H6D040102 Analytical Report **1**

Sample Receipt Documentation **16**

Wet Chemistry **20**
Sample Summary 21
QC Summary 25
Raw Data 32

Sample Receipt Documentation **91**

Total Number of Pages **94**

SEVERN TRENT STL

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ANALYTICAL REPORT

PROJECT NO. 142541

Focus/US Filter Westates 9056

Lot #: H6D040102

William Anderson

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5815 Middlebrook Pike
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SEVERN TRENT LABORATORIES, INC.

Kevin S. Woodcock
Project Manager

April 25, 2006

ANALYTICAL METHODS SUMMARY

H6D040102

PARAMETER	ANALYTICAL METHOD
Total Chlorine	KNOX WC-0016

References:

KNOX Severn Trent Laboratories Knoxville, Facility Standard Operating Procedure.

SAMPLE SUMMARY

H6D040102

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
H2H65	001	G-2886-R1-SPENT ACTIVATED CARBON	03/28/06	
H2H66	002	G-2984-R2-SPENT ACTIVATED CARBON	03/29/06	
H2H67	003	G-3067-R3-SPENT ACTIVATED CARBON	03/30/06	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PROJECT NARRATIVE
H6D040102

The results reported herein are applicable to the samples submitted for analysis only.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

Sample Receipt

Custody seals were not present upon sample receipt at STL Knoxville; however, samples were hand delivered.

The "Relinquished by" field on the chain of custody documentation did not contain a signature.

Quality Control

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

The samples were prepared for total chlorine using SOP number KNOX-WC-0016 (based on ASTM Method E442 and SW-846 Method 5050). The sample is oxidized by combustion in an oxygen flask at atmospheric pressure or a bomb containing oxygen under pressure. The liberated halogen compounds are absorbed primarily as halides in a sodium carbonate/sodium bicarbonate buffer solution. The combustion products are collected by repeated rinsing of the combustion apparatus, and analyzed by ion chromatography in accordance with SOP KNOX-WC-0005 (based on SW-846 Method 9056). The results are calculated using the following equation:

STL Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Cert. #05-043-0, California DHS ELAP Cert. #2423, Colorado DPHE, Connecticut DPH Cert. #PH-0223, Florida DOH Cert. #E87177, Georgia DNR Cert. #906 (SDWA, expires 6/24/05), Hawaii DOH, Illinois EPA Cert. #000687, Indiana DOH Cert. #C-TN-02, Iowa DNR Cert. #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab ID #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH Cert. #LA030024, Maryland DHMH Cert. #277, Massachusetts DEP Cert. #M-TN009, Michigan DEQ Lab ID #9933, New Jersey DEP Cert. #TN001, New York DOH Lab #10781, North Carolina DPH Lab ID #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Cert. #CL0059, Oklahoma DEQ ID #9415, Pennsylvania DEP Cert. #68-00576, South Carolina DHEC Lab ID #84001001, Tennessee DOH Lab ID #02014, Utah DOH Cert. # QUAN3, Virginia DGS Lab ID #00165, Washington DOE Lab #C120, West Virginia DEP Cert. #345, Wisconsin DNR Lab ID #998044300, US Army Corps of Engineers, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.

PROJECT NARRATIVE
H6D040102

$$C = \frac{C_{com} \times V_{com}}{W} \times 1000$$

Where:

C	=	concentration of analyte in the sample, mg/kg.
C_{com}	=	concentration of analyte in the combustate, mg/L.
V_{com}	=	total volume of combustate, L.
W	=	weight of sample combusted, g.

The matrix spike recovery for sample G-2886-R1-Spent Activated Carbon was outside control limits for total chlorine. The laboratory control sample showed acceptable results indicating that the analysis was in control. The matrix spike result is attributed to matrix effects, specifically sample heterogeneity. The percent recovery calculation is influenced by the native amount of chlorine present in the samples. Since the samples are solids, sample heterogeneity is expected. For instance, if a matrix spike analysis uses an aliquot of the sample that has a higher chlorine content than the original analysis to which it is compared, then the calculated recovery will be elevated.

The duplicate RPD result for sample G-2886-R1-Spent Activated Carbon is outside control limits. The laboratory control sample showed acceptable results indicating that the analysis was in control. The duplicate result is attributed to sample heterogeneity. Sample heterogeneity effects are noted for the matrix spike as well as the duplicate analysis.

The samples for the three runs associated with this project were compared for consistency. A wide range of results was noted, consistent with sample heterogeneity that is common for solid matrices.

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Sample Data Summary

STL Knoxville - ACS

Client Sample ID: G-2886-R1-SPENT ACTIVATED CARBON

General Chemistry

Lot-Sample #...: H6D040102-001 **Work Order #...:** H2H65 **Matrix.....:** SOLID
Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine	**3860 J**	**900**	**mg/kg**	**KNOX WC-0016**	**04/17-04/19/06**	**6107072**

Dilution Factor: 4.5 MDL.....: 279

NOTE(S):

RL Reporting Limit

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

STL Knoxville - ACS

Client Sample ID: G-2984-R2-SPENT ACTIVATED CARBON

General Chemistry

Lot-Sample #...: H6D040102-002 **Work Order #...:** H2H66 **Matrix.....:** SOLID
Date Sampled...: 03/29/06 **Date Received..:** 04/02/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine	**4740 J**	**900**	**mg/kg**	**KNOX WC-0016**	**04/17-04/19/06**	**6107072**

Dilution Factor: 4.5 MDL.....: 279

NOTE(S):

RL Reporting Limit

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

STL Knoxville - ACS

Client Sample ID: G-3067-R3-SPENT ACTIVATED CARBON

General Chemistry

Lot-Sample #...: H6D040102-003 **Work Order #...:** H2H67 **Matrix.....:** SOLID
Date Sampled...: 03/30/06 **Date Received..:** 04/02/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine	**3650 J**	**880**	**mg/kg**	**KNOX WC-0016**	**04/17-04/19/06**	**6107072**

Dilution Factor: 4.4 MDL.....: 273

NOTE(S):

RL Reporting Limit

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine		Work Order #: H3EC01AA		MB Lot-Sample #:	H6D170000-072	
	63.0 B	**200**	**mg/kg**	**KNOX WC-0016**	**04/17-04/18/06**	**6107072**
		Dilution Factor: 1				

NOTE(S):

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine		Work Order #: H3EC01AC	LCS Lot-Sample#: H6D170000-072		
	104	(80 - 120)	KNOX WC-0016	04/17-04/18/06	6107072
		Dilution Factor: 1			

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine			Work Order #: H3EC01AC		LCS Lot-Sample#: H6D170000-072		
	10000	10400	mg/kg	104	KNOX WC-0016	04/17-04/18/06	6107072
			Dilution Factor: 1				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID
Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine		WO#: H2H651AD-MS/H2H651AE-MSD				MS Lot-Sample #: H6D040102-001	
	110	(80 - 120)			KNOX WC-0016	04/17-04/18/06	6107072
	121 N	(80 - 120)	4.2	(0-10)	KNOX WC-0016	04/17-04/19/06	6107072
		Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID
Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine			WO#: H2H651AD-MS/H2H651AE-MSD				MS Lot-Sample #: H6D040102-001		
	3860	9960	14800	mg/kg	110		KNOX WC-0016	04/17-04/18/06	6107072
	3860	9580	15400 N	mg/kg	121	4.2	KNOX WC-0016	04/17-04/19/06	6107072
			Dilution Factor: 1						

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: H6D040102 **Work Order #...:** H2H65-SMP H2H65-DUP **Matrix.....:** SOLID

Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine						SD Lot-Sample #:	H6D040102-001	
	3860 J	5230	mg/kg	30	(0-10)	KNOX WC-0016	04/17-04/19/06	6107072
			Dilution Factor: 4.5					

NOTE(S):

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

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Sample Receipt Documentation

Request for Analysis/Chain-of-Custody – RFA/COC #009 [Total Chlorine]
Focus/US Filter Westates Carbon
Comprehensive Performance Test at Parker, Arizona

STL Knoxville Lot Number: H6D040102
STL Knoxville Project Number: 142541

NOTE: After Log-In, please give the original completed RFA/COC to Patti Carswell.

Project Identification:	**Westates Carbon CPT**
STL Knoxville Project Number:	142541
STL Contact:	Ms. Patti Carswell (865) 291-3010
STL - ACS Project Manager:	Dr. William C. Anderson (865) 291-3080

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	21 Days from Lab Receipt
Laboratory Destination:	STL Knoxville 5815 Middlebrook Pike Knoxville, Tennessee 37921 (865) 291-3000
Courier:	Federal Express

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows:
"MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate,
"DUP" = Duplicate, and "PDS" = Post Digestion Spike

Project Deliverables:
Report analytical results on R-02 Reports and in data packages.
Include "Field Number", "Sample Type", and "Run Number" on all R-02 Reports.

