received 09/29/2013
Complaint 200387998

Inorganics

Case Narrative

Colorado Oil & Gas Conservation Commission

TBAL

Work Order Number: 1309158

1. This report consists of 1 water sample.

2. The sample was received cool and intact by ALS on 09/12/13.

3. The sample was prepared for analysis based on Methods for the Chemical Analysis of Waters and Wastes (MCAWW), May 1994 procedures and Environmental Monitoring Systems Laboratory (EMSL) Rev 2.1 procedures.

4. The sample was analyzed following MCAWW and EMSL procedures for the current revisions of the following SOPs and methods:

Analyte	Method	SOP #
Alkalinity	310.1	1106
Bicarbonate	310.1	1106
Carbonate	310.1	1106
pH	150.1	1126
Specific conductance	120.1	1128
TDS	160.1	1101
Bromide	300.0 Revision 2.1	1113
Chloride	300.0 Revision 2.1	1113
Fluoride	300.0 Revision 2.1	1113
Nitrate as N	300.0 Revision 2.1	1113
Nitrite as N	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

5. All standards and solutions were used within their recommended shelf life.

6. The sample was prepared and analyzed within the established hold time for each analysis.

All in house quality control procedures were followed, as described below.

7. General quality control procedures.

   - A preparation (method) blank and laboratory control sample (LCS) were prepared and analyzed with the samples in each applicable preparation batch.
   - The method blank associated with each applicable batch was below the reporting limit for the requested analytes.
   - All laboratory control sample criteria were met.
   - All initial and continuing calibration blanks were below the reporting limit for the requested analytes.
   - All initial and continuing calibration verifications were within the acceptance criteria for the requested analytes.

8. Matrix specific quality control procedures.

   Per method requirements, matrix QC was performed for each analysis. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

9. Reduced aliquots were taken of the sample for the alkalinity, bicarbonate, and carbonate analysis. Reporting limits were elevated accordingly.

10. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939. Whenever manual integrations are performed, before and after chromatograms of the peak that were manually integrated are included in the report along with the reason why the re-integration was necessary.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Megan Johnson
Inorganics Primary Data Reviewer

9/19/13
Date

Inorganics Final Data Reviewer

9/19/13
Date

Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- Concentration qualifier -- A "J" is entered if the reported value was obtained from a reading that was less than the Reporting Limit but greater than or equal to ALS's Method Detection Limit. If the analyte was analyzed for but not detected a "U" is entered.

- QC qualifier -- Specified entries and their meanings are as follows:

  N - Spiked sample recovery not within control limits.

  * - Duplicate analysis (relative percent difference) not within control limits.

  Z - Calibration spike recovery not within control limits.

Chain of Custody

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1309158
Client Name: Colorado Oil & Gas Conservation Commission
Client Project Name: TBAL
Client Project Number:
Client PO Number: PHA 14-22

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
752831 Szwaja	1309158-1		WATER	11-Sep-13	9:20

ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

WORKORDER #	1309158
PAGE	1 of 1
DISPOSAL	By Lab or Return to Client

PROJECT NAME	TBAL
PROJECT No.	
COMPANY NAME	Colorado Oil & Gas Conservation Comm
SEND REPORT TO	Peter Gintautas
ADDRESS	PO Box 106
CITY / STATE / ZIP	Trinidad CO 81082
PHONE	719-846-3091
FAX	
E-MAIL	peter.gintautas@state.co.us

SAMPLER	PKG
SITE ID	
EDD FORMAT	
PURCHASE ORDER	
BILL TO COMPANY	
INVOICE ATTN TO	
ADDRESS	
CITY / STATE / ZIP	
PHONE	
FAX	
E-MAIL	

DATE: 11 Sept 2013
TURNAROUND: 7 Days

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	8270 + 1,4-dioxane FLL	Gases	200.7 Dissolved	200.8 Dissolved	300 Anions	SAR calc	Anion Cation Balance	Alk (Tab, Hco3, Co3)	pH	Conductance	TDS	TOC
(1)	752831 Szwaja	W	11 Sept	09:20	6	8		X	X	X	X	X	X	X	X	X	X	X	
	11	W	11 Sept 13	09:20	1	3													X

200.7-Cdcc-11, Be_200.7_Cdcc, 200.7_P, 200.7_S
200.8-Cdcc-16, Na_200.8_TR_200.8, Cerium, Lanthanum, Neodymium, Praseodymium, Yttrium

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments: Anions = Br, Cl, F, NO3, NO2, SO4
Dissolved metals = Filter at preserve at lab

QC PACKAGE (check below)	
✓	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
X	LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Peter Gintautas	11 Sept 2013	13:15
RECEIVED BY		Lauren Schmitz	9/12/13	0915
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC Workorder No: 1309158

Project Manager: ARW Initials: LAS Date: 9/12/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	(YES)	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	(YES)	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	2.4							
No. of custody seals on cooler:	1							
DOT Survey/ Acceptance Information — External µR/hr reading:	16							
Background µR/hr reading:	10 11 Lab 9/12/13							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / (NA) Contact: _____ Date/Time: _____

Project Manager Signature / Date: 9/17/13

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

1309158

From: (719) 846-3091
Peter Gintautas
Colo. Oil & Gas Cons. Comm.
213 Corundum RD

Trinidad, CO 81082

Origin ID: PUBA

FedEx Express

J13201306280326

Ship Date: 11SEP13
ActWgt: 19.0 LB
CAD: 4076443/INET3430

Delivery Address Bar Code

SHIP TO: (970) 490-1511

BILL SENDER

Amy Wolf
ALS Laboratory Group
225 COMMERCE DR

FORT COLLINS, CO 80524

Ref # special Project TBAL
Invoice #
PO #
Dept #

THU - 12 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7966 6462 0527

72 FTCA 2.4

80524
CO-US
DEN

RT 614 1 A
0527
09.12

FZ

51AG1/9256/1A9E

Sample Results

BICARBONATE AS CaCO3

Method EPA310.1

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: Colorado Oil & Gas Conservation Commission
Client Project ID: TBAL
Work Order Number: 1309158
Reporting Basis: As Received
Prep Method: METHOD
Analyst: Kristen A. Middleton

Final Volume: 100 ml
Matrix: WATER
Result Units: MG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag	Sample Aliquot
752831 Szwaja	1309158-1	09/11/2013	09/16/2013	09/16/2013	N/A	1	230	20		25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ak1309158-1*

CARBONATE AS CaCO3

Method EPA310.1

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: Colorado Oil & Gas Conservation Commission
Client Project ID: TBAL
Work Order Number: 1309158
Reporting Basis: As Received
Prep Method: METHOD
Analyst: Kristen A. Middleton

Final Volume: 100 ml
Matrix: WATER
Result Units: MG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag	Sample Aliquot
752831 Szwaja	1309158-1	09/11/2013	09/16/2013	09/16/2013	N/A	1	20	20	U	25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ak1309158-1*

TOTAL ALKALINITY AS CaCO3

Method EPA310.1

Sample Results

Lab Name: ALS Environmental -- FC
Client Name: Colorado Oil & Gas Conservation Commission
Client Project ID: TBAL
Work Order Number: 1309158
Reporting Basis: As Received
Prep Method: METHOD
Analyst: Kristen A. Middleton

Final Volume: 100 ml
Matrix: WATER
Result Units: MG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag	Sample Aliquot
752831 Szwaja	1309158-1	09/11/2013	09/16/2013	09/16/2013	N/A	1	230	20		25 ml

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ak1309158-1*

pH

Method EPA150.1

Sample Results

Lab Name: **ALS Environmental -- FC**

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752831 Szwaja
Lab ID: 1309158-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 11-Sep-13
Date Extracted: 16-Sep-13
Date Analyzed: 16-Sep-13
Prep Method: METHOD

Prep Batch: PH130916-2
QCBatchID: PH130916-2-3
Run ID: pH130916-1A
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Kristen A. Middleton
Sample Aliquot: 20 ML
Final Volume: 20 ML
Result Units: pH
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	Result Qualifier	EPA Qualifier
10-29-7	PH AnalysisTime: 11:10	1	8.32	0.1		

Data Package ID: *ph1309158-1*

Specific Conductance in Water

Method EPA120.1

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752831 Szwaja
Lab ID: 1309158-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 11-Sep-13
Date Extracted: 16-Sep-13
Date Analyzed: 16-Sep-13
Prep Method: METHOD

Prep Batch: sc130916-1
QCBatchID: sc130916-1-1
Run ID: SC130916-1A
Cleanup: NONE
Basis: As Received
File Name:

Analyst: Kristen A. Middleton
Sample Aliquot: 45 ML
Final Volume: 45 ML
Result Units: umhos/cm
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	Result Qualifier	EPA Qualifier
10-34-4	SPECIFIC CONDUCTIVITY AnalysisTime: 10:20	1	479	1		

Data Package ID: *sc1309158-1*

Total Dissolved Solids

Method EPA160.1

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752831 Szwaja
Lab ID: 1309158-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 11-Sep-13
Date Extracted: 17-Sep-13
Date Analyzed: 18-Sep-13
Prep Method: METHOD

Prep Batch: TD130917-1
QCBatchID: TD130917-1-2
Run ID: TD130918-1A
Cleanup: NONE
Basis: As Received
File Name: Manual Entry

Analyst: Kristen A. Middleton
Sample Aliquot: 100 ML
Final Volume: 100 ML
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	Result Qualifier	EPA Qualifier
10-33-3	TOTAL DISSOLVED SOLIDS	1	280	20		

Data Package ID: *td1309158-1*

Ion Chromatography

Method EPA300.0 Revision 2.1

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752831 Szwaja
Lab ID: 1309158-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 11-Sep-13
Date Extracted: 12-Sep-13
Date Analyzed: 12-Sep-13
Prep Method: NONE

Prep Batch: IC130912-1
QCBatchID: IC130912-1-1
Run ID: IC130912-1A3
Cleanup: NONE
Basis: As Received
File Name: 30912_019.dxd

Analyst: Jeff Kujawa
Sample Aliquot: 5 ml
Final Volume: 5 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	MDL/DL	Result Qualifier	EPA Qualifier
16984-48-8	FLUORIDE AnalysisTime: 15:06	1	0.72	0.1	0.03		
16887-00-6	CHLORIDE AnalysisTime: 15:06	1	13	0.2	0.06		
14797-65-0	NITRITE AS N AnalysisTime: 15:06	1	0.1	0.1	0.03	U	
24959-67-9	BROMIDE AnalysisTime: 15:06	1	0.11	0.2	0.06	J	
14797-55-8	NITRATE AS N AnalysisTime: 15:06	1	0.2	0.2	0.06	U	
14808-79-8	SULFATE AnalysisTime: 15:06	1	4.7	1	0.3		

Data Package ID: *ic1309158-1*

Summary Report Forms

BICARBONATE AS CaCO3

Method EPA310.1

Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1309158
Client Name: Colorado Oil & Gas Conservation Commission
ClientProject ID: TBAL

Lab ID: AK130916-1MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK130916-1
QCBatchID: AK130916-1-2
Run ID: AK130916-1A
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag
AK130916-1MB	9/16/2013	09/16/2013	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ak1309158-1*

CARBONATE AS CaCO3

Method EPA310.1

Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1309158
Client Name: Colorado Oil & Gas Conservation Commission
ClientProject ID: TBAL

Lab ID: AK130916-1MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK130916-1
QCBatchID: AK130916-1-2
Run ID: AK130916-1A
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag
AK130916-1MB	9/16/2013	09/16/2013	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ak1309158-1*

TOTAL ALKALINITY AS CaCO3

Method EPA310.1

Method Blank

Lab Name: ALS Environmental -- FC
Work Order Number: 1309158
Client Name: Colorado Oil & Gas Conservation Commission
ClientProject ID: TBAL

Lab ID: AK130916-1MB

Sample Matrix: WATER
% Moisture: N/A

Prep Batch: AK130916-1
QCBatchID: AK130916-1-2
Run ID: AK130916-1A
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

Lab ID	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	RptLimit LOD/LOQ	Flag
AK130916-1MB	9/16/2013	09/16/2013	N/A	1	5	5	U

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *ak1309158-1*

TOTAL ALKALINITY AS CaCO3

Method EPA310.1

Laboratory Control Sample

Lab Name: **ALS Environmental -- FC**
Work Order Number: 1309158
Client Name: Colorado Oil & Gas Conservation Commission
ClientProject ID: TBAL

Lab ID: AK130916-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 09/16/2013
Date Analyzed: 09/16/2013

Prep Batch: AK130916-1
QCBatchID: AK130916-1-2
Run ID: AK130916-1A
Cleanup: NONE
Basis: N/A

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
	TOTAL ALKALINITY AS CaCO3	100	97.6	5		97	85 - 115

Data Package ID: *ak1309158-1*

Prep Batch ID: AK130916-1

Start Date: 09/16/13
Start Time: 11:30
Prep Analyst: Kristin L. Ratajczak

End Date: 09/16/13
End Time: 13:25

Concentration Method: NONE
Extract Method: METHOD
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: klr
Date Created: 09/16/13
Time Created: 13:29
Validated By: mmj
Date Validated: 09/17/13
Time Validated: 13:27

Comments:

QC Batch ID: AK130916-1-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
AK130916-1	MB	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309153
AK130916-1	LCS	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309153
1309153-15	DUP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309153
1309145-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309145
1309149-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309149
1309149-3	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309149
1309153-15	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309153
1309158-1	SMP	752831 Szwaja	WATER	9/11/2013	25	100	NONE	1	1309158
1309181-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309181
1309181-2	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309181
1309189-1	SMP	XXXXXX	WATER	XXXXXX	25	100	NONE	1	1309189

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicate
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standard	SMP	Field Sample
SYS	Sample Yield Spike		

Prep Batch ID: PH130916-2

Start Date: 09/16/13
Start Time: 8:15
Prep Analyst: Kristin L. Ratajczak

End Date: 09/16/13
End Time: 11:10

Concentration Method: NONE
Extract Method: METHOD
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: klr
Date Created: 09/16/13
Time Created: 9:19
Validated By: klr
Date Validated: 09/16/13
Time Validated: 11:17

Comments:

QC Batch ID: PH130916-2-3

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
1309111-1	DUP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1309111
1309111-1	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1309111
1309158-1	SMP	752831 Szwaja	WATER	9/11/2013	20	20	NONE	1	1309158
1309189-1	SMP	XXXXXX	WATER	XXXXXX	20	20	NONE	1	1309189
1309197-1	SMP	XXXXXX	LIQUID	XXXXXX	20	20	NONE	1	1309197

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicate
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standard	SMP	Field Sample
SYS	Sample Yield Spike		

PH

Method EPA150.1

Calibration Verifications

Lab Name: **ALS Environmental -- FC**

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Run ID: pH130916-1A

Result Units: pH

Lab ID	Verification Type	Date Analyzed	Time Analyzed	Spike Added	Result	Reporting Limit	Result Qualifier	% Rec.	Control Limits
ICV	Initial Calibration	9/16/2013		7	6.99	0.1	N/A		6.95 - 7.05
CCV2	Continuing Calibration	9/16/2013		7	6.99	0.1	N/A		6.9 - 7.1
CCV1	Continuing Calibration	9/16/2013		7	6.97	0.1	N/A		6.9 - 7.1

Data Package ID: *ph1309158-1*

Prep Batch ID: sc130916-1

Start Date: 09/16/13
Start Time: 8:15
Prep Analyst: Kristin L. Ratajczak

End Date: 09/16/13
End Time: 10:20

Concentration Method: NONE
Extract Method: METHOD
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: klr
Date Created: 09/16/13
Time Created: 9:28
Validated By: klr
Date Validated: 09/16/13
Time Validated: 10:24

