	-1.00	.02	
CCV1	5/9/2017	12:28 PM	19.30	-1.00	10.57	-1.00	-1.00	-1.00	-1.00	98.75	189.84	.00	182.18	7.66	2.47	4.75	-1.00	.02
CCB1	5/9/2017	12:34 PM	19.15	-1.00	9.03	-1.00	-1.00	-1.00	-1.00	.45	2.04	1.14	.90	.00	.01	.09	.14	.02
280-96697-d-4	5/9/2017	12:40 PM	18.77	-1.00	7.93	-1.00	-1.00	-1.00	-1.00	.00	152.90	152.90	.00	.00	3.82	-1.00	.02	
280-96701-g-1	5/9/2017	12:49 PM	18.82	-1.00	7.67	-1.00	-1.00	-1.00	-1.00	.00	817.81	817.81	.00	.00	20.45	-1.00	.02	
280-96729-b-5	5/9/2017	12:54 PM	19.76	-1.00	7.13	-1.00	-1.00	-1.00	-1.00	.00	175.05	175.05	.00	.00	4.38	-1.00	.02	
280-96729-b-6	5/9/2017	1:01 PM	20.44	-1.00	7.10	-1.00	-1.00	-1.00	-1.00	.00	639.87	639.87	.00	.00	16.00	-1.00	.02	
280-96729-b-4	5/9/2017	1:08 PM	19.94	-1.00	7.19	-1.00	-1.00	-1.00	-1.00	.00	449.92	449.92	.00	.00	11.25	-1.00	.02	
280-96729-b-8	5/9/2017	1:15 PM	19.59	-1.00	7.23	-1.00	-1.00	-1.00	-1.00	.00	524.08	524.08	.00	.00	13.10	-1.00	.02	
280-96729-b-7	5/9/2017	1:23 PM	19.39	-1.00	7.42	-1.00	-1.00	-1.00	-1.00	.00	645.78	645.78	.00	.00	16.14	-1.00	.02	
280-96729-b-9	5/9/2017	1:29 PM	19.34	-1.00	7.40	-1.00	-1.00	-1.00	-1.00	.00	522.48	522.48	.00	.00	13.06	-1.00	.02	
280-96643-a-1	5/9/2017	1:34 PM	19.54	-1.00	5.69	-1.00	-1.00	-1.00	-1.00	.00	.36	.36	.00	.00	.05	.09	.02	
280-96637-d-14	5/9/2017	1:42 PM	20.15	-1.00	7.56	-1.00	-1.00	-1.00	-1.00	.00	697.65	697.65	.00	.00	17.44	-1.00	.02	