Holding Time Requirements:	
Total Chlorine	30 Days to Analysis.

Field Sample No./ Sample Coding ID	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type/Analysis**	**Analytical Specifications**
G-2886-R1-Spent Activated Carbon	3-28-06	**DUP**	125 mL Powder Jar	**Spent Activated Carbon - Run #1** Total Chlorine Analysis	Prepare the sample by SW-846 Method 5050 and analyze for Total Chlorine by SW-846 Method 9056.
G-2984-R2-Spent Activated Carbon	3-29-06		125 mL Powder Jar	**Spent Activated Carbon - Run #2** Total Chlorine Analysis	Prepare the sample by SW-846 Method 5050 and analyze for Total Chlorine by SW-846 Method 9056.
G-3067-R3-Spent Activated Carbon	3-30-06		125 mL Powder Jar	**Spent Activated Carbon - Run #3** Total Chlorine Analysis	Prepare the sample by SW-846 Method 5050 and analyze for Total Chlorine by SW-846 Method 9056.

Request for Analysis/Chain-of-Custody – RFA/COC #009 [Total Chlorine]
Focus/US Filter Westates Carbon
Comprehensive Performance Test at Parker, Arizona

H6D040102

Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NA
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	5.0°C
(3) Record any apparent sample loss/breakage.	N/A
(4) Record any unidentified samples transported with this shipment of samples:	N/A
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	N/A

Custody Transfer:

Hand delivered

	Name	Company	Date/Time
Relinquished By:			
Accepted By:	[signature]	STL-Knoxville	4/2/06 1625
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

STL KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Client: Focus **Project:** Westates Carbon **Lot Number:** H6D040102

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	14a- COC not relinquished - sign, date or time
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C)	✓			☐ **2a** Temp Blank = _____ ☐ **2b** Cooler Temp = _____	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?		✓		☑ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	✓			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			✓	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?	Note: 4/3/06		✓	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For SOG water samples (1613B, 1668A, 8290, LR PAHs), do samples have visible solids present?			✓	If yes & appears to be >1%, was SOG notified? _____	
13. Are the shipping containers intact?	✓			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)		✓		☑ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	✓			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?			✓		

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: [signature] Date: 4/3/06

QA026R18.doc, 1/30/06

Wet Chemistry

Sample Summary

STL Knoxville - ACS

Client Sample ID: G-2886-R1-SPENT ACTIVATED CARBON

General Chemistry

Lot-Sample #...: H6D040102-001 **Work Order #...:** H2H65 **Matrix.....:** SOLID
Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine	**3860 J**	**900**	**mg/kg**	**KNOX WC-0016**	**04/17-04/19/06**	**6107072**

Dilution Factor: 4.5 MDL.....: 279

NOTE(S):

RL Reporting Limit

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

STL Knoxville - ACS

Client Sample ID: G-2984-R2-SPENT ACTIVATED CARBON

General Chemistry

Lot-Sample #...: H6D040102-002 **Work Order #...:** H2H66 **Matrix.....:** SOLID
Date Sampled...: 03/29/06 **Date Received..:** 04/02/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine	**4740 J**	**900**	**mg/kg**	**KNOX WC-0016**	**04/17-04/19/06**	**6107072**

Dilution Factor: 4.5 MDL.....: 279

NOTE(S):

RL Reporting Limit

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

STL Knoxville - ACS

Client Sample ID: G-3067-R3-SPENT ACTIVATED CARBON

General Chemistry

Lot-Sample #...: H6D040102-003 **Work Order #...:** H2H67 **Matrix.....:** SOLID
Date Sampled...: 03/30/06 **Date Received..:** 04/02/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine	**3650 J**	**880**	**mg/kg**	**KNOX WC-0016**	**04/17-04/19/06**	**6107072**

Dilution Factor: 4.4 MDL.....: 273

NOTE(S):

RL Reporting Limit

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

QC Summary

METHOD BLANK REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine		Work Order #: H3EC01AA		MB Lot-Sample #:	H6D170000-072	
	63.0 B	**200**	**mg/kg**	**KNOX WC-0016**	**04/17-04/18/06**	**6107072**
		Dilution Factor: 1				

NOTE(S):

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine		Work Order #: H3EC01AC	LCS Lot-Sample#: H6D170000-072		
	104	(80 - 120)	KNOX WC-0016	04/17-04/18/06	6107072
		Dilution Factor: 1			

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine			Work Order #: H3EC01AC		LCS Lot-Sample#: H6D170000-072		
	10000	10400	mg/kg	104	KNOX WC-0016	04/17-04/18/06	6107072
			Dilution Factor: 1				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID
Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine		WO#: H2H651AD-MS/H2H651AE-MSD				MS Lot-Sample #: H6D040102-001	
	110	(80 - 120)			KNOX WC-0016	04/17-04/18/06	6107072
	121 N	(80 - 120)	4.2	(0-10)	KNOX WC-0016	04/17-04/19/06	6107072
		Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: H6D040102 **Matrix.....:** SOLID
Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine			WO#: H2H651AD-MS/H2H651AE-MSD				MS Lot-Sample #: H6D040102-001		
	3860	9960	14800	mg/kg	110		KNOX WC-0016	04/17-04/18/06	6107072
	3860	9580	15400 N	mg/kg	121	4.2	KNOX WC-0016	04/17-04/19/06	6107072
			Dilution Factor: 1						

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: H6D040102 **Work Order #...:** H2H65-SMP H2H65-DUP **Matrix.....:** SOLID

Date Sampled...: 03/28/06 **Date Received..:** 04/02/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Chlorine						SD Lot-Sample #:	H6D040102-001	
	3860 J	5230	mg/kg	30	(0-10)	KNOX WC-0016	04/17-04/19/06	6107072
			Dilution Factor: 4.5					

NOTE(S):

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

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Raw Data

Total Chlorine

STL Knoxville IC Initial Calibration Data Review / Narrative Checklist
Methods: 300.0, 9056, 9057 and 26A, SOP: KNOX-WC-0005, Rev. 6
Page 1 of 1

QUAD

Analysis Date:	Feb. 28, 2006	File ID:	B28A - AS14A -ANIONS - 022806 - QUAD

Initial Calibration Review Items	N/A	Yes	No	If No, why is data reportable?	2nd √
1. Were at least 5 levels of each analyte analyzed?		✓			✓
2. Is low level standard concentration ≤ RL?		✓			✓
3. Are the correlation coefficients (r) ≥0.995; r^2≥0.990?		✓			✓
4. For method 300.0, was the calibration curve processed using linear reqression?	✓				NA
5. For manual integrated standards, are before/after chromatograms provided with initials/date/reason?		✓		Reasons: S=Split peak, U=Undetected peak, I=Incorrect peak integration, B=Baseline correction, W=Wrong peak chosen by data system	✓

Analyst: CWK **Date:** 2/28/06

Comments:

Range: 0.2 - 5.0 ppm F^-, Br^-

Range: 0.5 - 15.0 ppm Cl^-, SO_4^-, I^-

Range: 0.5 - 10.0 ppm NO_2-N, NO_3-N, PO_4-P

Area > PO_4-P, SO_4^-, I^- Height: Cl, F^-, NO_2-N, Br^-, NO_3-N

2nd Level Reviewer: [signature] **Date:** 2/28/06

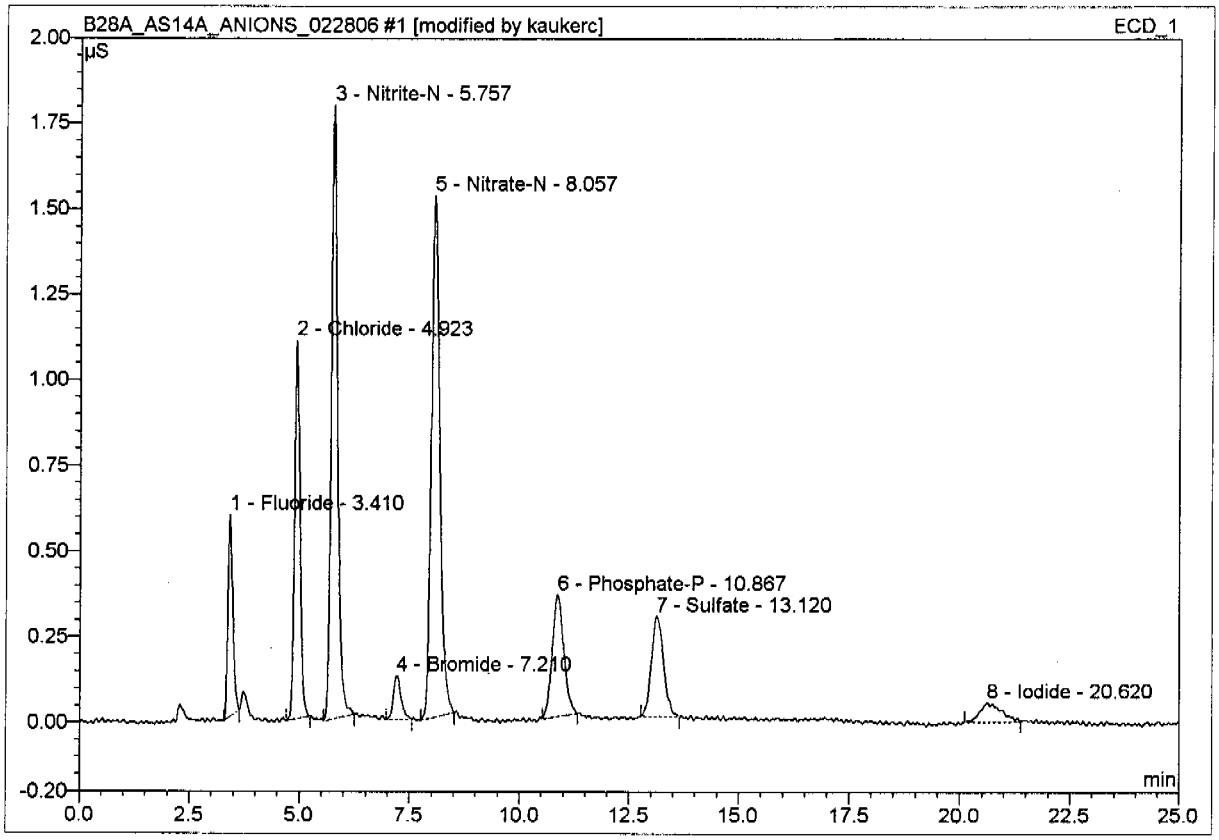
Comments:

Operator:kaukerc Timebase:ICS1500 Sequence:B28A_AS14A_ANIONS_022806

2/28/2006 12:37 PM

1 CAL STD #1 ICWS-8115

Sample Name:	**CAL STD #1 ICWS-8115**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 9:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	3.41	Fluoride	0.59262	0.075	6.63	0.2012	BMB
2	4.92	Chloride	1.10453	0.157	13.81	0.5327	BMB
3	5.76	Nitrite-N	1.79118	0.302	26.57	0.4947	BMB
4	7.21	Bromide	0.12734	0.026	2.31	0.2082	BMB
5	8.06	Nitrate-N	1.52259	0.339	29.88	0.4981	BMB
6	10.87	Phosphate-P	0.35596	0.110	9.67	0.4666	BMB
7	13.12	Sulfate	0.29359	0.095	8.33	0.4656	BMB
8	20.62	Iodide	0.05492	0.032	2.79	0.5005	BMB*

Iodide Peak unidentified
manual identification
CWK 2/28/06

default_letter/Integration

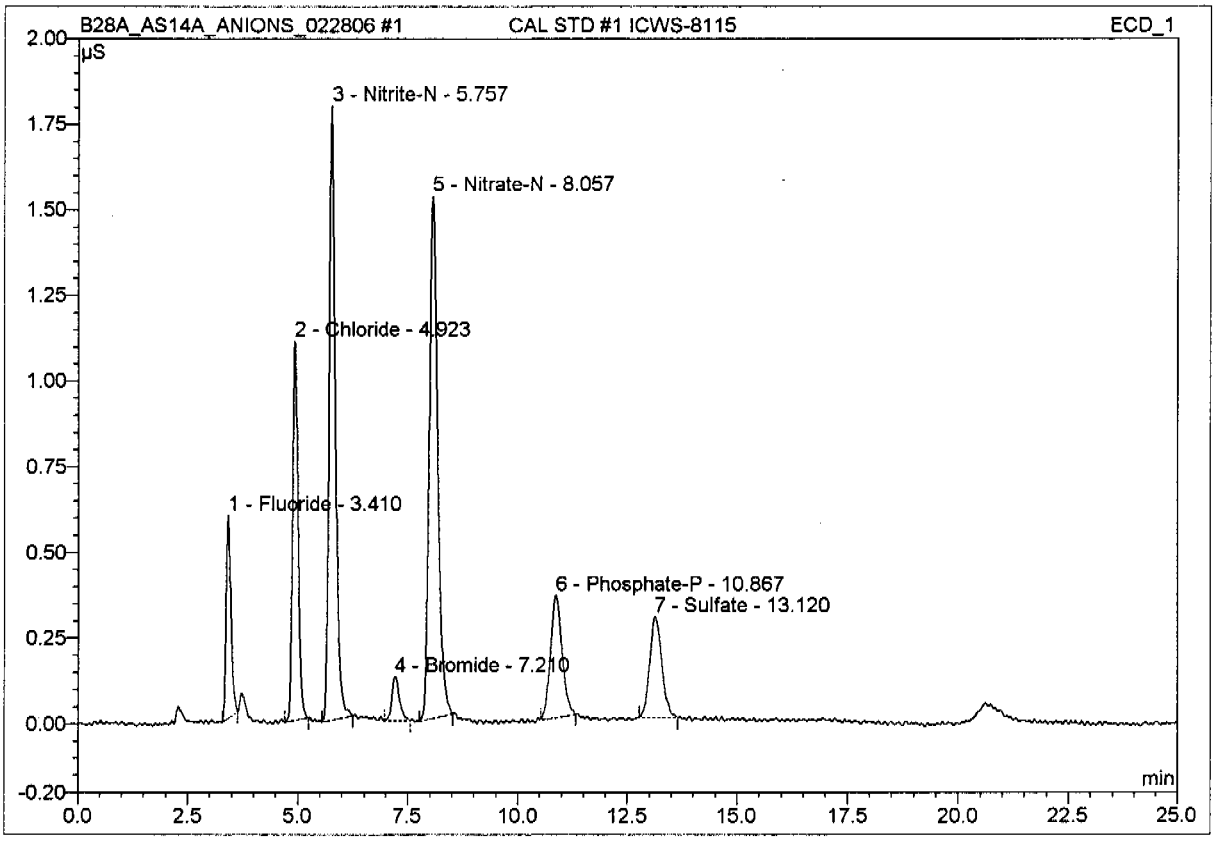
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:B28A_AS14A_ANIONS_022806

2/28/2006 12:39 PM

1 CAL STD #1 ICWS-8115

Sample Name:	**CAL STD #1 ICWS-8115**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 9:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	3.41	Fluoride	0.59262	0.075	6.83	0.2012	BMB
2	4.92	Chloride	1.10453	0.157	14.21	0.5327	BMB
3	5.76	Nitrite-N	1.79118	0.302	27.33	0.4947	BMB
4	7.21	Bromide	0.12734	0.026	2.38	0.2082	BMB
5	8.06	Nitrate-N	1.52259	0.339	30.73	0.4981	BMB
6	10.87	Phosphate-P	0.35596	0.110	9.95	0.4666	BMB
7	13.12	Sulfate	0.29359	0.095	8.57	0.4656	BMB