Comments:

QC Batch ID: sc130916-1-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
1309111-1	DUP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309111
1309145-1	DUP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309145
1309111-1	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309111
1309145-1	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309145
1309148-1	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309148
1309148-2	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309148
1309148-3	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309148
1309148-4	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309148
1309148-5	SMP	XXXXXX	WATER	XXXXXX	45	45	NONE	1	1309148
1309158-1	SMP	752831 Szwaja	WATER	9/11/2013	45	45	NONE	1	1309158

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicate
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standard	SMP	Field Sample
SYS	Sample Yield Spike		

SPECIFIC CONDUCTIVITY

Method EPA120.1

Calibration Verifications

Lab Name: **ALS Environmental -- FC**

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Run ID: SC130916-1A

Result Units: umhos/c

Lab ID	Verification Type	Date Analyzed	Time Analyzed	Spike Added	Result	Reporting Limit	Result Qualifier	% Rec.	Control Limits
ICV	Initial Calibration	9/16/2013		718	713	1	N/A	99	646.2 - 789.7
CCV2	Continuing Calibration	9/16/2013		1410	1360	1	N/A	96	1271.7 - 1554.3
CCV1	Continuing Calibration	9/16/2013		1410	1380	1	N/A	98	1271.7 - 1554.3

Data Package ID: *sc1309158-1*

Total Dissolved Solids

Method EPA160.1

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: TD130917-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 17-Sep-13
Date Analyzed: 18-Sep-13
Prep Method: METHOD

Prep Batch: TD130917-1
QCBatchID: TD130917-1-2
Run ID: TD130918-1A
Cleanup: NONE
Basis: N/A
File Name: Manual Entry

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit LOD/LOQ	Result Qualifier	EPA Qualifier
10-33-3	TOTAL DISSOLVED SOLIDS	1	20	20	U	

Data Package ID: *td1309158-1*

Total Dissolved Solids

Method EPA160.1

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: TD130917-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 09/17/2013
Date Analyzed: 09/18/2013
Prep Method: METHOD

Prep Batch: TD130917-1
QCBatchID: TD130917-1-2
Run ID: TD130918-1A
Cleanup: NONE
Basis: N/A
File Name: Manual Entry

Sample Aliquot: 100 ml
Final Volume: 100 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
10-33-3	TOTAL DISSOLVED SOLIDS	400	399	20		100	85 - 115%

Data Package ID: *td1309158-1*

Prep Batch ID: TD130917-1

Start Date: 09/17/13
Start Time: 8:30
Prep Analyst: Kristin L. Ratajczak

End Date: 09/17/13
End Time: 13:10

Concentration Method: NONE
Extract Method: METHOD
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: klr
Date Created: 09/17/13
Time Created: 10:33
Validated By: klr
Date Validated: 09/17/13
Time Validated: 15:19

Comments:

QC Batch ID: TD130917-1-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
TD130917-1	MB	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309182
TD130917-1	LCS	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309182
1309182-2	DUP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309182
1309193-19	DUP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309193
1309158-1	SMP	752831 Szwaja	WATER	9/11/2013	100	100	NONE	1	1309158
1309182-2	SMP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309182
1309189-1	SMP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309189
1309193-19	SMP	XXXXXX	WATER	XXXXXX	100	100	NONE	1	1309193

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicate
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standard	SMP	Field Sample
SYS	Sample Yield Spike		

Ion Chromatography

Method EPA300.0 Revision 2.1

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: IC130912-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12-Sep-13
Date Analyzed: 12-Sep-13

Prep Batch: IC130912-1
QCBatchID: IC130912-1-1
Run ID: IC130912-1A3
Cleanup: NONE
Basis: N/A
File Name: 30912_014.dxd

Sample Aliquot: 5 ml
Final Volume: 5 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit LOD/LOQ	MDL	Result Qualifier	EPA Qualifier
16984-48-8	FLUORIDE	1	0.1	0.1	0.03	U	
16887-00-6	CHLORIDE	1	0.2	0.2	0.06	U	
14797-65-0	NITRITE AS N	1	0.1	0.1	0.03	U	
24959-67-9	BROMIDE	1	0.2	0.2	0.06	U	
14797-55-8	NITRATE AS N	1	0.2	0.2	0.06	U	
14808-79-8	SULFATE	1	1	1	0.3	U	

Data Package ID: *ic1309158-1*

Ion Chromatography

Method EPA300.0 Revision 2.1

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: IC130912-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 09/12/2013
Date Analyzed: 09/12/2013
Prep Method: NONE

Prep Batch: IC130912-1
QCBatchID: IC130912-1-1
Run ID: IC130912-1A3
Cleanup: NONE
Basis: N/A
File Name: 30912_013.dxd

Sample Aliquot: 5 ml
Final Volume: 5 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
16984-48-8	FLUORIDE	2	2.06	0.1		103	90 - 110%
16887-00-6	CHLORIDE	5	5.06	0.2		101	90 - 110%
14797-65-0	NITRITE AS N	2	2	0.1		100	90 - 110%
24959-67-9	BROMIDE	5	5.36	0.2		107	90 - 110%
14797-55-8	NITRATE AS N	5	5.19	0.2		104	90 - 110%
14808-79-8	SULFATE	20	20	1		100	90 - 110%

Data Package ID: *ic1309158-1*

Prep Batch ID: IC130912-1

Start Date: 09/12/13
Start Time: 12:52
Prep Analyst: Alex J. Devonald

End Date: 09/12/13
End Time: 14:00

Concentration Method: NONE
Extract Method: NONE
Initial Volume Units: ml
Final Volume Units: ml

Batch Created By: ajd
Date Created: 09/12/13
Time Created: 12:52
Validated By: ajd
Date Validated: 09/16/13
Time Validated: 9:13

Comments:

QC Batch ID: IC130912-1-1

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
IC130912-1	RVS	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309157
IC130912-1	MB	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309157
IC130912-1	LCS	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309157
1309157-1	MS	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309157
1309157-1	MSD	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309157
1309157-1	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309157
1309158-1	SMP	752831 Szwaja	WATER	9/11/2013	5	5	NONE	1	1309158
1309161-1	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309161-2	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309161-3	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309161-4	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309161-5	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309161-6	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309161-7	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309161
1309174-1	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-10	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-11	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-2	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-3	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-4	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-5	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-6	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-7	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-8	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174
1309174-9	SMP	XXXXXX	WATER	XXXXXX	5	5	NONE	1	1309174

Ion Chromatography

Method EPA300.0

Calibration Verifications

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: ICV

QC Type: Initial Calibration

File Name: 30909_009.dxd

Run ID: IC130912-1A3

Date Analyzed: 09/09/2013

Time Analyzed: 18:33

Result Units: MG/L

CASNO	Target Analyte	Spike Added	Result	Reporting Limit	Result Qualifier	% Rec.	Control Limits
16984-48-8	FLUORIDE	2.5	2.53	0.1		101	90 - 110%
16887-00-6	CHLORIDE	5	4.86	0.2		97	90 - 110%
14797-65-0	NITRITE AS N	4	4.07	0.1		102	90 - 110%
24959-67-9	BROMIDE	5	4.90	0.2		98	90 - 110%
14797-55-8	NITRATE AS N	5	4.78	0.2		96	90 - 110%
14808-79-8	SULFATE	25	24.6	1		99	90 - 110%

Data Package ID: *ic1309158-1*

Ion Chromatography

Method EPA300.0

Calibration Verifications

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: CCV1

QC Type: Continuing Calibration

File Name: 30912_011.dxd

Run ID: IC130912-1A3

Date Analyzed: 09/12/2013

Time Analyzed: 13:14

Result Units: MG/L

CASNO	Target Analyte	Spike Added	Result	Reporting Limit	Result Qualifier	% Rec.	Control Limits
16984-48-8	FLUORIDE	5	5.06	0.1		101	90 - 110%
16887-00-6	CHLORIDE	10	9.92	0.2		99	90 - 110%
14797-65-0	NITRITE AS N	5	5.05	0.1		101	90 - 110%
24959-67-9	BROMIDE	10	9.91	0.2		99	90 - 110%
14797-55-8	NITRATE AS N	10	9.99	0.2		100	90 - 110%
14808-79-8	SULFATE	50	49.9	1		100	90 - 110%

Data Package ID: *ic1309158-1*

Ion Chromatography

Method EPA300.0

Calibration Verifications

Lab Name: ALS Environmental -- FC

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: CCV2

QC Type: Continuing Calibration

File Name: 30912_023.dxd

Run ID: IC130912-1A3

Date Analyzed: 09/12/2013

Time Analyzed: 16:02

Result Units: MG/L

CASNO	Target Analyte	Spike Added	Result	Reporting Limit	Result Qualifier	% Rec.	Control Limits
16984-48-8	FLUORIDE	5	5.07	0.1		101	90 - 110%
16887-00-6	CHLORIDE	10	9.84	0.2		98	90 - 110%
14797-65-0	NITRITE AS N	5	5.01	0.1		100	90 - 110%
24959-67-9	BROMIDE	10	9.83	0.2		98	90 - 110%
14797-55-8	NITRATE AS N	10	9.89	0.2		99	90 - 110%
14808-79-8	SULFATE	50	49.5	1		99	90 - 110%

Data Package ID: *ic1309158-1*

Ion Chromatography

Method EPA300.0

Calibration Blanks

Lab Name: **ALS Environmental -- FC**

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: ICB

QC Type: Initial Calibration

Run ID: IC130912-1A3

Date Analyzed: 09/09/2013

Time Analyzed: 6:47:33 PM

Result Units: MG/L

CASNO	Target Analyte	Result	Reporting Limit	Result Qualifier
16984-48-8	FLUORIDE	0.1	0.1	U
16887-00-6	CHLORIDE	0.2	0.2	U
14797-65-0	NITRITE AS N	0.1	0.1	U
24959-67-9	BROMIDE	0.2	0.2	U
14797-55-8	NITRATE AS N	0.2	0.2	U
14808-79-8	SULFATE	1	1	U

Data Package ID: *ic1309158-1*

Ion Chromatography

Method EPA300.0

Calibration Blanks

Lab Name: **ALS Environmental -- FC**

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: CCB1

QC Type: Continuing Calibration

Run ID: IC130912-1A3

Date Analyzed: 09/12/2013

Time Analyzed: 1:28:16 PM

Result Units: MG/L

CASNO	Target Analyte	Result	Reporting Limit	Result Qualifier
16984-48-8	FLUORIDE	0.1	0.1	U
16887-00-6	CHLORIDE	0.2	0.2	U
14797-65-0	NITRITE AS N	0.1	0.1	U
24959-67-9	BROMIDE	0.2	0.2	U
14797-55-8	NITRATE AS N	0.2	0.2	U
14808-79-8	SULFATE	1	1	U

Data Package ID: *ic1309158-1*

Ion Chromatography

Method EPA300.0

Calibration Blanks

Lab Name: **ALS Environmental -- FC**

Work Order Number: 1309158

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: CCB2

QC Type: Continuing Calibration

Run ID: IC130912-1A3

Date Analyzed: 09/12/2013

Time Analyzed: 4:17:00 PM

Result Units: MG/L

CASNO	Target Analyte	Result	Reporting Limit	Result Qualifier
16984-48-8	FLUORIDE	0.1	0.1	U
16887-00-6	CHLORIDE	0.2	0.2	U
14797-65-0	NITRITE AS N	0.1	0.1	U
24959-67-9	BROMIDE	0.2	0.2	U
14797-55-8	NITRATE AS N	0.2	0.2	U
14808-79-8	SULFATE	1	1	U

Data Package ID: *ic1309158-1*

Raw Data

Alkalinity Raw Data Worksheet

Anal Run ID **AK130916-1A**

Anal Start Date **9/16/2013**

Standardization Ref ID **AlkalinityCAL130916-1**

Standardization Of Alkalinity

Rep Num	THAM Conc	Aliq Titrated (mL)	vol to pH 4.5(mL)	HCl Conc(N)	Conc Units
1	0.2	1	10.44	0.0191571	N
2	0.2	1	10.5	0.0190476	N
3	0.2	1	10.49	0.0190658	N

Avg HCl Conc
0.01909016

Num	Don't Use	ReRun Num	Lab ID	QC Type	Anal Dil	Aliq Titrated (mL)	vol to pH 8.3(mL)	vol to pH 4.5(mL)	total vol(mL)	HCO3 (mg/L as CaCO3)	CO3 (mg/L as CaCO3)	OH (mg/L as CaCO3)	Total Alk (mg/L as CaCO3)	Expected	%Rec	vol to LL pH(mL)
1	☐	0	AK130916-1	MB	1	100	0	0.12	0.12	1.14541	0	0	1.14541			NA
2	☐	0	AK130916-1	LCS	1	100	4.92	5.3	10.22	3.627132	93.92359	0	97.55073			NA
3	☐	0	1309044-34	SMP	1	25	0.64	10.07	10.71	360.0404	48.87081	0	408.9113			NA
4	☐	0	1309153-15	SMP	1	25	0	3.38	3.38	129.0495	0	0	129.0495			NA
5	☐	0	1309153-15	DUP	1	25	0	3.3	3.3	125.9951	0	0	125.9951			NA
6	☐	0	1309153-22	SMP	1	100	0.62	0.71	1.33	0.8590564	11.8359	0	9.640531			0.32
7	☐	0	1309154-10	SMP	1	25	0	5.22	5.22	199.3013	0	0	199.3013			NA
8	☐	0	1309154-10	DUP	1	25	0	5.29	5.29	201.9739	0	0	201.9739			NA
9	☐	0	1309157-1	SMP	1	25	0	6.17	6.17	235.5726	0	0	235.5726			NA
10	☐	0	1309173-2	SMP	1	25	0	15.15	15.15	578.4318	0	0	578.4318			NA
11	☐	0	1309193-19	SMP	1	25	0	12.37	12.37	472.2906	0	0	472.2906			NA
12	☐	0	1309193-25	SMP	1	25	0	6.18	6.18	235.9544	0	0	235.9544			NA
13	☐	0	1309145-1	SMP	1	25	0	5.7	5.7	217.6278	0	0	217.6278			NA
14	☐	0	1309149-1	SMP	1	25	0	6.17	6.17	235.5726	0	0	235.5726			NA
15	☐	0	1309149-3	SMP	1	25	0	5.83	5.83	222.5913	0	0	222.5913			NA
16	☐	0	1309158-1	SMP	1	25	0	6.1	6.1	232.9	0	0	232.9			NA
17	☐	0	1309181-1	SMP	1	25	0	8.71	8.71	332.5506	0	0	332.5506			NA
18	☐	0	1309181-2	SMP	1	25	0	3.51	3.51	134.0129	0	0	134.0129			NA
19	☐	0	1309189-1	SMP	1	25	0	2.91	2.91	111.1047	0	0	111.1047			NA
20	☐	0	1309155-1	SMP	1	25	0	4.68	4.68	178.6839	0	0	178.6839			NA

Comments: Prepped and analyzed on 09/16/2013 from 1130-1325. KLR.