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	pH2	pH3	Acid	paik-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	(mL) @ 8.3	(mL) @ 4.5	(mL) @ 4.2	Conc(N)
CCV	5/9/2017	1:48 PM	21.19	-1.00	10.48	-1.00	-1.00	-1.00	95.06	189.42	.00	188.72	.70	2.38	4.74	-1.00	.02
CCB	5/9/2017	1:54 PM	20.56	-1.00	9.00	-1.00	-1.00	-1.00	.45	2.17	1.26	.91	.00	.01	.10	.14	.02
LCS	5/9/2017	2:00 PM	20.11	-1.00	10.51	-1.00	-1.00	-1.00	96.52	190.13	.00	187.22	2.92	2.41	4.75	-1.00	.02
MB	5/9/2017	2:07 PM	19.85	-1.00	9.09	-1.00	-1.00	-1.00	.55	2.30	1.19	1.11	.00	.01	.10	.14	.02
280-96682-d-1	5/9/2017	2:11 PM	19.84	-1.00	6.32	-1.00	-1.00	-1.00	.00	27.94	27.94	.00	.00	.00	.70	-1.00	.02
DU 280-96682-d-1	5/9/2017	2:17 PM	20.05	-1.00	6.38	-1.00	-1.00	-1.00	.00	27.31	27.31	.00	.00	.00	.68	-1.00	.02
280-96643-a-2	5/9/2017	2:22 PM	20.76	-1.00	7.92	-1.00	-1.00	-1.00	.00	276.48	276.48	.00	.00	.00	6.91	-1.00	.02
280-96637-a-5	5/9/2017	2:28 PM	21.45	-1.00	7.81	-1.00	-1.00	-1.00	.00	321.04	321.04	.00	.00	.00	8.03	-1.00	.02
280-96637-a-22	5/9/2017	2:35 PM	20.94	-1.00	7.90	-1.00	-1.00	-1.00	.00	369.09	369.09	.00	.00	.00	9.23	-1.00	.02
280-96637-b-26	5/9/2017	2:41 PM	20.60	-1.00	7.66	-1.00	-1.00	-1.00	.00	407.33	407.33	.00	.00	.00	10.18	-1.00	.02
280-96637-a-25	5/9/2017	2:48 PM	20.44	-1.00	7.41	-1.00	-1.00	-1.00	.00	532.43	532.43	.00	.00	.00	13.31	-1.00	.02
280-96637-c-28	5/9/2017	2:54 PM	20.48	-1.00	7.81	-1.00	-1.00	-1.00	.00	305.34	305.34	.00	.00	.00	7.63	-1.00	.02
280-96665-a-7	5/9/2017	3:00 PM	20.80	-1.00	8.01	-1.00	-1.00	-1.00	.00	207.26	207.26	.00	.00	.00	5.18	-1.00	.02
280-96665-a-8	5/9/2017	3:05 PM	21.25	-1.00	8.16	-1.00	-1.00	-1.00	.00	198.42	198.42	.00	.00	.00	4.96	-1.00	.02
CCV	5/9/2017	3:12 PM	21.92	-1.00	10.43	-1.00	-1.00	-1.00	92.13	190.16	5.90	184.26	.00	2.30	4.75	-1.00	.02
CCB	5/9/2017	3:18 PM	21.63	-1.00	9.02	-1.00	-1.00	-1.00	.46	2.15	1.23	.93	.00	.01	.10	.14	.02
280-96665-a-5	5/9/2017	3:24 PM	21.37	-1.00	7.08	-1.00	-1.00	-1.00	.00	237.56	237.56	.00	.00	.00	5.94	-1.00	.02
280-96665-a-6	5/9/2017	3:29 PM	21.22	-1.00	8.10	-1.00	-1.00	-1.00	.00	181.60	181.60	.00	.00	.00	4.54	-1.00	.02
280-96665-a-3	5/9/2017	3:35 PM	21.27	-1.00	7.97	-1.00	-1.00	-1.00	.00	227.04	227.04	.00	.00	.00	5.68	-1.00	.02
280-96665-a-4	5/9/2017	3:41 PM	21.45	-1.00	8.06	-1.00	-1.00	-1.00	.00	269.09	269.09	.00	.00	.00	6.73	-1.00	.02
280-96665-a-1	5/9/2017	3:48 PM	21.71	-1.00	7.92	-1.00	-1.00	-1.00	.00	213.97	213.97	.00	.00	.00	5.35	-1.00	.02
280-96665-a-2	5/9/2017	3:53 PM	22.35	-1.00	8.11	-1.00	-1.00	-1.00	.00	284.26	284.26	.00	.00	.00	7.11	-1.00	.02
280-96610-a-1	5/9/2017	4:00 PM	22.14	-1.00	8.14	-1.00	-1.00	-1.00	.00	507.22	507.22	.00	.00	.00	12.68	-1.00	.02
280-96610-a-2	5/9/2017	4:07 PM	22.00	-1.00	8.09	-1.00	-1.00	-1.00	.00	502.13	502.13	.00	.00	.00	12.55	-1.00	.02
280-96610-a-3	5/9/2017	4:15 PM	21.95	-1.00	8.38	-1.00	-1.00	-1.00	13.35	606.46	579.77	26.69	.00	.33	15.16	-1.00	.02
CCV	5/9/2017	4:21 PM	22.05	-1.00	10.40	-1.00	-1.00	-1.00	93.02	192.85	6.81	186.04	.00	2.33	4.82	-1.00	.02
CCB	5/9/2017	4:27 PM	22.05	-1.00	8.75	-1.00	-1.00	-1.00	.18	1.65	1.30	.36	.00	.00	.08	.12	.02

**PC-TITRATION PLUS**

**Calibration Report**

Calibration Record # 1025



**Calibration Settings**

Calibration ID: PH  
 Channel: 1  
 Probe Type: pH  
 Probe ID: PH ELECTRODE  
 Date: 5/9/2017  
 Time: 9:42 AM  
 Temperature: 295.01 K  
 Analysis Type: Single Line Fit  
 CorCoeff: 1.0000  
 Equation:  $Y = (-58.664) X + (-2.268)$   
 Operator:

**Calibration Results**

Slope: -58.664  
 Intercept: -2.268  
 Calibration Validity: True

Note: "True" means the calibration was within the specified ranges  
 "False" means the calibration was NOT within the specified ranges  
 Correlation Coefficient: 1.0000  
 Slope: -58.664  
 Intercept: -2.268  
 Result: Minimum: -100.00, Maximum: 100.00  
 Correlation Coefficient: 1.00