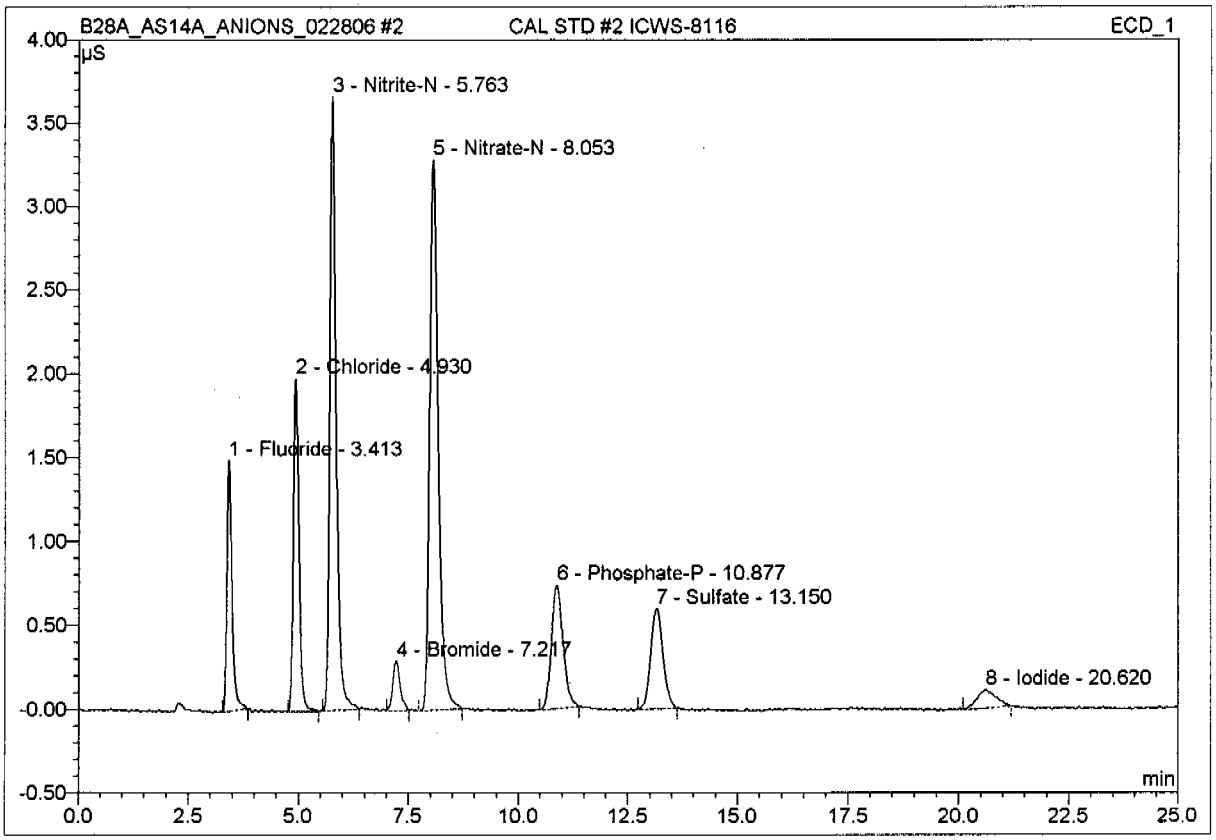
original

default_letter/Integration

Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

2 CAL STD #2 ICWS-8116

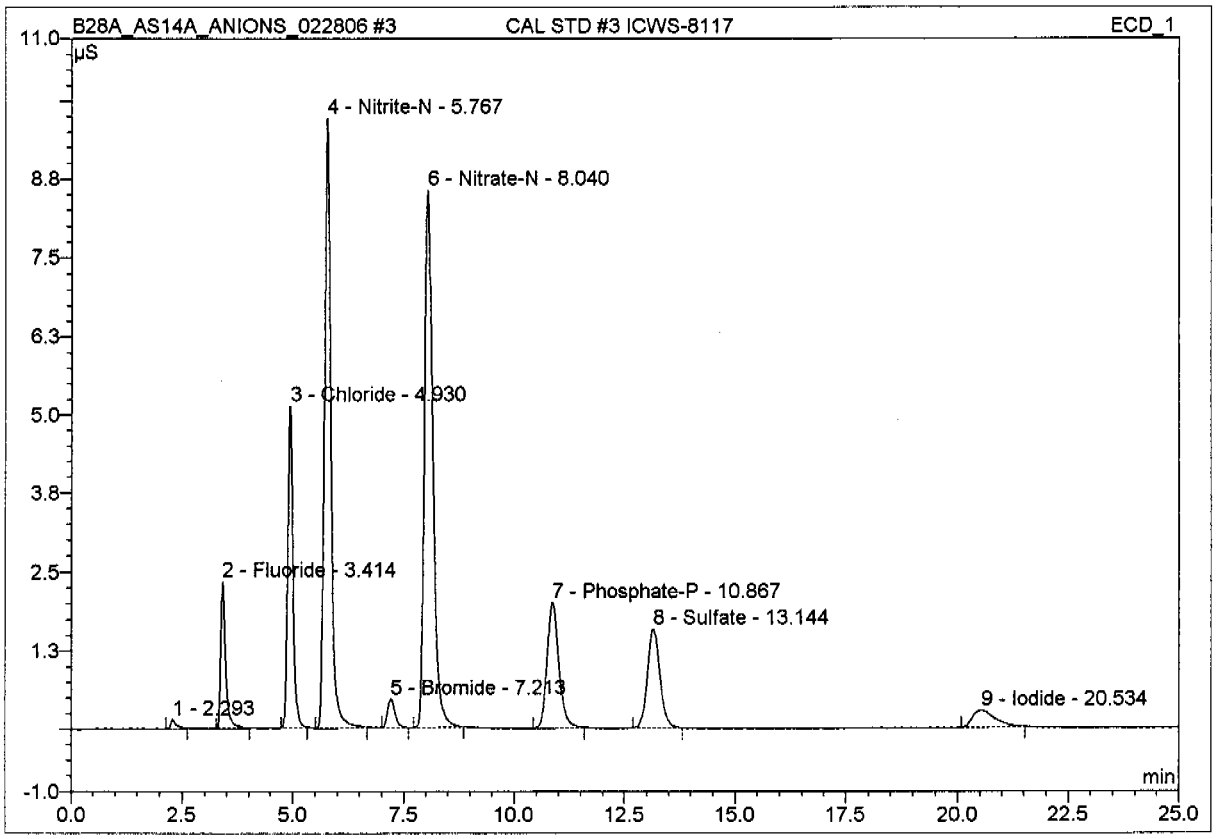
Sample Name:	**CAL STD #2 ICWS-8116**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 9:49**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	3.41	Fluoride	1.49437	0.199	8.35	0.4891	BMB
2	4.93	Chloride	1.98527	0.287	12.07	0.9658	BMB
3	5.76	Nitrite-N	3.66454	0.620	26.05	0.9698	BMB
4	7.22	Bromide	0.29434	0.058	2.44	0.4801	BMB
5	8.05	Nitrate-N	3.28854	0.742	31.15	1.0108	BMB
6	10.88	Phosphate-P	0.73614	0.227	9.54	0.9561	BMB
7	13.15	Sulfate	0.59483	0.193	8.09	0.9442	BMB
8	20.62	Iodide	0.10962	0.055	2.30	0.8600	BMB

3 CAL STD #3 ICWS-8117

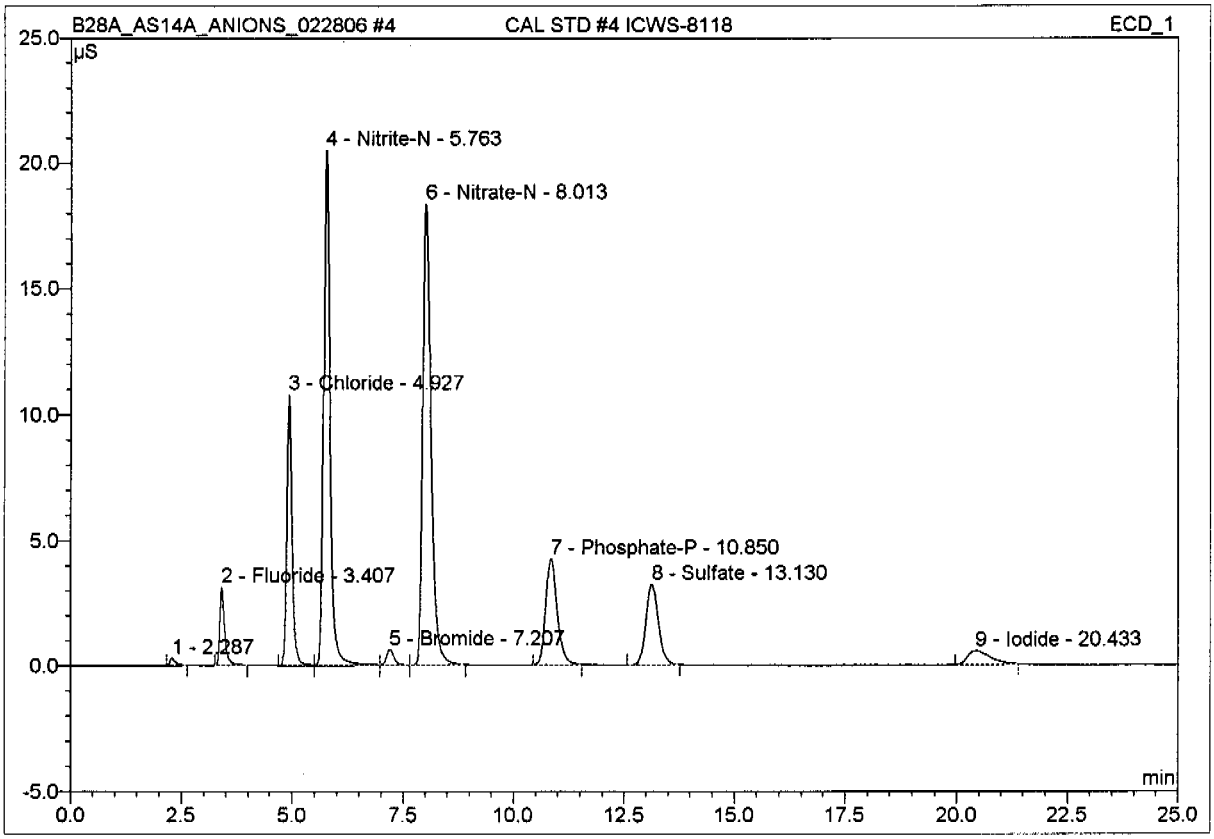
Sample Name:	**CAL STD #3 ICWS-8117**	*Injection Volume:*	**50.0**
Vial Number:	**1197**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.29	n.a.	0.15213	0.023	0.38	n.a.	BMB
2	3.41	Fluoride	2.34406	0.315	5.26	0.7548	BMB
3	4.93	Chloride	5.11781	0.723	12.06	2.4579	BMB
4	5.77	Nitrite-N	9.70285	1.641	27.36	2.4736	BMB
5	7.21	Bromide	0.45397	0.090	1.50	0.7379	BMB
6	8.04	Nitrate-N	8.54406	1.895	31.59	2.4747	BMB
7	10.87	Phosphate-P	2.00127	0.623	10.38	2.5466	BMB
8	13.14	Sulfate	1.58013	0.523	8.72	2.5288	BMB
9	20.53	Iodide	0.27961	0.164	2.74	2.5428	BMB