Standards, Batch QC, and Matrix Spike Information

ID	Parent ID	Parent Conc	Parent Vol.	Final Vol.
ICV	ST101202-3	10000	1	100
CCV	ST101202-3	10000	1	100

Reagent List:

0.020 N HCl Titrant	**RG130724-2**
Phenolphthalein Indicator	**RG130531-5**
Bromocresol Green Indicator	**RG130820-1**
0.20 N Std. THAM	**ST121213-1**
0.20 N NaCO3 (ICV, LCS, CCV's - 1.0 mL)	**ST121213-2**

pH Calculations and Quality Control Results

Prep & Analysis Date: 09/16/2013
Prep & Analysis Time: 0815-1110
Analyst: KLR

Reagent List:		
4.01:	10.00:	2.00:
ST130712-2	**ST130816-1**	**ST130725-1**
7.00 (CCV):	7.00 (ICV):	12.45:
ST120921-2	**ST130708-1**	**ST130715-1**

ID	Temp. (°C)	Method	sample vol (g)	sample vol (mL)	pH Value	QC Accdeptance Range (pH units)
pH 4.01	25.4	NA	NA	NA	4.01	
pH 7.00	25.4	NA	NA	NA	7.00	
pH 10.00	25.4	NA	NA	NA	10.00	
pH 12.45	25.4	NA	NA	NA	12.45	
ICV - pH 7.00	25.4	NA	NA	NA	6.99	+/- 0.05
1309141-13	25.4	SW9045	NA	20.0	7.03	
1309141-13 DUP	25.4	SW9045	NA	20.0	7.05	
1309141-14	25.4	SW9045	NA	20.0	7.84	
1309185-1	25.4	SW9045	NA	20.0	10.77	
1309111-1	25.4	SW4500H	NA	20.0	8.61	
1309111-1 DUP	25.4	SW4500H	NA	20.0	8.63	
1309124-1	25.4	SW4500H	NA	20.0	8.62	
1309126-1	25.4	SW4500H	NA	20.0	7.87	
1309129-1	25.4	SW4500H	NA	20.0	8.80	
1309157-1	25.4	SW4500H	NA	20.0	8.16	
CCV- pH 7.00	25.4	NA	NA	NA	6.97	+/- 0.10
1309145-1	25.4	SW9040	20	20.0	7.53	
1309158-1	25.4	EPA150.1	20	20.0	8.32	
1309189-1	25.4	EPA150.1	20	20.0	5.47	
1309197-1	25.4	EPA150.1	NA	20.0	8.37	
CCV- pH 7.00	24.2	NA	NA	20.0	6.99	+/- 0.10

DUPLICATE SUMMARY (Aq)

ID	native pH Value	duplic pH Value	difference of native - dup	accept. limit
1309111-1	8.61	8.63	0.02	0.2 pH units

DUPLICATE SUMMARY (Soil)

ID	native pH Value	duplic pH Value	difference of native - dup	accept. limit
1309141-13	7.03	7.05	0.02	0.5 pH units

pH INFORMATION:
SOP 1126 rev.17 / EPA Method 150.1, 9040C, 9045D, and SM4500-H+ B
Instrument : Fisher Scientific pH / mV meter model 50 (SN C0000643)
Electrode : Orion - Ross Sure-Flow Electrode Model 81-72BN

Specific Conductivity Calculations & Quality Control Results

Prep & Analysis Date: 09/16/2013
Prep & Analysis Time: 0815-1020
Analyst: KLR

ID	sample vol (mL)	Temp. °C	Conductivity Reading (umhos/cm)	% Recovery	recovery limit
Calibration Standard (*)	NA	25.4	1413		
ICV-2nd Source (**)	NA	25.4	713	99	646.2 - 789.8
1309111-1	45	25.4	1409		
1309111-1 DUP	45	25.4	1405		
1309124-1	45	25.4	1032		
1309126-1	45	25.4	770		
1309129-1	45	25.4	1121		
1309157-1	45	25.4	469		
1309145-1	45	25.4	2620		
1309145-1 DUP	45	25.4	2620		
1309148-1	45	25.4	242		
1309148-2	45	25.4	364		
CCV-1 (*)	NA	25.4	1380	98	1271.7 - 1554.3
1309148-3	45	25.4	263		
1308148-4	45	25.4	792		
1309148-5	45	25.4	157		
1309158-1	45	25.4	479		
CCV-1 (*)	NA	25.4	1363	96	1271.7 - 1554.3

DUPLICATE SUMMARY

ID	native Spec. Cond. Value	duplic Spec. Cond. Value	RPD %	RPD accept. limit
1309111-1	1409.0000	1405.0000	0	0-10%
1309145-1	2620.0000	2620.0000	0	0-10%

Specific Conductivity - EPA Method 120.1/9050A/SM2510B - SOP 1128

Instrument : Fisher Scientific Conductivity/pH/mV meter model accumet 50 (SN C0000643)
Electrode : YSI Incorporated. Model 3440 (Cell K = 10/cm) OR
VWR Digital Conductivity Meter w/ electrode NIST (SN A22036)

Reagent List: 0.010 M KCl Solution [1413umhos/cm] (*):
ST130712-1

0.005 M KCl Solu+C21tion [718umhos/cm] (**):
ST130607-4

TDS Raw Data Worksheet

Anal Run ID **TD130918-1A**

Anal Start Date **9/18/2013**

Num	Don't Use	ReRun Num	Lab ID	QC Type	Samp Vol (ml)	Empty Beaker (g)	A - Beaker + Residue gross (g)	A - Net mass (mg)	B - Beaker + Residue gross (g)	B - Net mass (mg)	Constant Wt (+/- 0.5mg)	Constant Wt (+/- 4%)	calculated conc (mg/L)	DL (mg/L)
1	☐	0	TD130917-1	MB	100	73.7317	73.7314	-0.3	73.7317	0	0.3	NA	0	20
2	☐	0	TD130917-1	LCS	100	71.8871	71.9265	39.4	71.927	39.9	0.5	1.26%	399	20
3	☐	0	1309182-2	SMP	100	66.6596	66.6786	19	66.6783	18.7	0.3	1.59%	187	20
4	☐	0	1309182-2	DUP	100	78.4668	78.4859	19.1	78.4863	19.5	0.4	2.07%	195	20
5	☐	0	1309182-4	SMP	100	80.8217	80.84	18.3	80.8402	18.5	0.2	1.09%	185	20
6	☐	0	1309182-5	SMP	100	78.2728	78.291	18.2	78.2911	18.3	0.1	0.55%	183	20
7	☐	0	1309182-6	SMP	100	70.6187	70.6428	24.1	70.6426	23.9	0.2	0.83%	239	20
8	☐	0	1309182-9	SMP	100	80.8637	80.883	19.3	80.8828	19.1	0.2	1.04%	191	20
9	☐	0	1309182-10	SMP	100	80.5952	80.6225	27.3	80.6229	27.7	0.4	1.45%	277	20
10	☐	0	1309182-11	SMP	100	65.4299	65.4578	27.9	65.4571	27.2	0.7	2.54%	272	20
11	☐	0	1309182-12	SMP	100	77.6772	77.6973	20.1	77.6974	20.2	0.1	0.50%	202	20
12	☐	0	1309193-19	SMP	100	78.3205	78.3719	51.4	78.3739	53.4	2	3.82%	534	20
13	☐	0	1309193-19	DUP	100	74.549	74.6025	53.5	74.6029	53.9	0.4	0.74%	539	20
14	☐	0	1309158-1	SMP	100	86.4982	86.5259	27.7	86.5265	28.3	0.6	2.14%	283	20
15	☐	0	1309189-1	SMP	100	81.2312	81.2884	57.2	81.2868	55.6	1.6	2.84%	556	20

Comments: Analyzed on 09/18/13 from 0830-1515. KLR.

Standards, Batch QC, and Matrix Spike Information

ID	Parent ID	Parent Conc	Parent Vol.	Final Vol.
LCS	ST130318-1	40000	1	100

Reagent List:

TDS Spike Solution: 40.0 mg NaCl/mL **ST130318-1**

Shaded values used to to determine the calculated concentration

Schedule File: C:\PeakNet\schedule\130912IC1.sch

Line	Sample	Sample Type	Method	Data File	Comment
1	5X STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_002.dxd	
2	10X STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_003.dxd	
3	25X STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_004.dxd	
4	100X STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_005.dxd	
5	500X STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_006.dxd	
6	1000X STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_007.dxd	
7	0 STD	Calibration	130909ic1.met	c:\peaknet\data\130909ic1\130909_008.dxd	
8	ICV	Sample	130909ic1.met	c:\peaknet\data\130909ic1\130909_009.dxd	
9	ICB	Sample	130909ic1.met	c:\peaknet\data\130909ic1\130909_010.dxd	
10	blank	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_010.dxd	
11	CCV	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_011.dxd	CCV All Pass
12	CCB	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_012.dxd	CCB
13	IC130912-1LCS	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_013.dxd	Water All Pass
14	IC130912-1MB	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_014.dxd	Water
15	IC130912-1RVS	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_015.dxd	Water
16	1309157-1	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_016.dxd	Br,Cl,F,NO2,NO3,SO4
17	1309157-1MS	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_017.dxd	Br,Cl,F,NO2,NO3,SO4
18	1309157-1MSD	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_018.dxd	Br,Cl,F,NO2,NO3,SO4
19	1309158-1	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_019.dxd	Br,Cl,F,NO2,NO3,SO4
20	~~1309157-1 5x~~	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_020.dxd	~~Br,Cl,F,NO2,NO3,SO4~~
21	~~1309158-1 5x~~	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_021.dxd	~~Br,Cl,F,NO2,NO3,SO4~~
22	1309145-1 50x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_022.dxd	Cl,NO2,NO3,SO4 (RR for Cl)
23	CCV 8 mQ 9/6/13	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_023.dxd	CCV All Pass
24	CCB	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_024.dxd	CCB
25	1309513-51 5x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_025.dxd	Cl,SO4 (RR for both)
26	1309513-59	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_026.dxd	Cl,SO4 (RR for both)
27	1309513-60 5x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_027.dxd	Cl,SO4 (RR for Cl)
28	1309161-1 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_028.dxd	OPhos
29	1309161-2 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_029.dxd	OPhos
30	1309161-3 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_030.dxd	OPhos
31	1309161-4 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_031.dxd	Ophos
32	1309161-5 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_032.dxd	Ophos
33	1309161-6 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_033.dxd	Ophos
34	blank	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_034.dxd	
35	CCV	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_035.dxd	CCV All Pass
36	CCB	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_036.dxd	CCB
37	1309161-7 1000x	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_037.dxd	Ophos
38	Blank	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_038.dxd	
39	1309174-1	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_039.dxd	NO2,NO3
40	1309174-2	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_040.dxd	NO2,NO3
41	1309174-3	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_041.dxd	NO2,NO3
42	1309174-4	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_042.dxd	NO2,NO3
43	1309174-5	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_043.dxd	NO2,NO3
44	1309174-6	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_044.dxd	NO2,NO3
45	1309174-7	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_045.dxd	NO2,NO3
46	blank	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_046.dxd	
47	CCV	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_047.dxd	CCV All Pass
48	CCB	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_048.dxd	CCB
49	1309174-8	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_049.dxd	NO2,NO3
50	1309174-9	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_050.dxd	NO2,NO3
51	1309174-10	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_051.dxd	NO2,NO3
52	1309174-11	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_052.dxd	NO2,NO3
53	blank	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_053.dxd	
54	CCV	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_054.dxd	CCV All Pass
55	CCB	Sample	130909ic1.met	c:\peaknet\data\130912ic1\130912_055.dxd	CCB
56	Stop	Sample	stop.met	c:\peaknet\data\130912ic1\130912_056.dxd	

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: C:\PEAKNET\DATA\130701IC1
Comment:

BatchDx created schedule. Analyst: AJD

Instrument #1: DIONEX DX-120. ID Serial Number: 99060762
Analytical Column: Dionex IonPac AS14 S/N 029999
Methods: EPA 300.0 and SW9056. ALS SOP 1113
Eluent: Made daily, 10mL of Eluent Concentrate ID: RG130304-2 to 1000mL of DI water.

Final	ID	Aliq			
cal std level 1 (1000x)	10.00	ST130603-9,	ST130613-1		0.01
cal std level 2 (100x)	5.00	"	"		0.05
cal std level 3 (25x)	5.00	"	"		0.20
cal std level 4 (10x)	5.00	"	"		0.50
cal std level 5 (5x)	5.00	"	"		1.00
cal std level 6 (2.5x)	5.00	"			2.00
CCV	5.00	ST130909-7,	ST130909-5		0.50
RVS	5.00	ST130909-7,	ST130909-5		0.01
ICV	5.00	ST130502-5			0.25
		ST130813-1			0.02
LCS & MS/D	5.00	ST130208-9,	ST130909-4		0.05

Dilutions Table: All to 5mL Final Volume
10X 0.5mL
20X 0.25mL
25X 0.2mL
50X 0.1mL
100X 0.05mL
200X 0.025mL
500X 0.01mL

Method Report - 130909ic1.met

Method Information : Select Module(s)

System Name : DX-120 IC-1
System Number : 1
Method Type : Ion Chromatography
Column : AS14 4-MM
Analyst : WETCHEM
Comment : Flow rate = 1.2 mL/min,
Eluent = 3.5mM Na2CO3 / 1.0 mM NaHCO3

DX-120 Timed Events

Module Name : DX-120 #1
Module Serial Number : 99060762
System Mode : Column
Column : A
Pump : On
SRS / Cell : On
Eluent Pressure : On
Pressure Unit : psi
TTL 1 Label : TTL 1
TTL 2 Label : TTL 2
Comment :

Time	Offset	Valve	TTL1	TTL2	AC	Collect
Init	*	Load	Low	Low	Off	
0.00		Load	Low	Low	Off	Begin
0.10		Inject	Low	Low	Off	
0.40		Load	Low	Low	Off	
11.80		Load	High	Low	Off	

DX-120 Detector Parameters

Detector Type : DX-120
Data collection time (minutes) : 14.00
Data Collection Rate : 5.00
Real time plot scale maximum (μS) : 40.000
Real time plot scale minimum (μS) : -3.000

DX-120 Integration Parameters

Peak detection algorithm : Standard
Starting peak width (seconds) : 8.00
Peak threshold : 0.50
Peak area reject (area counts) : 800.00
Reference peak area reject (area counts) : 1000.00

DX-120 Smoothing Parameters

Filter Type : No filter

DX-120 Report Data

Report Format File : C:\PeakNet\method\IC Report_std.rpt
Print Sample Analysis : Yes
Print Calibration Update : Yes
Print Check Standard : Yes
System Suitability Tests :
No system suitability tests selected.