**Calibration Data**

Standard	Reading
12.00	-295.77
10.00	-177.85
7.00	-2.80
4.00	174.31
2.00	290.77

**Titration Data Review Checklist**

LIMS Batch Number: 372960	Method (circle one): 2310B (2320B) 2340C 4500 S2 F 4500 SO3 B 9030B/9034	QC Type (circle): (Standard) DoD QAPP Other
Analyst/1 <sup>st</sup> Reviewer: AD		
Date: 5/10/17		
Matrix (circle): (Water) Solid	(Automated) or Manual (circle one)	Instrument ID (circle one if applicable): (AT2) AT3

Review Items	Yes	No	2 <sup>nd</sup> Rev	If No, why is data reportable?
<b>A. Sample Storage and Pretreatment</b>				
1. Is sample pH verified and documented prior to analysis? (if required)	NA		✓	
2. For samples requiring pH adjustment is the amount of acid/base used documented?	NA		✓	If no, list details:
3. Are samples analyzed within the required hold time?	✓		✓	NCM:
4. Pre-treatment reagents used to remove interferences are documented.	NA		✓	
<b>B. Calibration / Instrument</b>				
5. Was the normality of the titrant verified and found acceptable?	NA		✓	Comments:
6. For potentiometric titration, the pH meter is calibrated with 5 buffers bracketing range of samples and QC.	✓		✓	Comments:
7. Calibration standards are analyzed at the beginning and end of the analytical sequence and after every 10 sample analyses. (samples/dilutions/reanalyses).	✓		✓	Comments:
8. Calibrations standards (ICV/CCV) are within 90-110% recovery.	✓		✓	
<b>C. Sample and Batch QC</b>				
9. Blanks are analyzed at the beginning, end and after every 10 sample analyses in the sequence.	✓		✓	
10. Results of blank analyses (MB, ICB, CCB) are < ½ RL (<RL for alkalinity unless DoD)	✓		✓	<input type="checkbox"/> No analyte > ½ RL in associated samples <input type="checkbox"/> Sample results >10x blank
11. A standard from a second source (SRM, CRM, LCS) is included in the analytical sequence.	✓		✓	
12. The recovery of the 2 <sup>nd</sup> source material falls within 90-110% or manufacturer's limits.	✓		✓	
13. Samples analyses are bracketing by acceptable CCV/CCBs.	✓		✓	<input type="checkbox"/> No analyte > RL in associated samples <input type="checkbox"/> Sample results >10x blank <input type="checkbox"/> Sample results qualified
14. MS/MSD analyzed at required frequency and recovers within limits. (If recoveries out of limits, verify not due to lab error) (Required for 2340C, 4500 S2 F, 9030B/9034)	NA		✓	<input type="checkbox"/> Non-conformance (NCM) added <input type="checkbox"/> Sample results >4X spike conc.
15. Duplicate analyzed at required frequency and RPD within limits. (Required for 2310B, 2320B, 4500 SO3 B)	✓		✓	<input checked="" type="checkbox"/> Non-conformance (NCM) added <input type="checkbox"/> Sample results ND or <2X RL

Review Items	Yes	No	2 <sup>nd</sup> Rev	If No, why is data reportable?
16. Are all MS/MSD RPDs <50%? Note: Excessive RPDs (>50%) require evaluation, correction or explanation.	NA		✓	<input type="checkbox"/> Non-conformance (NCM) added
<b>D. Raw Data &amp; TALS Data Entry</b>				
17. Raw Data				
a. Unused data is clearly identified with reason	✓		✓	
b. All crossed out data is initialed and dated	✓		✓	
c. Out of control QC is clearly identified	✓		✓	
d. Any data that has a qualifier is commented on with appropriate action taken	✓		✓	
e. The first page of the run includes the filename, instrument, and analyst initials/signature	✓		✓	
f. 100% of manual calculations are verified.	✓		✓	
18. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct	✓		✓	
b. Method and matrix are correct	✓		✓	
c. Date and time match raw data	✓		✓	
d. Dilutions are correct	NA		✓	
e. Correct suffix designated (where applicable)	✓		✓	
19. TALS Worksheet Tab is complete and correct	✓		✓	
20. TALS Reagent Tab is complete and correct	✓		✓	
21. TALS QC Links Tab is correct	✓		✓	
22. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted	✓		✓	
b. All reported analytes are marked Primary or Secondary	✓		✓	
c. Data manually transcribed from benchsheet into TALS verified 100% including significant figures (SM 4500 SO3 B).	✓		✓	
d. TALS Batch Information Screen documentation is complete	✓		✓	
e. TALS Status set to appropriate review level	✓		✓	
<b>E. Final Report and NCMs (2<sup>nd</sup> level review only)</b>				
f. Were all job/project requirements met?			✓	
g. Results for samples and QC correct on final report?			✓	
h. Are all necessary scanned documents in TALS?			✓	
i. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?			✓	