4 CAL STD #4 ICWS-8118

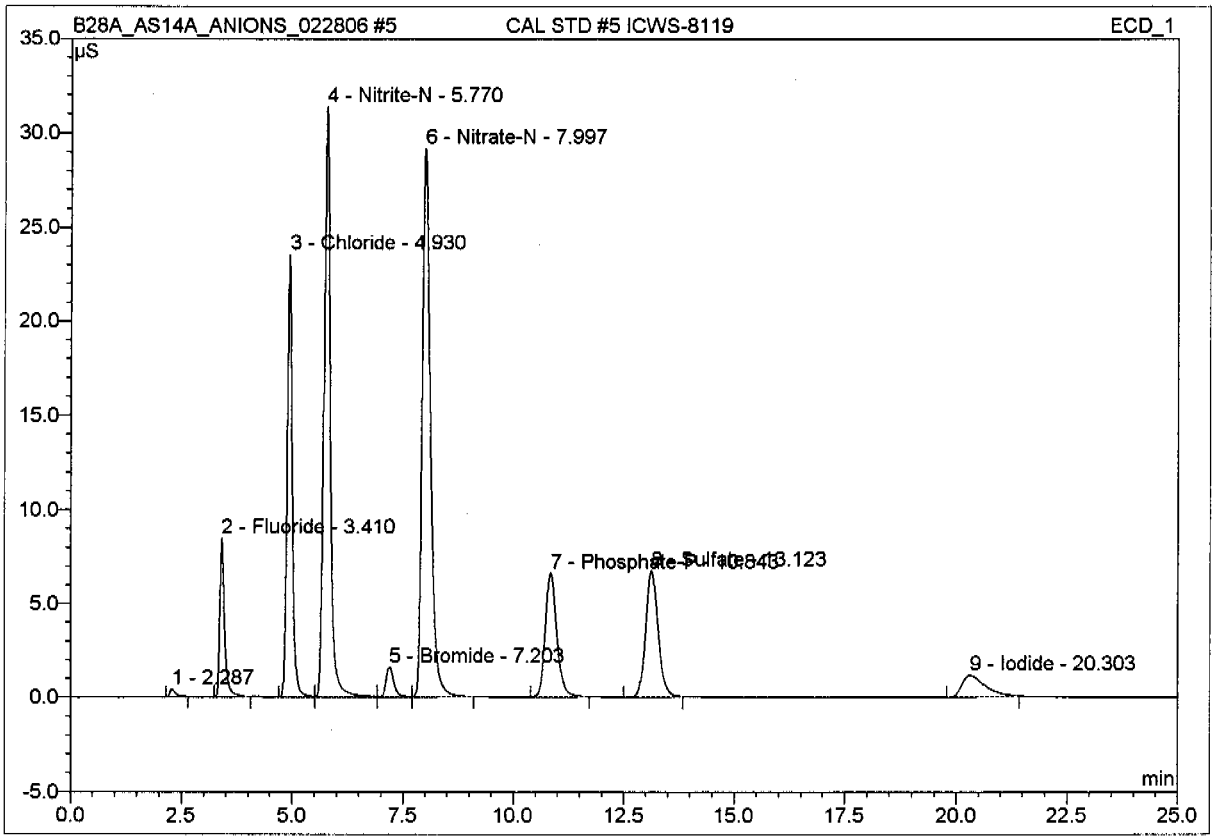
Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.29	n.a.	0.29943	0.044	0.36	n.a.	BMB
2	3.41	Fluoride	3.14287	0.419	3.42	0.9998	BMB
3	4.93	Chloride	10.78626	1.529	12.47	4.9920	BM
4	5.76	Nitrite-N	20.49936	3.449	28.12	5.0663	M
5	7.21	Bromide	0.62104	0.121	0.99	1.0057	M
6	8.01	Nitrate-N	18.37324	4.010	32.70	5.0047	MB
7	10.85	Phosphate-P	4.25525	1.289	10.51	5.0468	BMB
8	13.13	Sulfate	3.23701	1.067	8.70	5.0541	BMB
9	20.43	Iodide	0.57187	0.335	2.74	5.0718	BMB

5 CAL STD #5 ICWS-8119

Sample Name:	**CAL STD #5 ICWS-8119**	*Injection Volume:*	**50.0**
Vial Number:	**1199**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 11:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



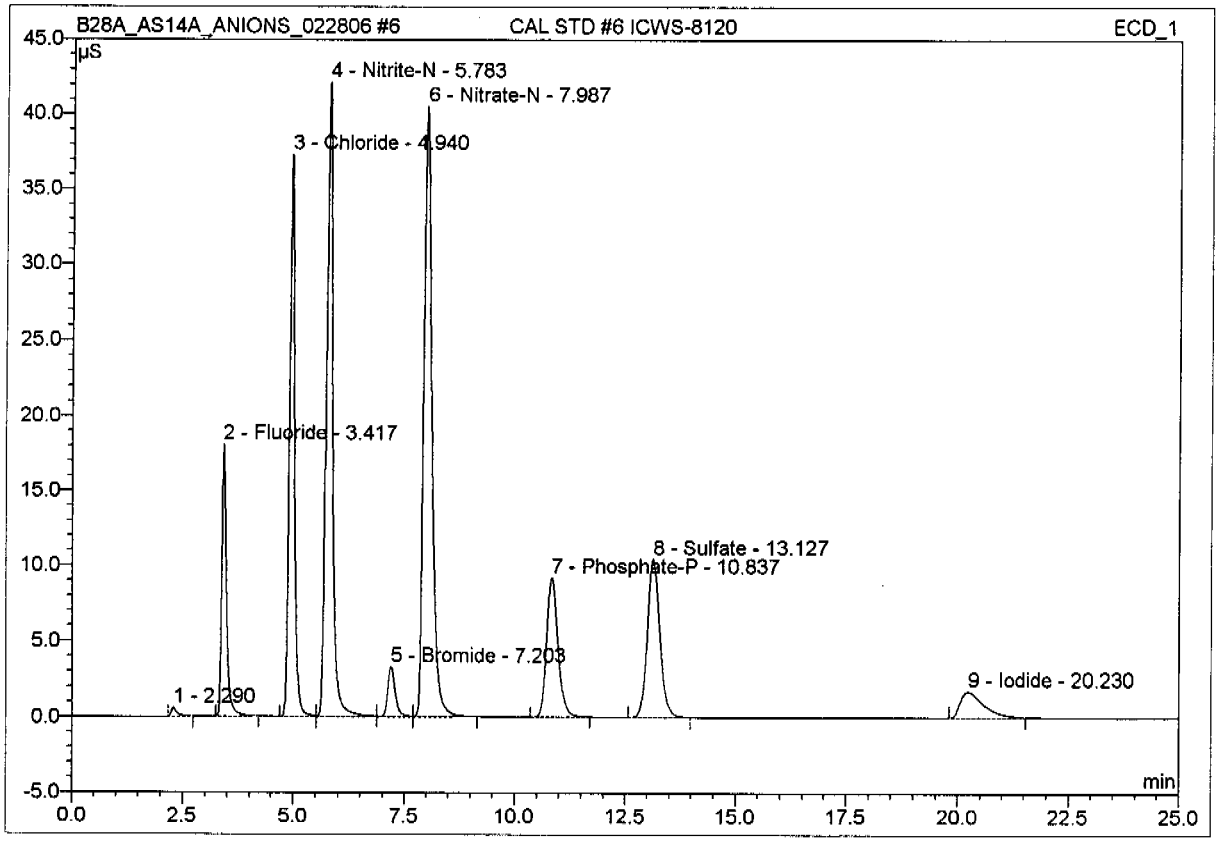
No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.29	n.a.	0.44373	0.067	0.32	n.a.	BMB
2	3.41	Fluoride	8.48346	1.104	5.19	2.5369	BMB
3	4.93	Chloride	23.54530	3.276	15.40	10.1005	BM
4	5.77	Nitrite-N	31.34512	5.267	24.76	7.5601	M
5	7.20	Bromide	1.59704	0.323	1.52	2.5297	M
6	8.00	Nitrate-N	29.12528	6.327	29.74	7.5295	MB
7	10.84	Phosphate-P	6.63942	2.002	9.41	7.5227	BMB
8	13.12	Sulfate	6.74036	2.210	10.39	10.0570	BMB
9	20.30	Iodide	1.15578	0.699	3.29	10.1075	BMB