DX-120 Integration Data Events

Time	Description
0.00	Stop peak detection
0.05	Force baseline at start of all peaks
1.90	Start peak detection
2.20	Void volume treatment for this peak
3.00	Void volume treatment for this peak

DX-120 Calibration Parameters

External or internal calibration : EXTERNAL
Number of replicates for calibration : 1
Rejection : Manual
Level Weighting : Equal
Calibration standard volume : 1.00
Default sample volume : 1.00
Amount units :
Replace retention time : Yes
Update response : Yes
Default dilution factor : 1.00
Default response factor for unknown peaks : 0.00
Calculate unknowns by area or height : Area

DX-120 Component Identification Table

Component	Retention	Tolerance	Reference
Fluoride	2.79 min	5.00 %	
Chloride	3.92 min	5.00 %	
Nitrite as N	4.60 min	4.90 %	
Bromide	5.76 min	7.30 %	
Nitrate as N	6.67 min	10.00 %	
Orthophosphate as P	9.33 min	4.10 %	
Sulfate	11.31 min	4.10 %	
Nitrate/Nitrite as N	20.00 min	5.00 %	

DX-120 Component Quantitation Table

Component	Retention	Low Limit	High Limit
Fluoride	2.79 min	100	10000
Chloride	3.92 min	200	20000
Nitrite as N	4.60 min	100	10000
Bromide	5.76 min	200	20000
Nitrate as N	6.67 min	200	20000
Orthophosphate as P	9.33 min	300	20000
Sulfate	11.31 min	500	100000
Nitrate/Nitrite as N	20.00 min	1	10

DX-120 Component Calibration Table

Component	Retention Time	Curve Fit	Origin	Cal. by	Response Component	Relative Factor
Fluoride	2.79 min	Quadratic	Ignore	Area		0.00
Chloride	3.92 min	Quadratic	Ignore	Area		0.00
Nitrite as N	4.60 min	Quadratic	Ignore	Area		0.00
Bromide	5.76 min	Quadratic	Ignore	Area		0.00
Nitrate as N	6.67 min	Quadratic	Ignore	Area		0.00
Orthophosphate as P	9.33 min	Quadratic	Ignore	Area		0.00
Sulfate	11.31 min	Quadratic	Ignore	Area		0.00
Nitrate/Nitrite as N	20.00 min	Quadratic	Ignore	Area		0.00

DX-120 Component = Fluoride Levels Table

Retention Time : 2.79 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	10000.00	2.01875e + 006
2	5000.00	941793
3	2000.00	343368
4	500.00	79953
5	100.00	12861
6	50.00	7149

DX-120 Component = Chloride Levels Table

Retention Time : 3.92 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	20000.00	3.29465e+006
2	10000.00	1.49153e+006
3	4000.00	542675
4	1000.00	133814
5	200.00	32165
6	100.00	18219

DX-120 Component = Nitrite as N Levels Table

Retention Time : 4.60 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	10000.00	3.29604e+006
2	5000.00	1.54334e+006
3	2000.00	571885
4	500.00	139857
5	100.00	26572
6	50.00	13111

DX-120 Component = Bromide Levels Table

Retention Time : 5.76 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	20000.00	1.1793e+006
2	10000.00	554302
3	4000.00	211174
4	1000.00	51399
5	200.00	9383
6	100.00	4197

DX-120 Component = Nitrate as N Levels Table

Retention Time : 6.67 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	20000.00	8.51666e + 006
2	10000.00	3.77525e + 006
3	4000.00	1.32814e + 006
4	1000.00	309883
5	200.00	61115
6	100.00	24277

DX-120 Component = Orthophosphate as P Levels Table

Retention Time : 9.33 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	20000.00	2.64002e + 006
2	10000.00	1.24037e + 006
3	4000.00	470458
4	1000.00	116689
5	200.00	33052
6	100.00	18008

DX-120 Component = Sulfate Levels Table

Retention Time : 11.31 min
Amount units :
Replicate unit type : Area
Number of levels : 7
Number of replicates : 1

Level	Amount	Replicate 1
1	100000.00	1.27619e + 007
2	50000.00	5.71399e + 006
3	20000.00	2.03254e + 006
4	5000.00	475030
5	1000.00	98133
6	500.00	48186

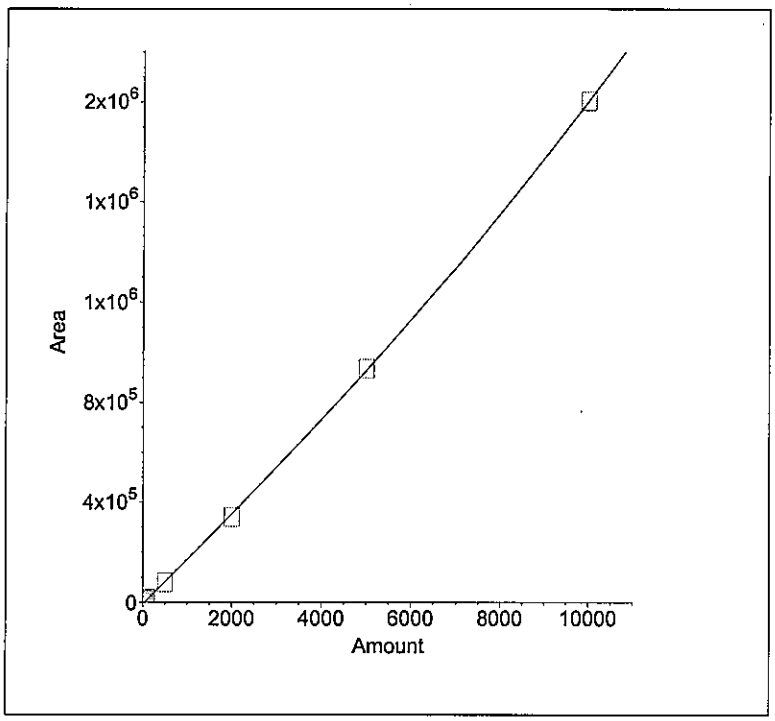
DX-120 Component = Nitrate/Nitrite as N Levels Table

Retention Time : 20.00 min
Amount units :
Replicate unit type : Area
Number of levels : 0
Number of replicates : 1

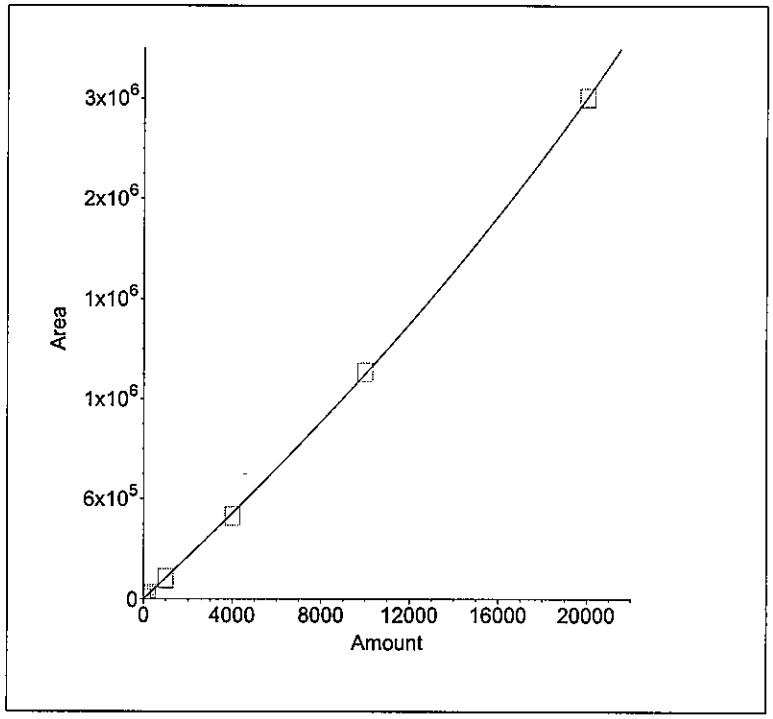
DX-120 XY Data Parameters

Method:C:\PEAKNET\METHOD\130909IC1.MET Updated:9/10/13 12:06:14 PM Total:8

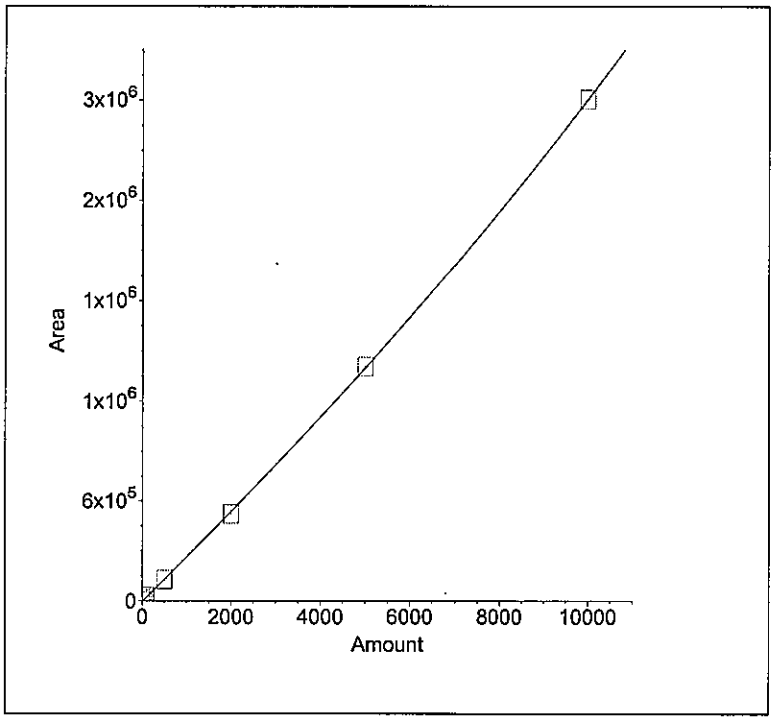
1. Component:Fluoride
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999909
Amt=-3.489062e-010*Resp^2+
5.634467e-003*Resp+40.97



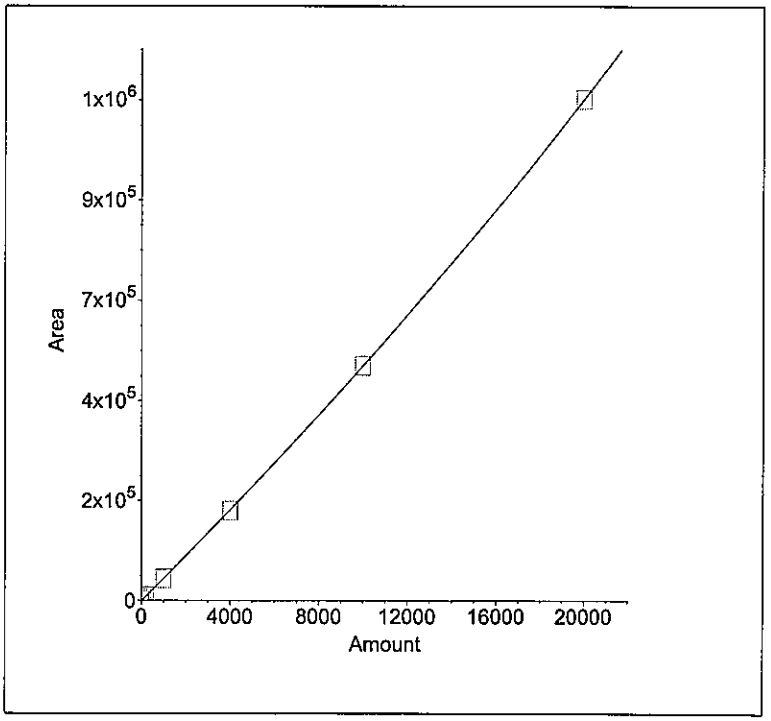
2. Component:Chloride
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999916
Amt=-3.821864e-010*Resp^2+
7.325591e-003*Resp+1.148



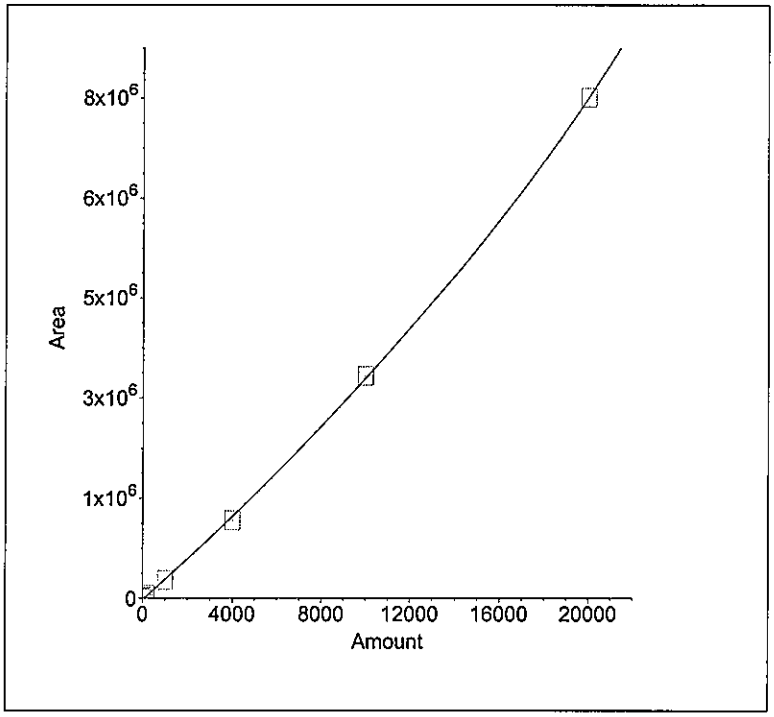
3. Component:Nitrite as N
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999946
Amt=-1.252429e-010*Resp^2+
3.438833e-003*Resp+21.1



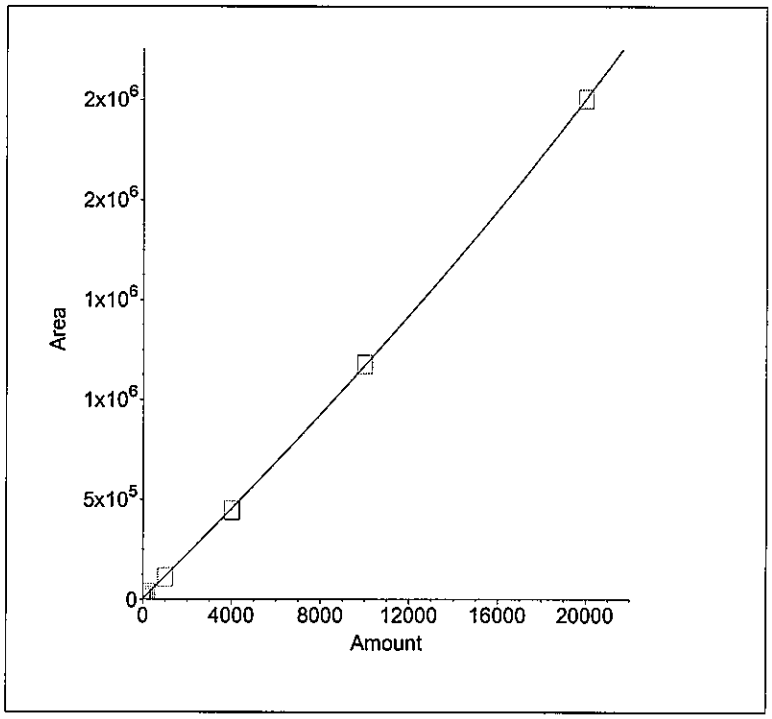
4. Component:Bromide
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999994
Amt=-1.750315e-009*Resp^2+
1.899497e-002*Resp+29.93



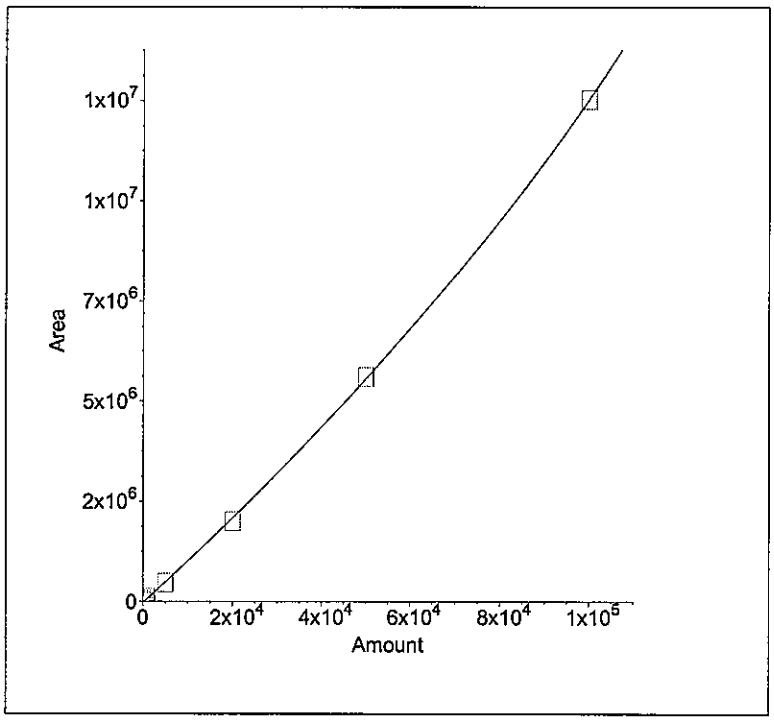
5. Component:Nitrate as N
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999844
Amt=-6.639847e-011*Resp^2+
2.902123e-003*Resp+85.34