Comments:

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

2<sup>nd</sup> Reviewer:

*[Signature]*

Review Date:

5/19/17

# Shipping and Receiving Documents

Chain of Custody Record

<b>Client Information</b> Client Contact: Ms. Heather Miner Company: Cardno TEC, Inc. Address: 1658 Cole Boulevard Suite 190 City: Golden State, Zip: CO, 80401 Phone: Email: heather.miner@cardno-gs.com Project Name: Ravenna, OH - Ramsdell Quarry Landfill Site:		Sampler: Kroenke - Lead Phone: 330 388 1518 Lab PM: McEntee, Patrick J E-Mail: patrick.mcEntee@testamericainc.com Carrier Tracking Ref(s): 810486071435	
Due Date Requested: TAT Requested (days): Standard PO #: 0091979 WO #: 076003.009.007 TestAmerica Project #: 28014271 SSOW#:		Analysis Requested VOCs 8260B SVOCs 8270D - phthalates SVOCs 8270D - phthalates, phenols SVOCs 8270D - phthalates, phenols PAHs 8270D SIM (LVI) PCBs 8082A (LL - TL) Explosives 8330B Pesticides 8081B (LVI) Total Cyanide 9012B Free Cyanide 4500 CN I Total Metals 6010C6020A/7470A Hexavalent Chromium 7196A - 24 Hour HTI Alkalinity 2320B Sulfide 9034 Anions 9056A - Sulfate, Nitrate & Nitrite - 48 Hour HTI Total Number of Containers	
Sample Identification Sample ID: 012-050317-6W Sample Date: 5/3/17 Sample Time: 1400 Sample Type (C=Comp, G=grab): G Matrix (W=water, S=solid, O=soil, B=biological, T=tissue, A=air): W Preservation Code: W		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): VOCs 8260B SVOCs 8270D - phthalates SVOCs 8270D - phthalates, phenols SVOCs 8270D - phthalates, phenols PAHs 8270D SIM (LVI) PCBs 8082A (LL - TL) Explosives 8330B Pesticides 8081B (LVI) Total Cyanide 9012B Free Cyanide 4500 CN I Total Metals 6010C6020A/7470A Hexavalent Chromium 7196A - 24 Hour HTI Alkalinity 2320B Sulfide 9034 Anions 9056A - Sulfate, Nitrate & Nitrite - 48 Hour HTI Total Number of Containers	
Possible Hazard Identification <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)			
Empty Kit Requisitioned by: Requisitioned by: Kroenke Date: 5/3/17 Time: 1700 Company: ATC Requisitioned by: Kroenke Date: 5-4-17 Time: 0855 Company: TAD Requisitioned by: Date: Time: Company:			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			
Special Instructions/Note: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAVA W - pH 4-5 X - EDTA L - EDA Other:			

### Chain of Custody Record

<b>Client Information</b> Client Contact: Ms. Heather Miner Company: Cardno TEC, Inc Address: 1658 Cole Boulevard Suite 190 City: Golden State, Zip: CO, 80401 Phone: 0091979 Email: heather.miner@cardno-gs.com Project Name: Ravenna, OH Site:		Job PM: Patrick J McEntee E-Mail: petrick.mcEntee@testamericainc.com Carrier Tracking No(s): 8104860714255	
Due Date Requested: TAT Requested (days): <b>Standard</b> PO #: 0091979 WO #: 0760003.009.007 TestAmerica Project #: 28014271 SSOW#:		Analysis Requested	
Sample Identification Sample ID: LL3 MW-246-050317-6W BK6 MW-024-050317-6W BK6 MW-008-050317-6W BK6 MW-005-050317-6W BK6 MW-015-050317-6W FW6 MW-005-050317-6W FW6 MW-021-050317-6W LL1 MW-084-050317-6W		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Total Number of Containers:	
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Soil, O=Organic, BT=Tissue, A=Air)
5/3/17	1530	G	W
5/3/17	1230	G	W
5/3/17	1537	G	W
5/3/17	1537	G	W
5/3/17	1451	G	W
5/3/17	1430	G	W
5/3/17	1521	G	W
Special Instructions/Note:			
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 Other:			
Possible Hazard Identification <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)			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/OC Requirements:			
Empty <input checked="" type="checkbox"/> Relinquished by: <i>Heather Miner</i> Relinquished by: <i>Heather Miner</i> Relinquished by:		Date: 5/3/17 Date/Time: 5/3/17 1700 Date/Time: 5-4-17 0855 Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



# Login Sample Receipt Checklist

Client: Cardno TEC, Inc

Job Number: 280-96682-1

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

**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.	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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	