Operator:kaukerc Timebase:ICS1500 Sequence:B28A_AS14A_ANIONS_022806

2/28/2006 12:37 PM

6 CAL STD #6 ICWS-8120

Sample Name:	**CAL STD #6 ICWS-8120**	*Injection Volume:*	**50.0**
Vial Number:	**1200**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 11:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**

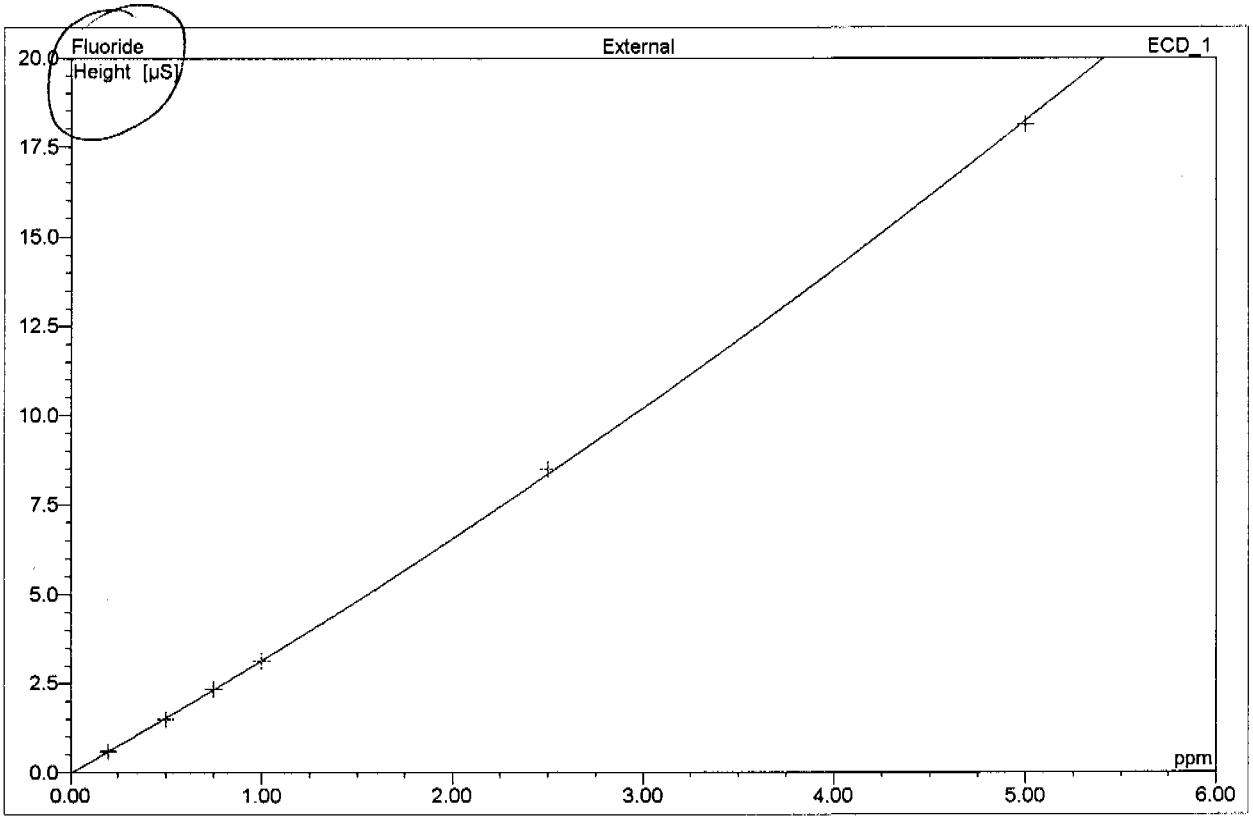


No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.29	n.a.	0.60431	0.094	0.30	n.a.	BMB
2	3.42	Fluoride	18.10803	2.317	7.39	4.9720	BMB
3	4.94	Chloride	37.30032	5.162	16.46	14.9484	BM
4	5.78	Nitrite-N	42.09314	7.108	22.67	9.9347	M
5	7.20	Bromide	3.26129	0.651	2.08	4.9882	M
6	7.99	Nitrate-N	40.46906	8.782	28.01	9.9817	MB
7	10.84	Phosphate-P	9.20692	2.755	8.79	9.9591	BMB
8	13.13	Sulfate	10.42662	3.411	10.88	14.9489	BMB
9	20.23	Iodide	1.74453	1.074	3.43	14.9147	BMB

Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

4 CAL STD #4 ICWS-8118

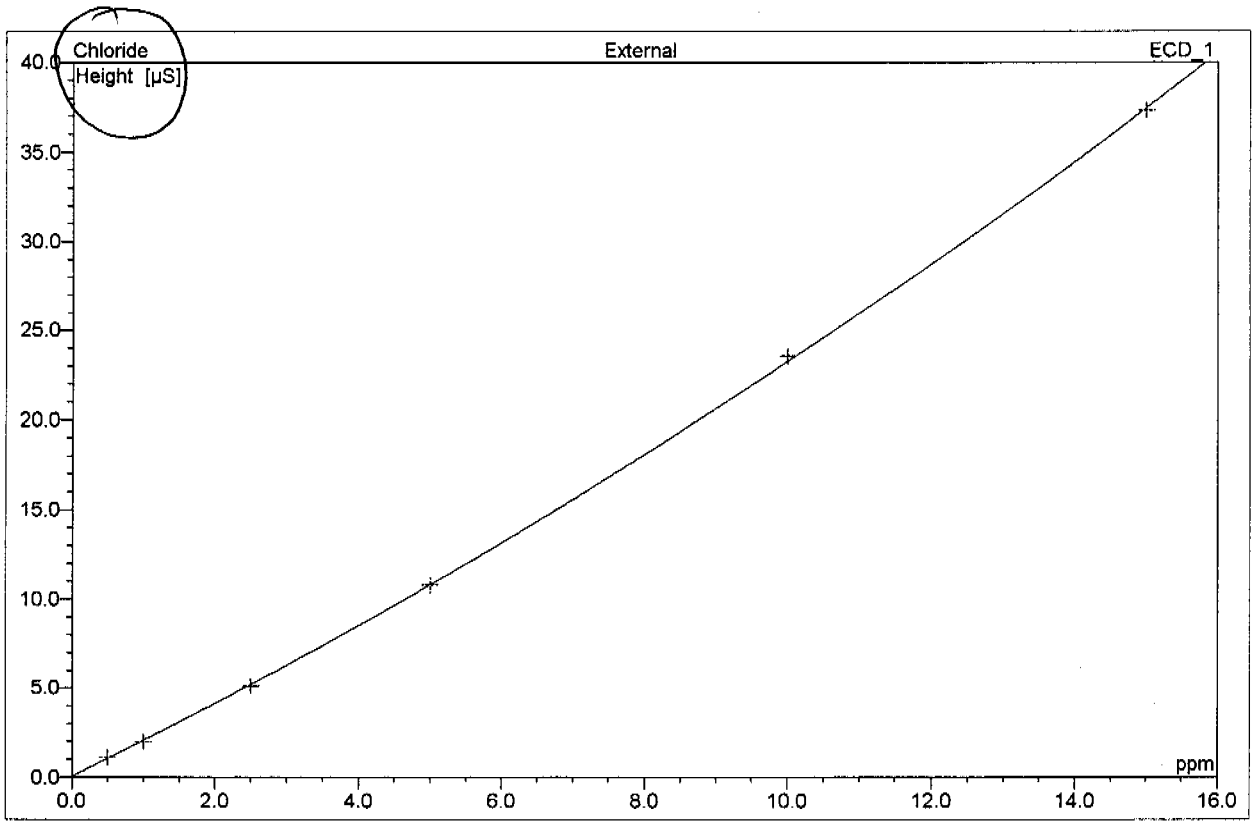
Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	2.29	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	3.41	Fluoride	XXQOff	6	0.9997	-0.025761	3.04898	0.120311
3	4.93	Chloride	X0QOff	6	0.9998	0.038605	1.98263	0.034121
4	5.76	Nitrite-N	X0QOff	6	0.9998	-0.142163	3.88999	0.036367
5	7.21	Bromide	X0QOff	6	0.9997	0.000343	0.60795	0.009180
6	8.01	Nitrate-N	XQOff	6	1.0000	-0.155840	3.33276	0.073852
7	10.85	Phosphate-P	XQuad	6	0.9997	0.000000	0.23355	0.004325
8	13.13	Sulfate	XQuad	6	0.9998	0.000000	0.20250	0.001719
9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