6. Component:Orthophosphate as P
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999965
Amt=-3.898562e-010*Resp^2+
8.617624e-003*Resp+-41.63



7. Component:Sulfate
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area
r^2=0.999864
Amt=-1.369369e-010*Resp^2+
9.551090e-003*Resp+343.2



8. Component:Nitrate/Nitrite as N
Standard:External Fit Type:Quadratic
Origin:Ignore Calibration:Area

(No Levels Component)

Calibration Update Report

Sample Name : 5X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_002.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 4:55:03 PM
Calibration Date : 9/10/13 9:06:02 AM

System Operator : AJD
Datafile Updated : 9/10/13 9:06:19 AM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

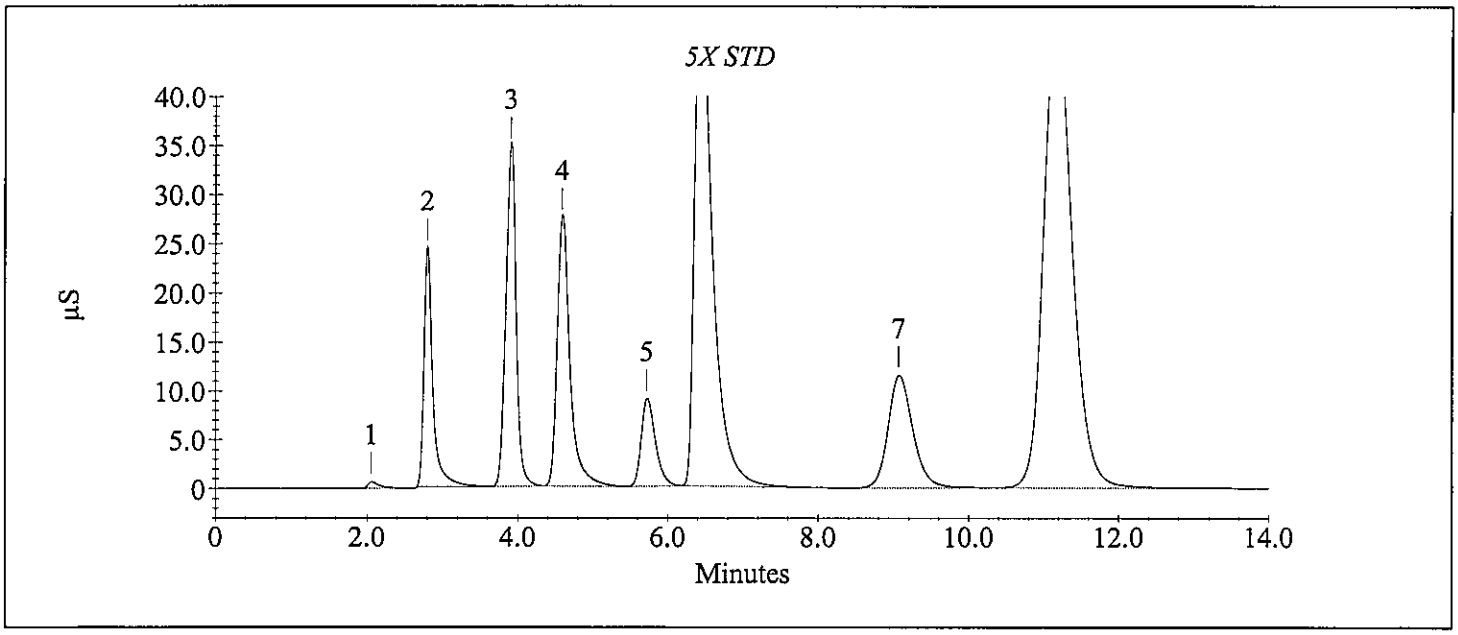
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
2	Fluoride	2.80	10000	2018752
3	Chloride	3.91	20000	3294654
4	Nitrite as N	4.59	10000	3296039
5	Bromide	5.72	20000	1179304
6	Nitrate as N	6.43	20000	8516660
7	Orthophosphate as P	9.07	20000	2640021
8	Sulfate	11.16	100000	12761947
	Nitrate/Nitrite as N			

Calibration Update Report

Sample Name : 5X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_002.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 9:06:19 AM
Date Time Acquired : 9/9/13 4:55:03 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 9:06:02 AM	



Calibration Update Report

Sample Name : 10X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_003.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 5:09:07 PM
Calibration Date : 9/10/13 9:08:10 AM

System Operator : AJD
Datafile Updated : 9/10/13 9:08:24 AM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

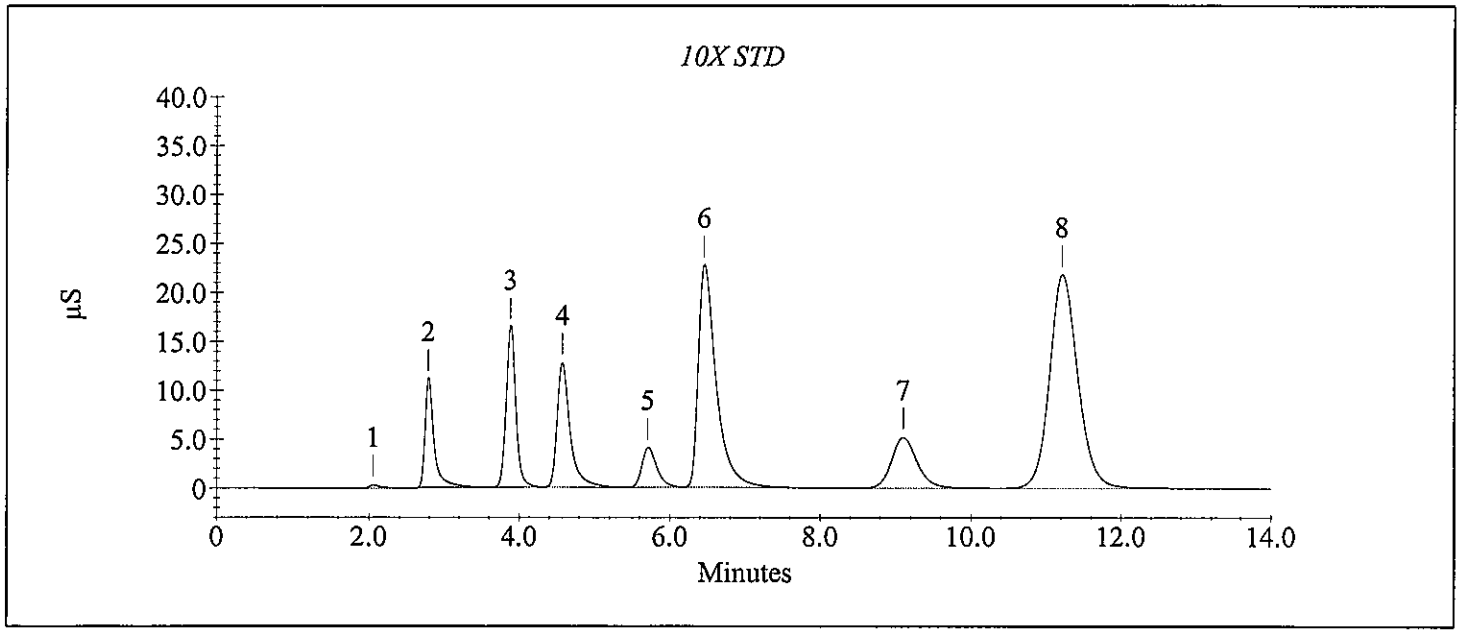
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
2	Fluoride	2.79	10000	941793
3	Chloride	3.88	20000	1491526
4	Nitrite as N	4.57	10000	1543339
5	Bromide	5.71	20000	554302
6	Nitrate as N	6.45	20000	3775252
7	Orthophosphate as P	9.11	20000	1240373
8	Sulfate	11.21	100000	5713991
	Nitrate/Nitrite as N			

Calibration Update Report

Sample Name : 10X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_003.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 9:08:24 AM
Date Time Acquired : 9/9/13 5:09:07 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 9:08:10 AM	



Calibration Update Report

Sample Name : 25X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_004.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 5:23:12 PM
Calibration Date : 9/10/13 11:49:04 AM

System Operator : AJD
Datafile Updated : 9/10/13 11:49:17 AM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

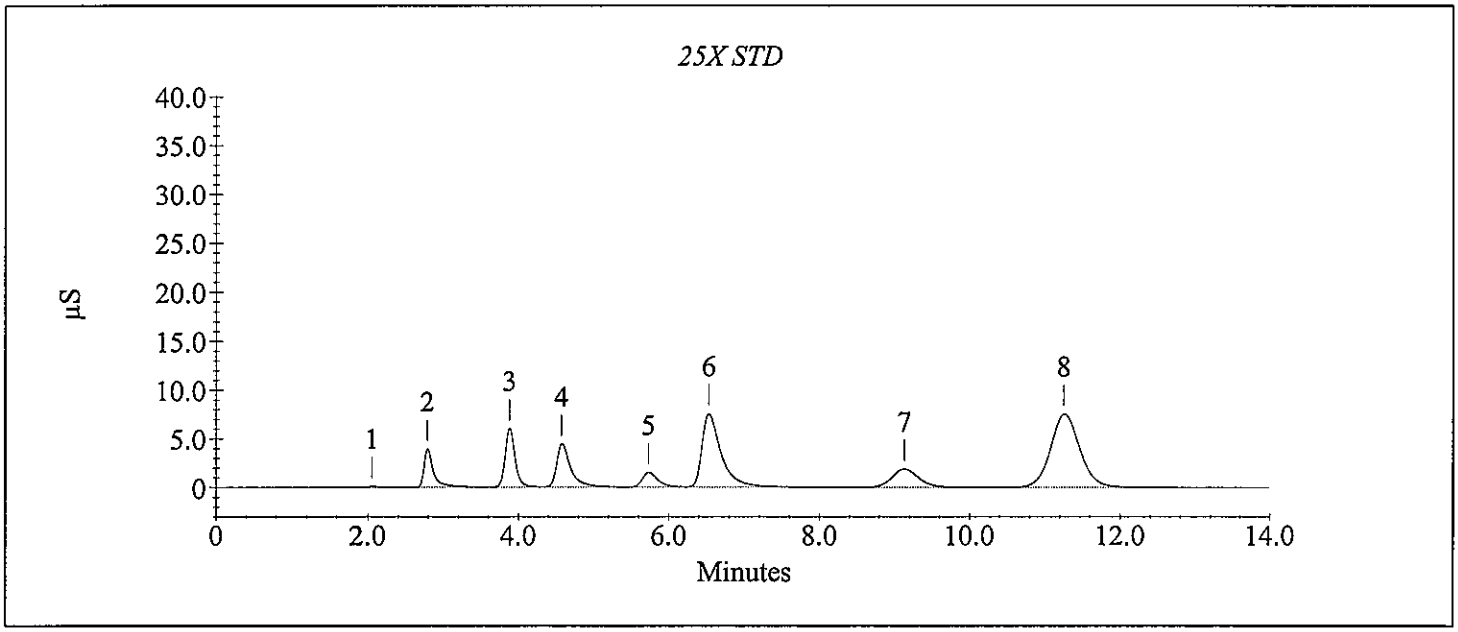
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
2	Fluoride	2.79	10000	343368
3	Chloride	3.88	20000	542675
4	Nitrite as N	4.57	10000	571885
5	Bromide	5.73	20000	211174
6	Nitrate as N	6.53	20000	1328136
7	Orthophosphate as P	9.13	20000	470458
8	Sulfate	11.25	100000	2032536
	Nitrate/Nitrite as N			

Calibration Update Report

Sample Name : 25X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_004.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 11:49:17 AM
Date Time Acquired : 9/9/13 5:23:12 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 11:49:04 AM	



Calibration Update Report

Sample Name : 100X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_005.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 5:37:16 PM
Calibration Date : 9/10/13 11:52:57 AM

System Operator : AJD
Datafile Updated : 9/10/13 11:53:04 AM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

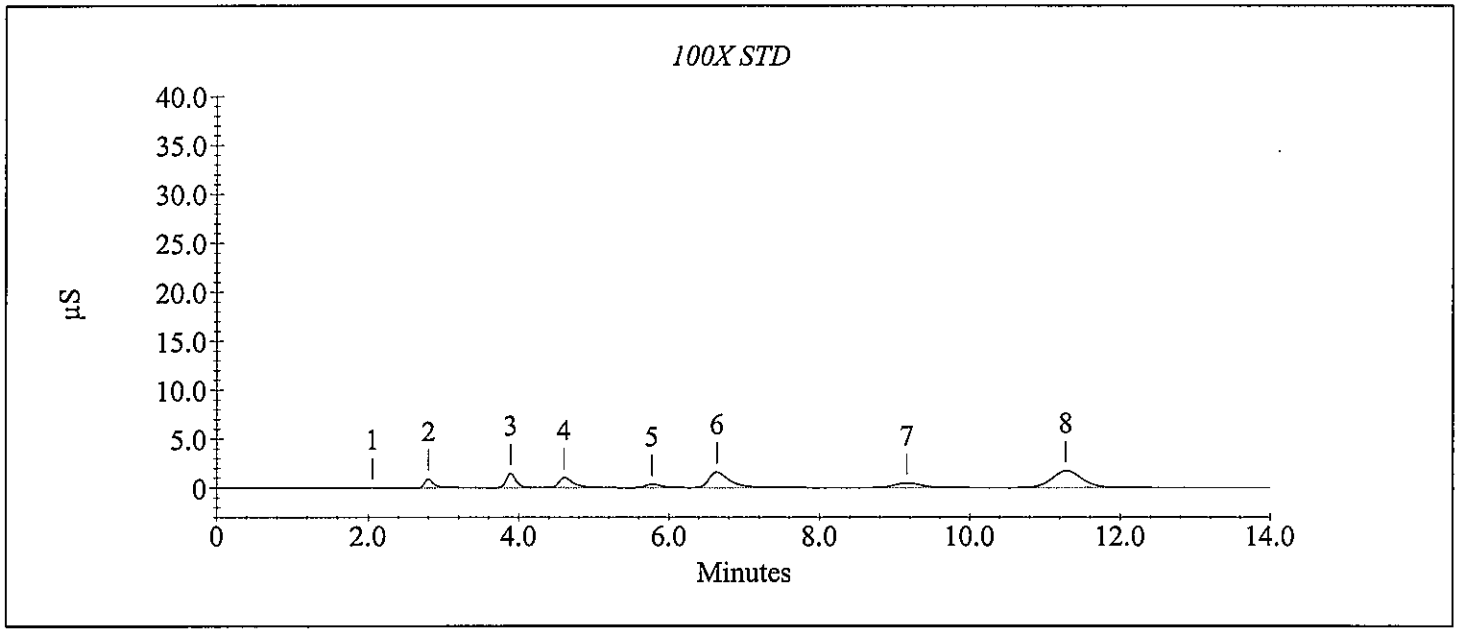
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
2	Fluoride	2.80	10000	79953
3	Chloride	3.89	20000	133814
4	Nitrite as N	4.60	10000	139857
5	Bromide	5.77	20000	51399
6	Nitrate as N	6.64	20000	309883
7	Orthophosphate as P	9.16	20000	116689
8	Sulfate	11.28	100000	475030
	Nitrate/Nitrite as N			