4 CAL STD #4 ICWS-8118

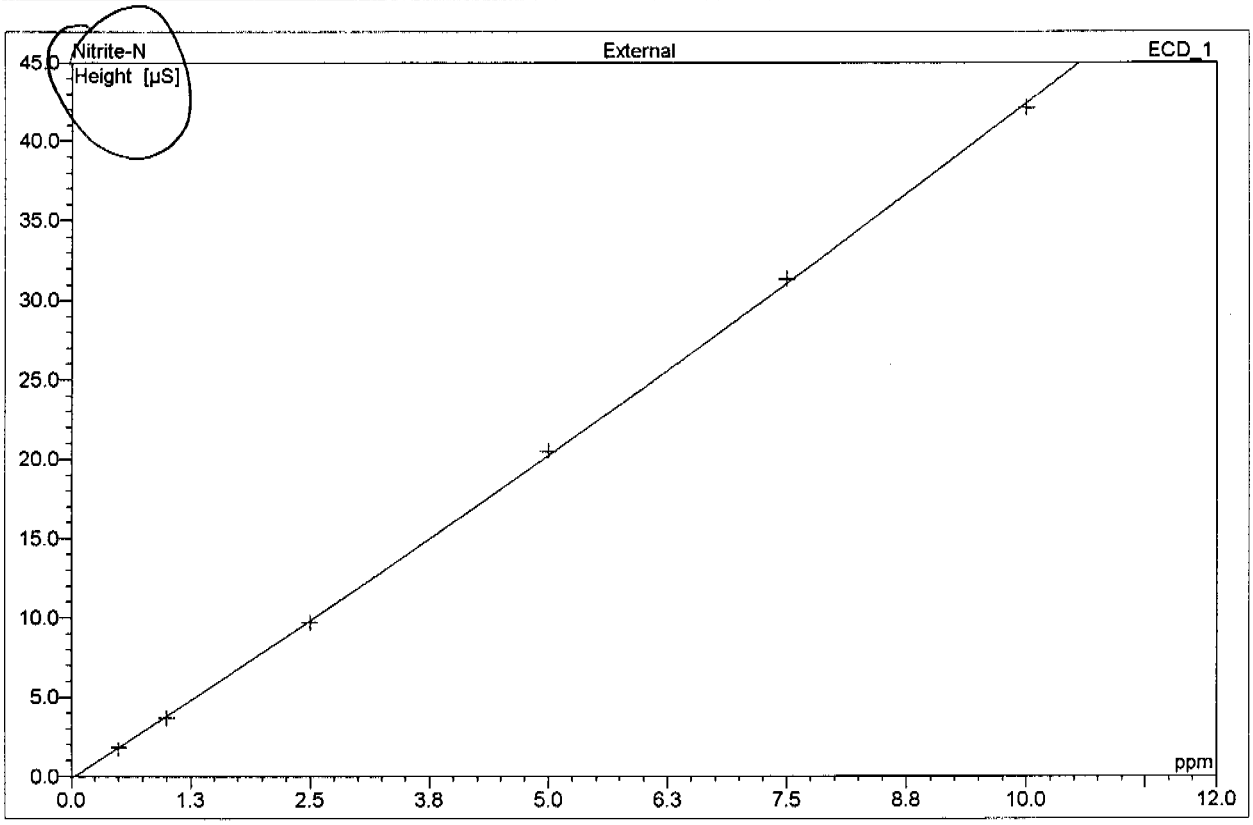
Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	2.29	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	3.41	Fluoride	XXQOff	6	0.9997	-0.025761	3.04898	0.120311
3	4.93	Chloride	X0QOff	6	0.9998	0.038605	1.98263	0.034121
4	5.76	Nitrite-N	X0QOff	6	0.9998	-0.142163	3.88999	0.036367
5	7.21	Bromide	X0QOff	6	0.9997	0.000343	0.60795	0.009180
6	8.01	Nitrate-N	XQOff	6	1.0000	-0.155840	3.33276	0.073852
7	10.85	Phosphate-P	XQuad	6	0.9997	0.000000	0.23355	0.004325
8	13.13	Sulfate	XQuad	6	0.9998	0.000000	0.20250	0.001719
9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

4 CAL STD #4 ICWS-8118

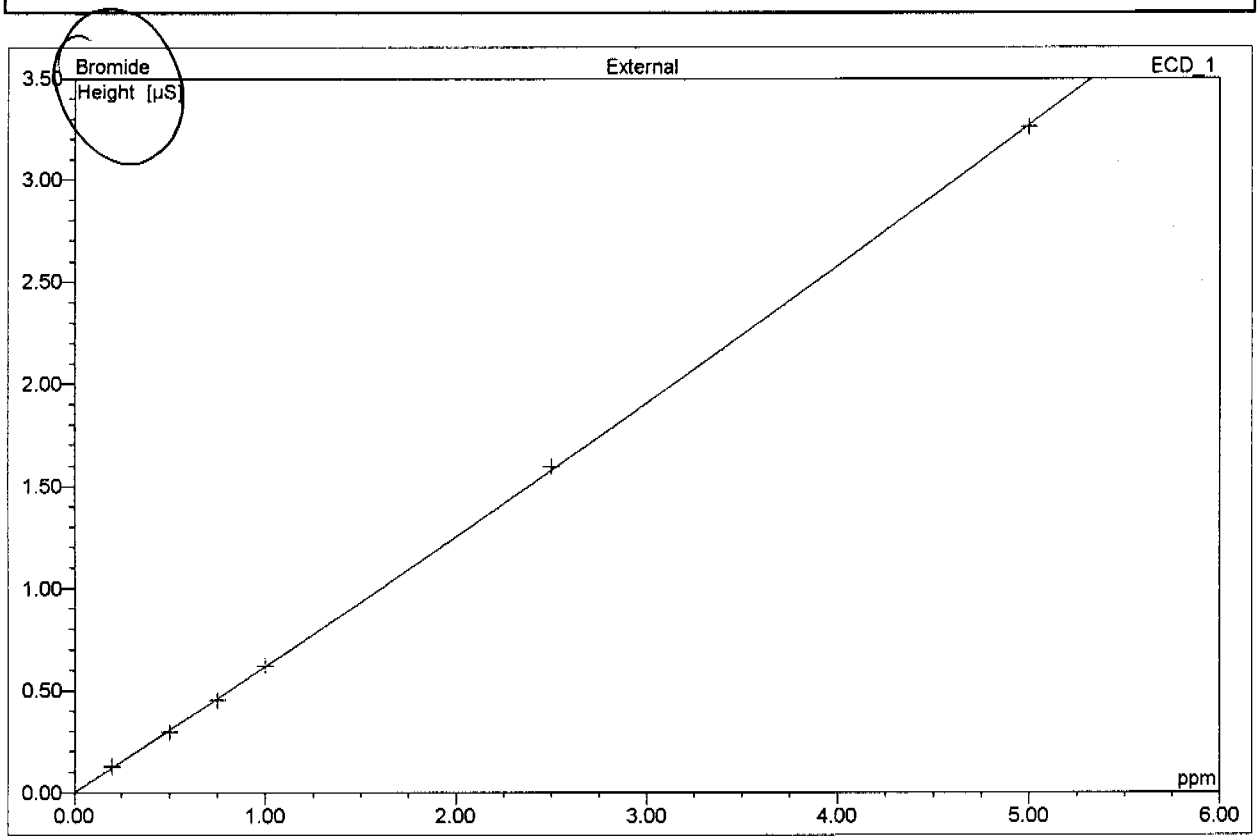
Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	2.29	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	3.41	Fluoride	XXQOff	6	0.9997	-0.025761	3.04898	0.120311
3	4.93	Chloride	X0QOff	6	0.9998	0.038605	1.98263	0.034121
4	5.76	Nitrite-N	X0QOff	6	0.9998	-0.142163	3.88999	0.036367
5	7.21	Bromide	X0QOff	6	0.9997	0.000343	0.60795	0.009180
6	8.01	Nitrate-N	XQOff	6	1.0000	-0.155840	3.33276	0.073852
7	10.85	Phosphate-P	XQuad	6	0.9997	0.000000	0.23355	0.004325
8	13.13	Sulfate	XQuad	6	0.9998	0.000000	0.20250	0.001719
9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