Calibration Update Report

Sample Name : 100X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_005.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 11:53:04 AM
Date Time Acquired : 9/9/13 5:37:16 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 11:52:57 AM	



Calibration Update Report

Sample Name : 500X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_006.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 5:51:19 PM
Calibration Date : 9/10/13 11:57:10 AM

System Operator : AJD
Datafile Updated : 9/10/13 11:57:24 AM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

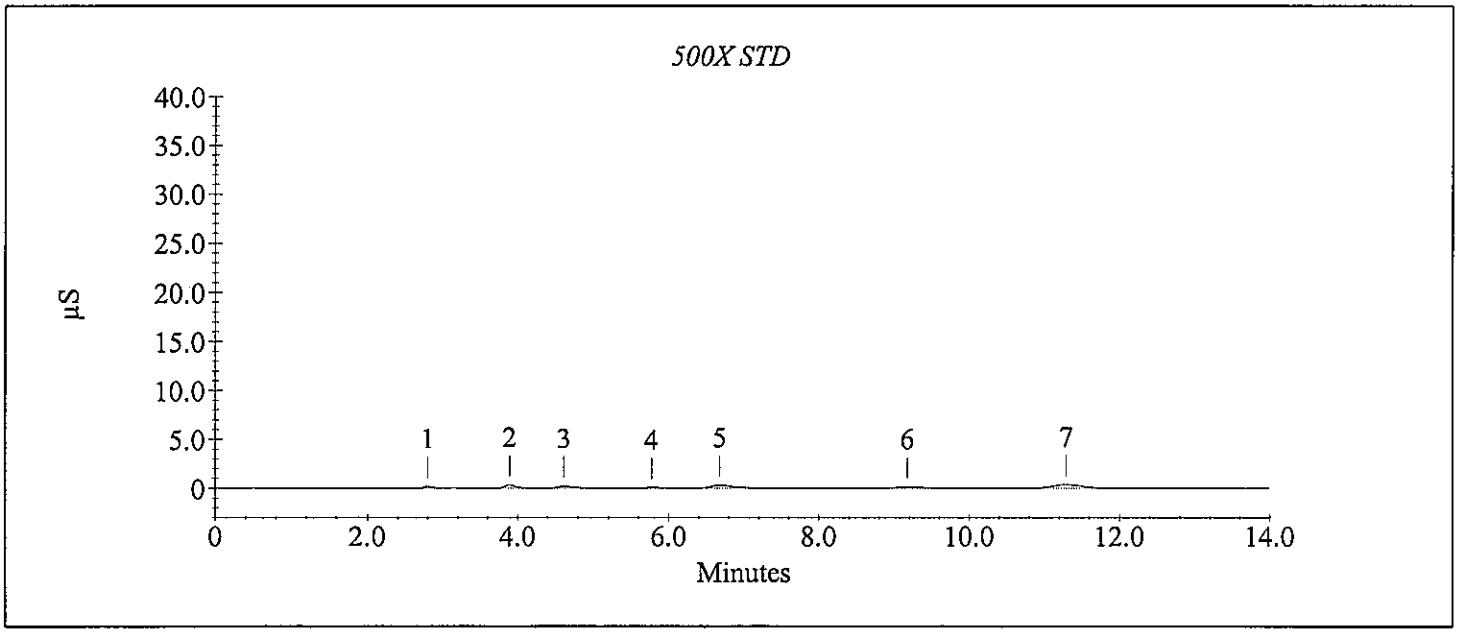
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
1	Fluoride	2.80	10000	12861
2	Chloride	3.89	20000	32165
3	Nitrite as N	4.61	10000	26572
4	Bromide	5.77	20000	9383
5	Nitrate as N	6.68	20000	61115
6	Orthophosphate as P	9.17	20000	33052
7	Sulfate	11.29	100000	98133
	Nitrate/Nitrite as N			

Calibration Update Report

Sample Name : 500X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_006.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 11:57:24 AM
Date Time Acquired : 9/9/13 5:51:19 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 11:57:10 AM	



Calibration Update Report

Sample Name : 1000X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_007.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 6:05:23 PM
Calibration Date : 9/10/13 12:01:02 PM

System Operator : AJD
Datafile Updated : 9/10/13 12:01:28 PM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

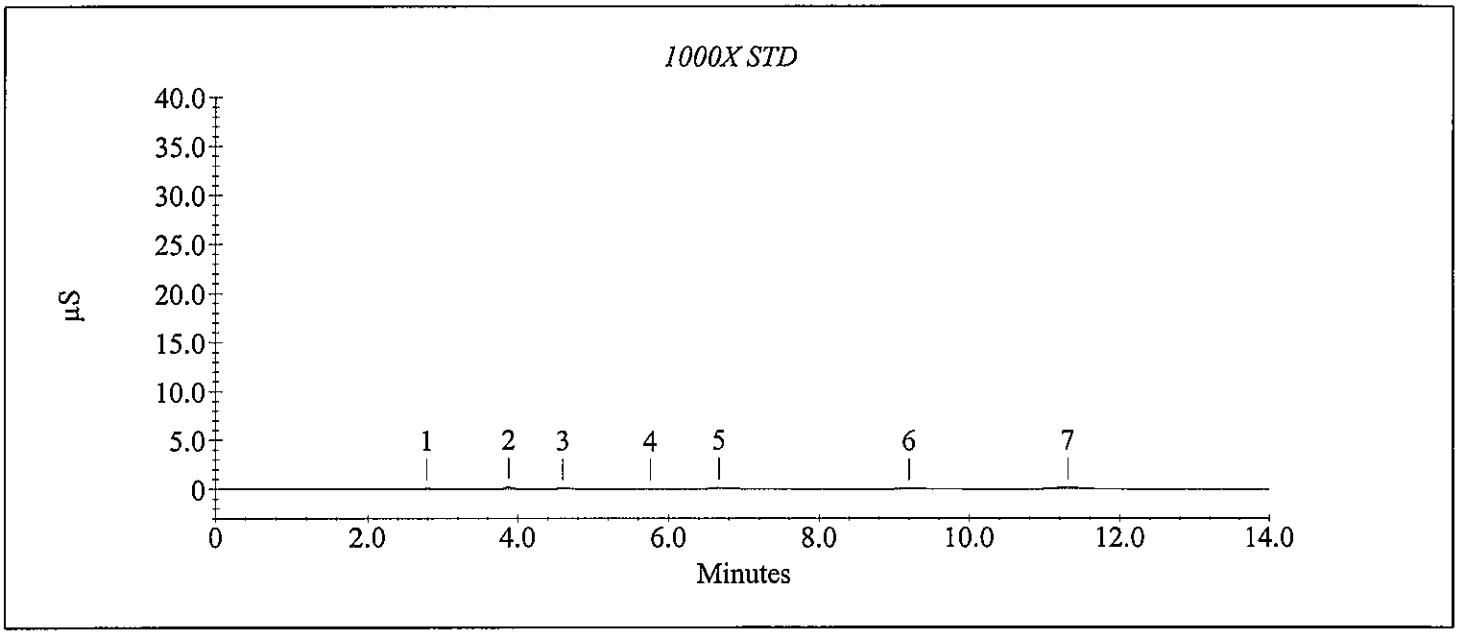
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
1	Fluoride	2.79	10000	7149
2	Chloride	3.88	20000	18219
3	Nitrite as N	4.60	10000	13111
4	Bromide	5.76	20000	4197
5	Nitrate as N	6.67	20000	24277
6	Orthophosphate as P	9.20	20000	18008
7	Sulfate	11.31	100000	48186
	Nitrate/Nitrite as N			

Calibration Update Report

Sample Name : 1000X STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_007.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 12:01:28 PM
Date Time Acquired : 9/9/13 6:05:23 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 12:01:02 PM	



Calibration Update Report

Sample Name : 0 STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_008.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Schedule File Name : c:\peaknet\schedule\130909ic1.sch
Date Time Acquired : 9/9/13 6:19:26 PM
Calibration Date : 9/10/13 12:06:14 PM

System Operator : AJD
Datafile Updated : 9/10/13 12:06:34 PM
Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...

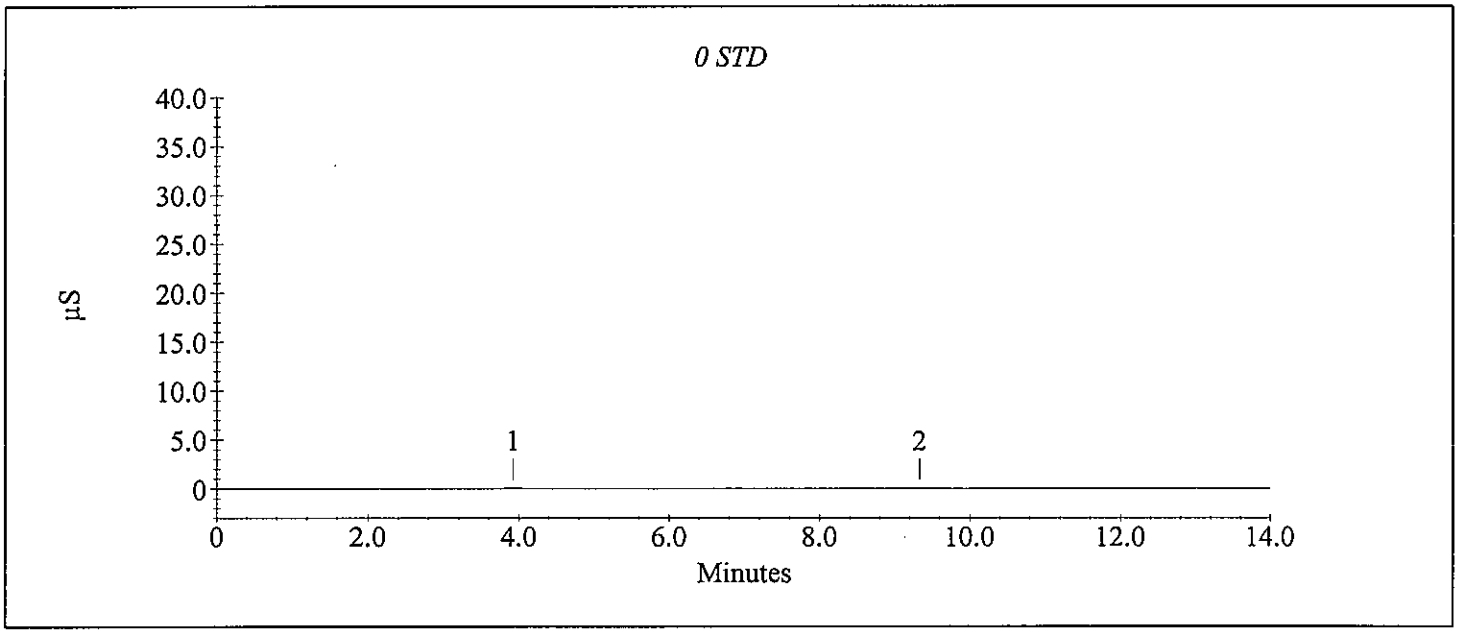
Peak Information : All Components

Peak #	Analyte	Retention Time (min.)	Concentration	Peak Area
1	Chloride	3.92	20000	3315
1	Chloride Nitrite as N Bromide Nitrate as N	3.92	20000	3315
2	Orthophosphate as P Sulfate Nitrate/Nitrite as N	9.33	20000	7071

Calibration Update Report

Sample Name : 0 STD
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_008.DXD

Method File Name : C:\PeakNet\method\130909ic1.met	System Operator : AJD
Schedule File Name : c:\peaknet\schedule\130909ic1.sch	Datafile Updated : 9/10/13 12:06:34 PM
Date Time Acquired : 9/9/13 6:19:26 PM	Method Comment : Flow rate = 1.2 mL/min, Eluent = 3...
Calibration Date : 9/10/13 12:06:14 PM	



DAILY VERIFICATION FOR ION CHROMATOGRAPH-1

(Used internally for comparative check purposes)

Analysis Date: 09/09/2013
Analyst Name: AJD
Filename for ICV: 130909ic1/130909_009.DXD
Calibration Date: 09/09/2013
Method ID: 130909IC1.met
Updated Method date: NA

Calibration Equation Verification (ICV)

Analyte	calibration type:	1st regression coefficient	2nd regression coefficient	intercept	A conc reported by PeakNet ug/L	observed peak area	B conc calc by spread-sheet ug/L	A/B *100 agreement %
Ophos	quad. ignore 0,0	-2.617353E-10	7.322904E-03	-3.342	4810.6	673604	4810.6	100.0

Retention Time (RT) Verification

Analyte	RT at calibration	RT in updated method (1st ICV or CCV)	deviation % (calibration vs. update) 10% tolerance	window width tolerance (NA)
F	2.80	2.79	0.4	5.00 %
Cl	3.89	3.88	0.3	5.00 %
NO2-N	4.60	4.57	0.7	4.90 %
Br	5.77	5.71	1.0	7.30 %
NO3-N	6.64	6.49	2.3	10.00%
PO4-P	9.16	9.12	0.4	4.10 %
SO4	11.28	11.25	0.3	4.10 %

Sample Analysis Report

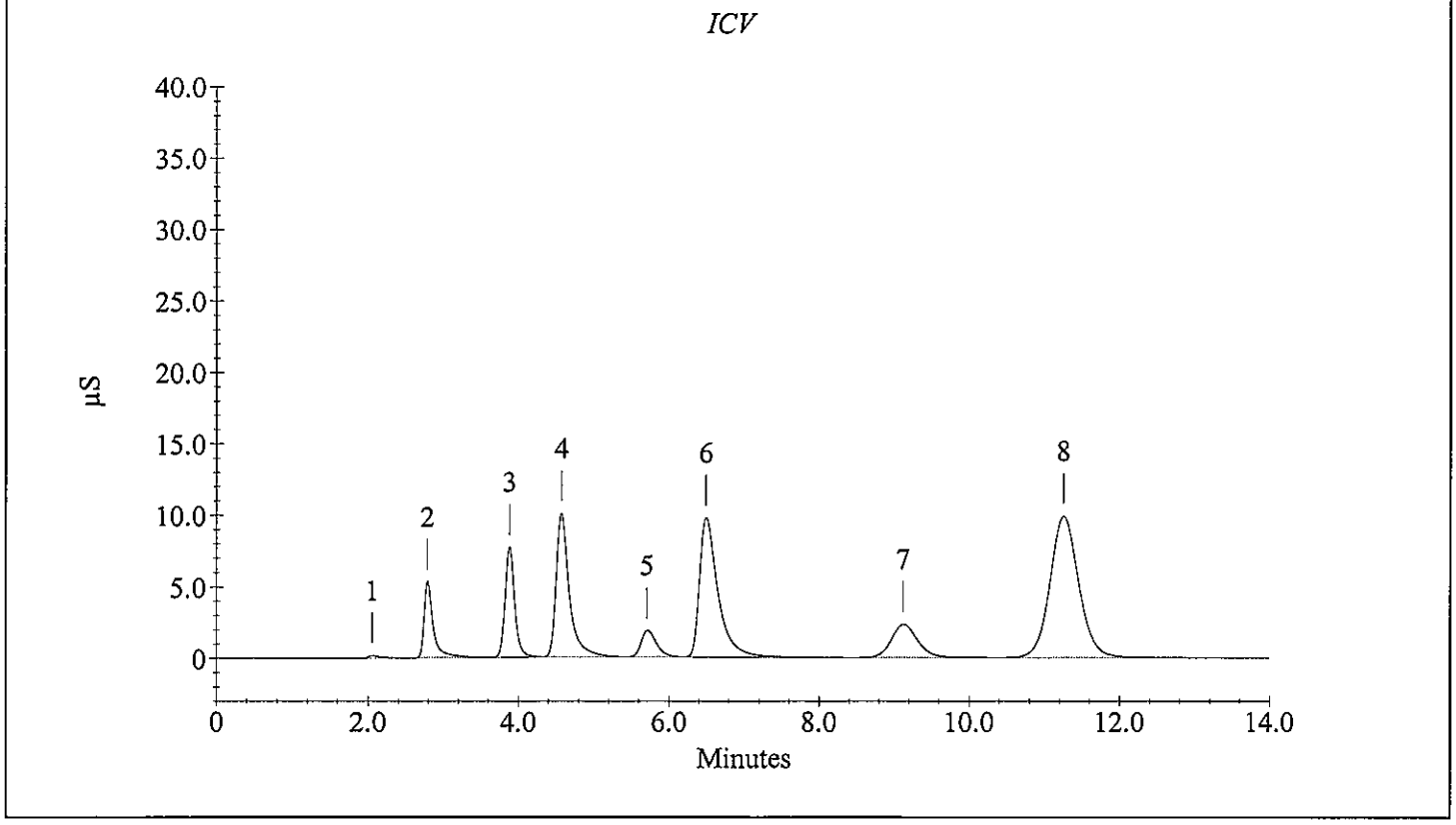
Sample Name : ICV
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_009.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Date, Time Analyzed : 9/9/13 6:33:30 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/10/13
Current Time : 12:08:25 PM
Datafile Updated : 9/10/13 12:08:19 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
2	Fluoride	2.79	2530.7		454684
3	Chloride	3.88	4862.7		688357
4	Nitrite as N	4.57	4066.5		1231630
5	Bromide	5.71	4903.7		262953
6	Nitrate as N	6.49	4780.9		1682767
7	Orthophosphate as P	9.12	4764.1		572485
8	Sulfate	11.25	24627.8		2642739
	Nitrate/Nitrite as N				



Sample Analysis Report

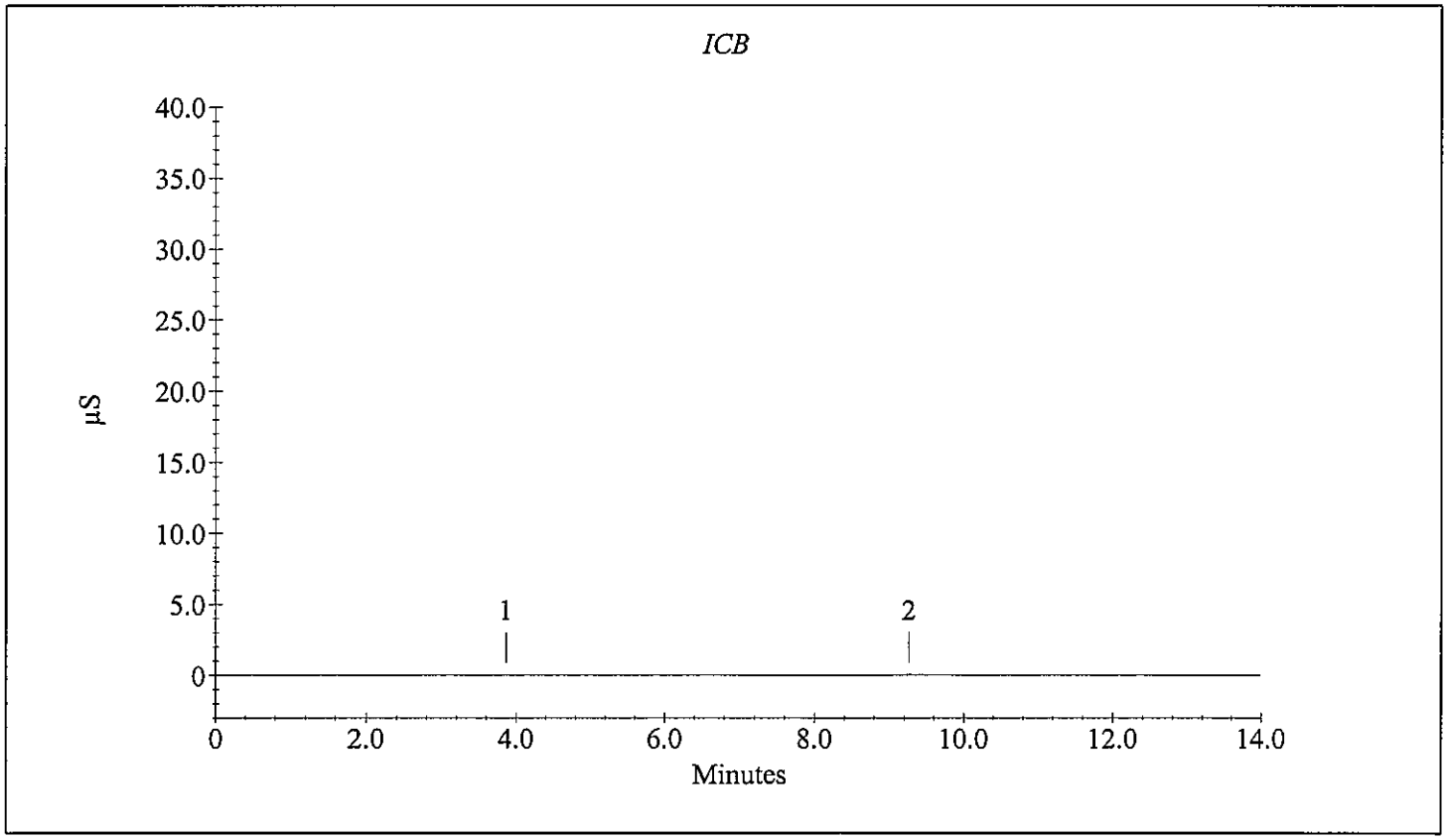
Sample Name : ICB
Data File Name : C:\PEAKNET\DATA\130909IC1\130909_010.DXD

Method File Name : C:\PeakNet\method\130909ic1.met
Date, Time Analyzed : 9/9/13 6:47:33 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/10/13
Current Time : 12:11:29 PM
Datafile Updated : 9/10/13 12:11:27 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
1	Chloride	3.87	19.4	-	2488
1	Chloride Nitrite as N Bromide Nitrate as N	3.87	19.4	-	2488
2	Orthophosphate as P Sulfate Nitrate/Nitrite as N	9.27	47.2	-	10310



DAILY VERIFICATION FOR ION CHROMATOGRAPH-1

(Used internally for comparative check purposes)

Analysis Date: 09/12/2013
Analyst Name: AJD
Filename for CCV: 130912ic1/130912_011.DXD
Calibration Date: 09/09/2013
Method ID: 130909IC1.met
Updated Method date: NA

Calibration Equation Verification (ICV)

Analyte	calibration type:	1st regression coefficient	2nd regression coefficient	intercept	A conc reported by PeakNet ug/L	observed peak area	B conc calc by spread-sheet ug/L	A/B *100 agreement %
Ophos	quad. ignore 0,0	-2.617353E-10	7.322904E-03	-3.342	4810.6	673604	4810.6	100.0

Retention Time (RT) Verification

Analyte	RT at calibration	RT in updated method (1st ICV or CCV)	deviation % (calibration vs. update) 10% tolerance	window width tolerance (NA)
F	2.80	2.79	0.4	5.00 %
Cl	3.89	3.87	0.5	5.00 %
NO2-N	4.60	4.56	0.9	4.90 %
Br	5.77	5.69	1.4	7.30 %
NO3-N	6.64	6.43	3.2	10.00%
PO4-P	9.16	9.08	0.9	4.10 %
SO4	11.28	11.17	1.0	4.10 %

Sample Analysis Report

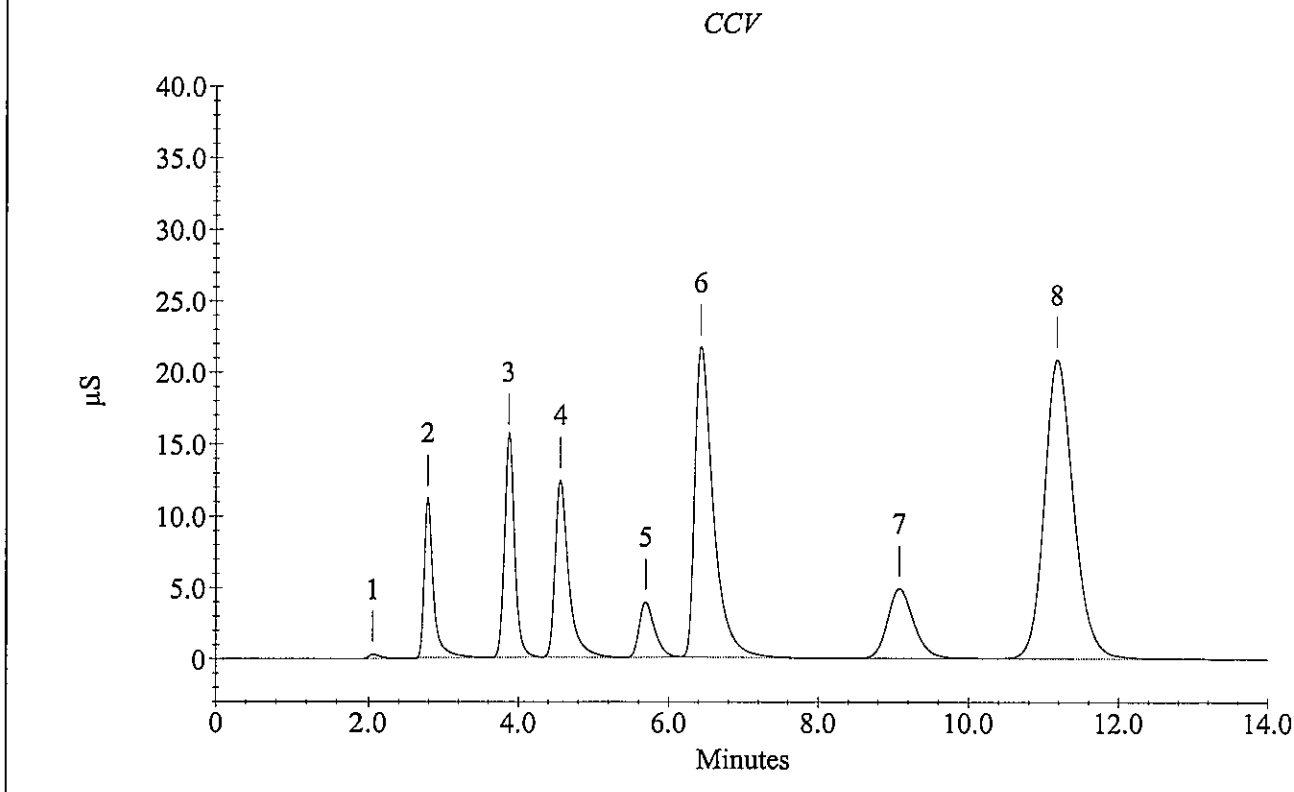
Sample Name : CCV
Data File Name : c:\peaknet\data\130912ic1\130912_011.DXD

Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 1:14:12 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 1:28:14 PM
Datafile Updated : 9/12/13 1:28:14 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
2	Fluoride	2.79	5059.1 ✓		946031
3	Chloride	3.87	9923.7 ✓		1466748
4	Nitrite as N	4.56	5053.8 ✓		1551116
5	Bromide	5.69	9915.0 ✓		548084
6	Nitrate as N	6.43	9985.8 ✓		3729708
7	Orthophosphate as P	9.08	9740.0 ✓		1200243
8	Sulfate	11.17	49932.4 ✓		5649624
	Nitrate/Nitrite as N				



Sample Analysis Report

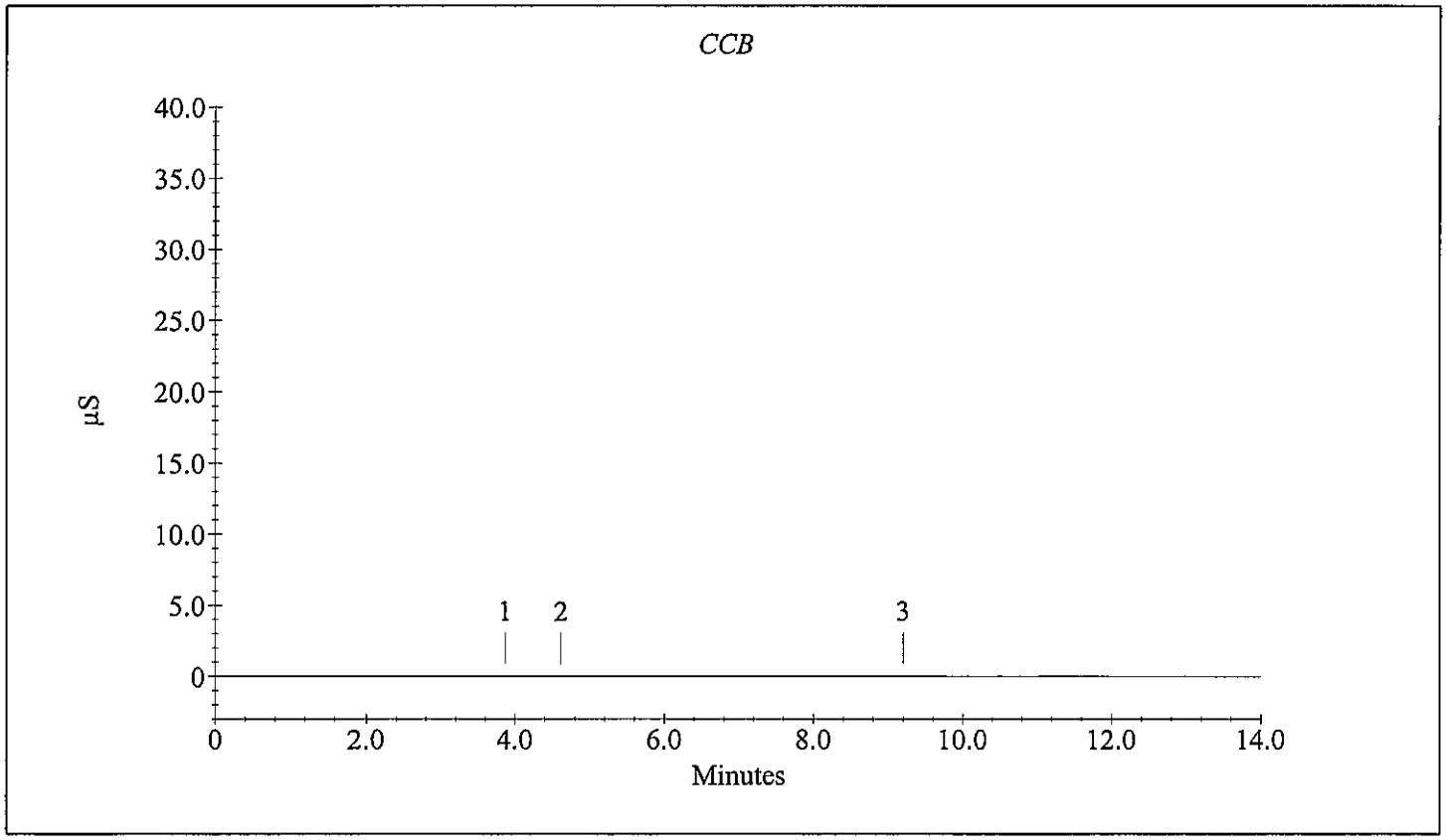
Sample Name : CCB
Data File Name : c:\peaknet\data\130912ic1\130912_012.DXD

Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 1:28:16 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 1:42:17 PM
Datafile Updated : 9/12/13 1:42:17 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
1	Chloride	3.87	23.6	-	3071
1	Chloride	3.87	23.6	-	3071
2	Nitrite as N	4.61	24.1	-	885
	Bromide				
	Nitrate as N				
3	Orthophosphate as P	9.20	74.5	-	13486
	Sulfate				
	Nitrate/Nitrite as N				



Sample Analysis Report

Sample Name : IC130912-1LCS
Data File Name : c:\peaknet\data\130912ic1\130912_013.DXD

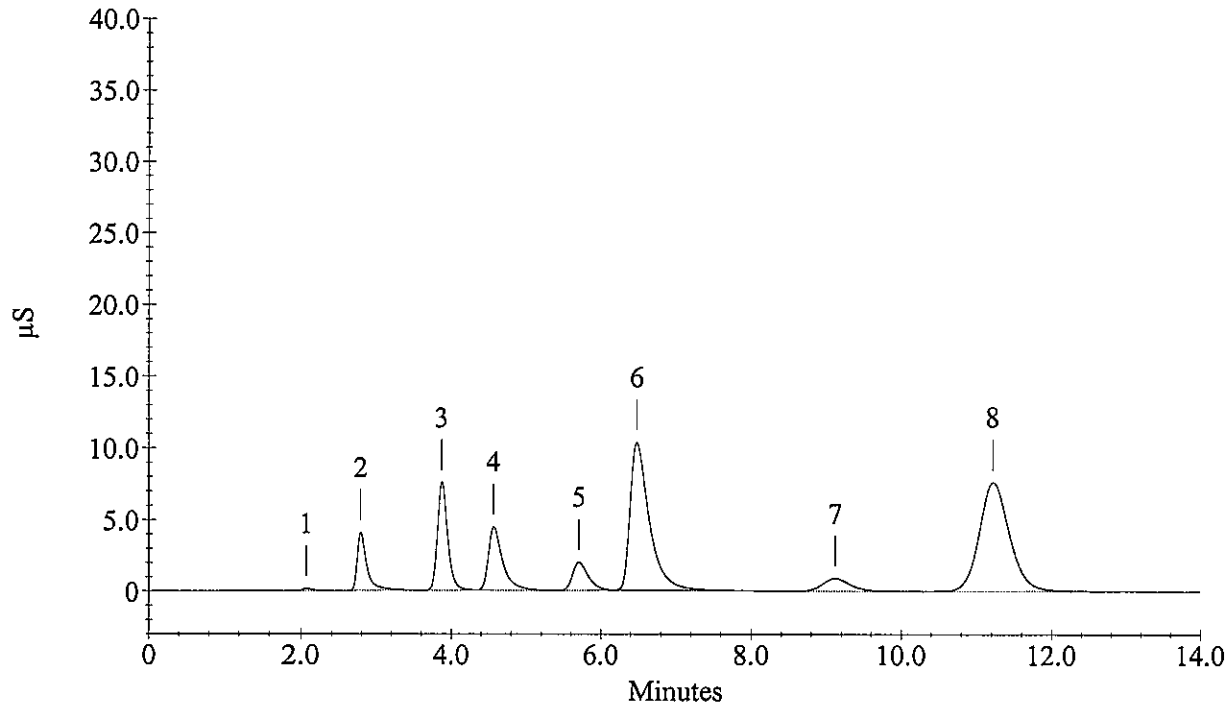
Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 1:42:18 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 1:56:21 PM
Datafile Updated : 9/12/13 1:56:20 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
2	Fluoride	2.79	2055.1		365753
3	Chloride	3.87	5056.2		716861
4	Nitrite as N	4.56	1999.4		587879
5	Bromide	5.71	5356.7		288076
6	Nitrate as N	6.48	5185.9		1834518
7	Orthophosphate as P	9.12	1926.2		230753
8	Sulfate	11.21	19967.3		2119031
	Nitrate/Nitrite as N				

IC130912-1LCS



Sample Analysis Report

Sample Name : IC130912-1MB
Data File Name : c:\peaknet\data\130912ic1\130912_014.DXD

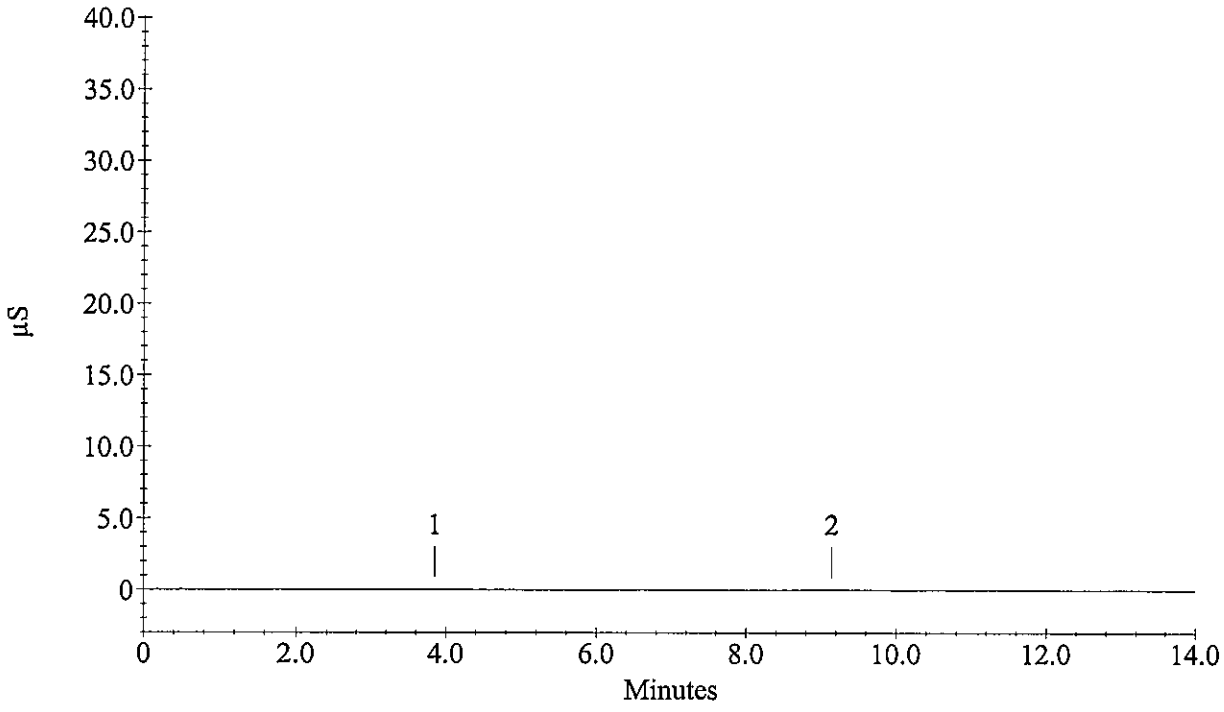
Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 1:56:22 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 2:10:25 PM
Datafile Updated : 9/12/13 2:10:24 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
1	Chloride	3.85	16.5	-	2093
1	Chloride Nitrite as N Bromide Nitrate as N	3.85	16.5	-	2093
2	Orthophosphate as P Sulfate Nitrate/Nitrite as N	9.15	-2.5	-	4538

IC130912-1MB



Sample Analysis Report

Sample Name : 1309158-1
Data File Name : c:\peaknet\data\130912ic1\130912_019.DXD

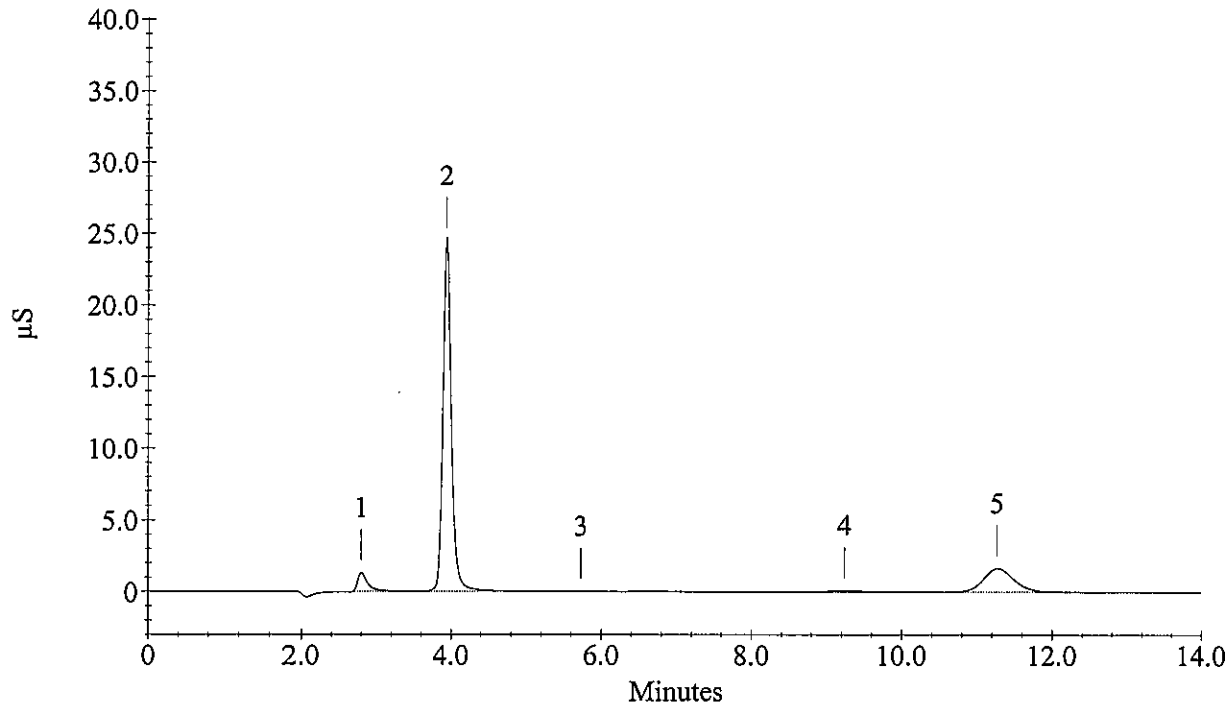
Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 3:06:41 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 3:20:43 PM
Datafile Updated : 9/12/13 3:20:42 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
1	Fluoride	2.80	720.2		121465
2	Chloride	3.93	12609.6		1911844
	Nitrite as N				
3	Bromide	5.73	109.0	-	4165
	Nitrate as N				
4	Orthophosphate as P	9.24	209.3	-	29156
5	Sulfate	11.27	4743.5		463804
	Nitrate/Nitrite as N				

1309158-1



Sample Analysis Report

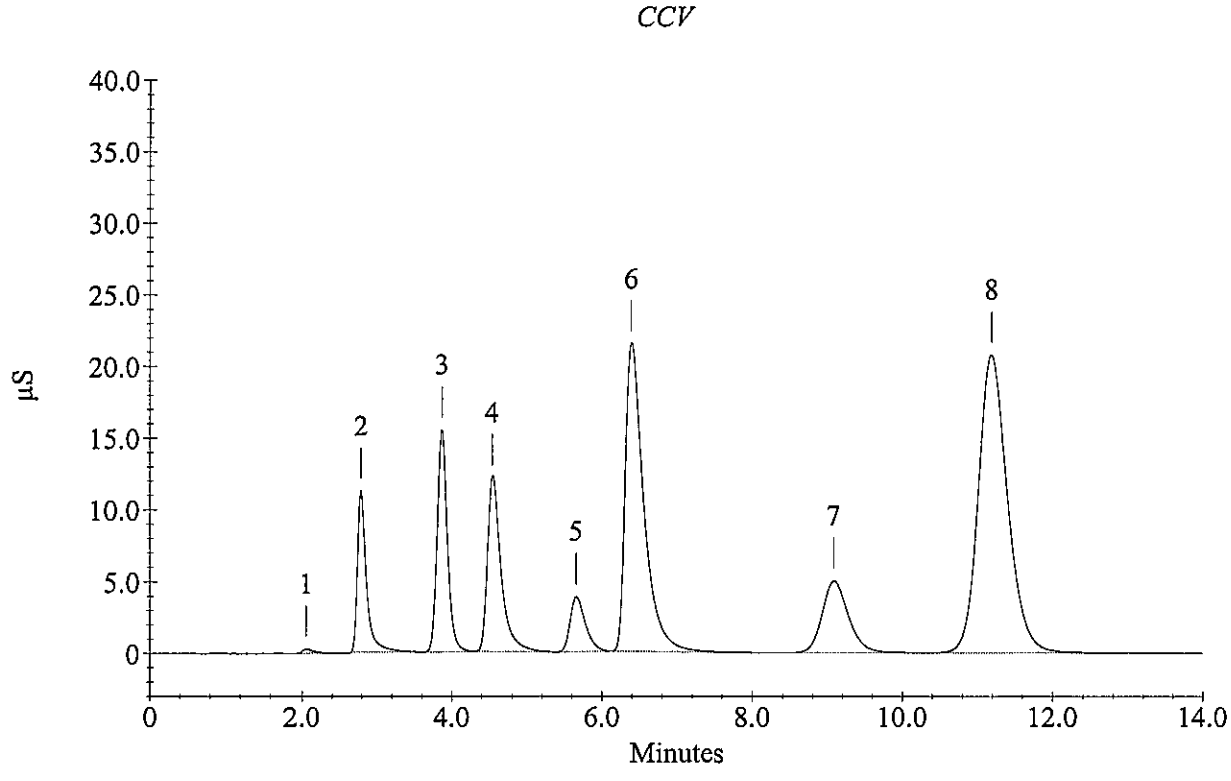
Sample Name : CCV
Data File Name : c:\peaknet\data\130912ic1\130912_023.DXD

Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 4:02:55 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 4:16:58 PM
Datafile Updated : 9/12/13 4:16:57 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
2	Fluoride	2.79	5065.0 ✓		947229
3	Chloride	3.87	9840.1 ✓		1453273
4	Nitrite as N	4.53	5006.4 ✓		1535581
5	Bromide	5.65	9827.2 ✓		542944
6	Nitrate as N	6.39	9890.0 ✓		3689954
7	Orthophosphate as P	9.08	9937.7 ✓		1226012
8	Sulfate	11.19	49542.0 ✓		5600878
	Nitrate/Nitrite as N				



Sample Analysis Report

Sample Name : CCB
Data File Name : c:\peaknet\data\130912ic1\130912_024.DXD

Method File Name : c:\peaknet\method\130909ic1.met
Date, Time Analyzed : 9/12/13 4:17:00 PM
System Operator : AJD
Calibration Updated : 9/10/13 12:06:14 PM

Current Date : 9/12/13
Current Time : 4:31:01 PM
Datafile Updated : 9/12/13 4:31:01 PM

Peak Information : All Components

Peak Number	Analyte	Retention Time (min.)	Concentration (ug/L)	Limit Exceeded	Peak Area
1		3.01	0.0		84
3	Chloride Nitrite as N Bromide Nitrate as N	3.88	25.5	-	3330
4	Orthophosphate as P Sulfate Nitrate/Nitrite as N	9.20	121.9	-	18991