4 CAL STD #4 ICWS-8118

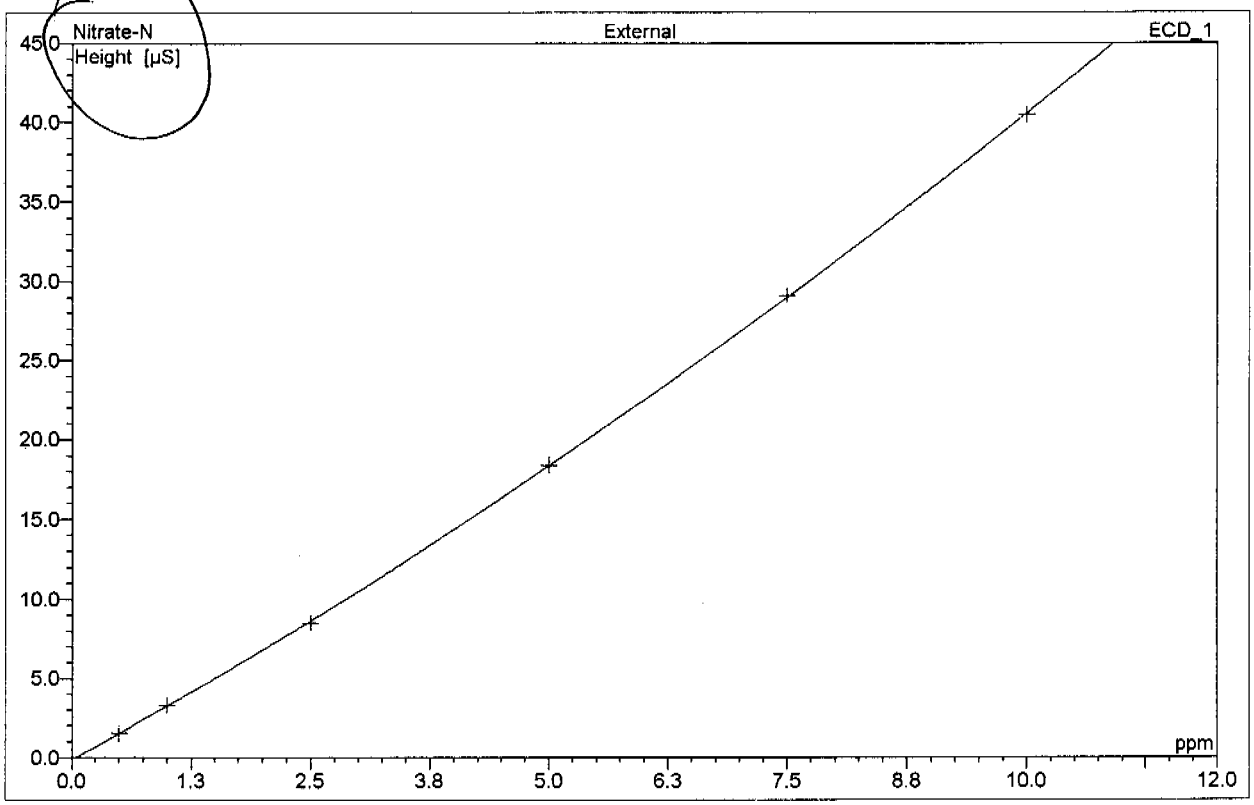
Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	2.29	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	3.41	Fluoride	XXQOff	6	0.9997	-0.025761	3.04898	0.120311
3	4.93	Chloride	X0QOff	6	0.9998	0.038605	1.98263	0.034121
4	5.76	Nitrite-N	X0QOff	6	0.9998	-0.142163	3.88999	0.036367
5	7.21	Bromide	X0QOff	6	0.9997	0.000343	0.60795	0.009180
6	8.01	Nitrate-N	XQOff	6	1.0000	-0.155840	3.33276	0.073852
7	10.85	Phosphate-P	XQuad	6	0.9997	0.000000	0.23355	0.004325
8	13.13	Sulfate	XQuad	6	0.9998	0.000000	0.20250	0.001719
9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

4 CAL STD #4 ICWS-8118

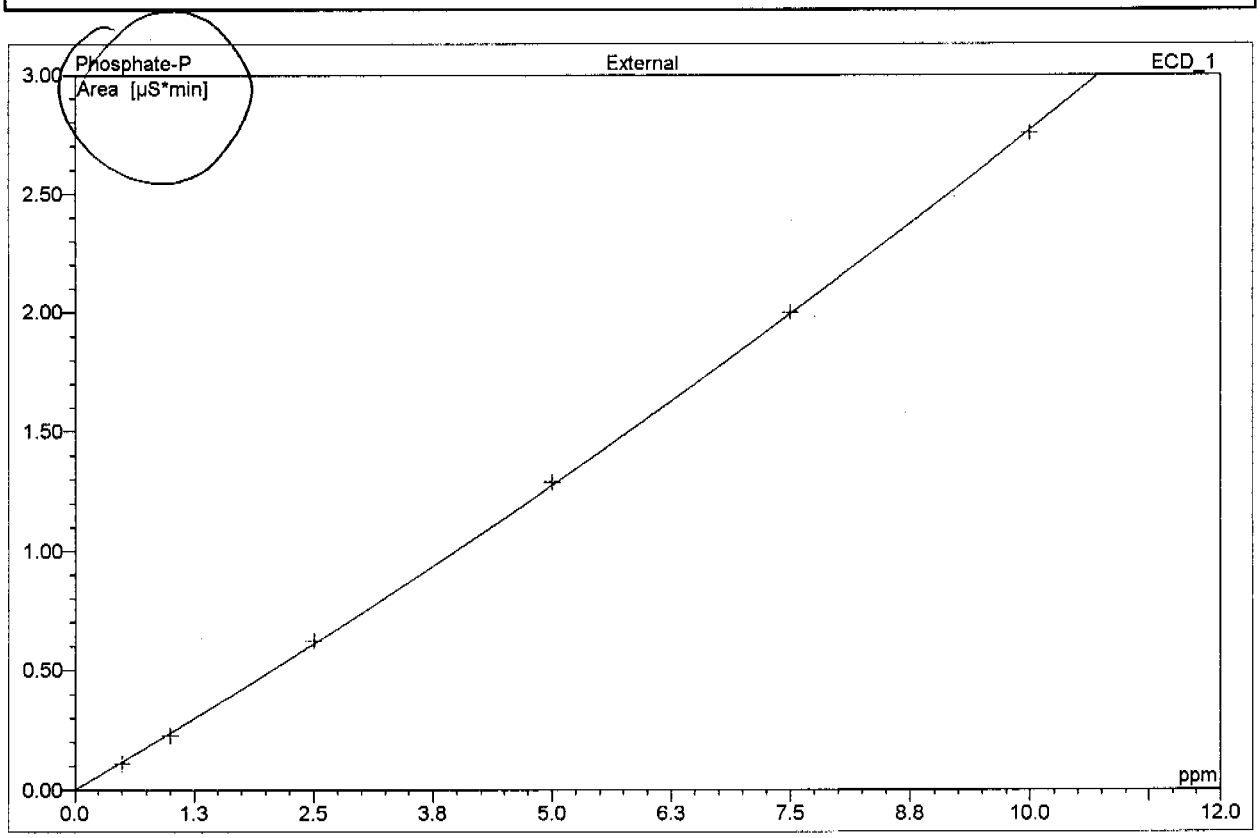
Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	2.29	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	3.41	Fluoride	XXQOff	6	0.9997	-0.025761	3.04898	0.120311
3	4.93	Chloride	X0QOff	6	0.9998	0.038605	1.98263	0.034121
4	5.76	Nitrite-N	X0QOff	6	0.9998	-0.142163	3.88999	0.036367
5	7.21	Bromide	X0QOff	6	0.9997	0.000343	0.60795	0.009180
6	8.01	Nitrate-N	XQOff	6	✓1.0000	-0.155840	3.33276	0.073852
7	10.85	Phosphate-P	XQuad	6	0.9997	0.000000	0.23355	0.004325
8	13.13	Sulfate	XQuad	6	0.9998	0.000000	0.20250	0.001719
9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

4 CAL STD #4 ICWS-8118

Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
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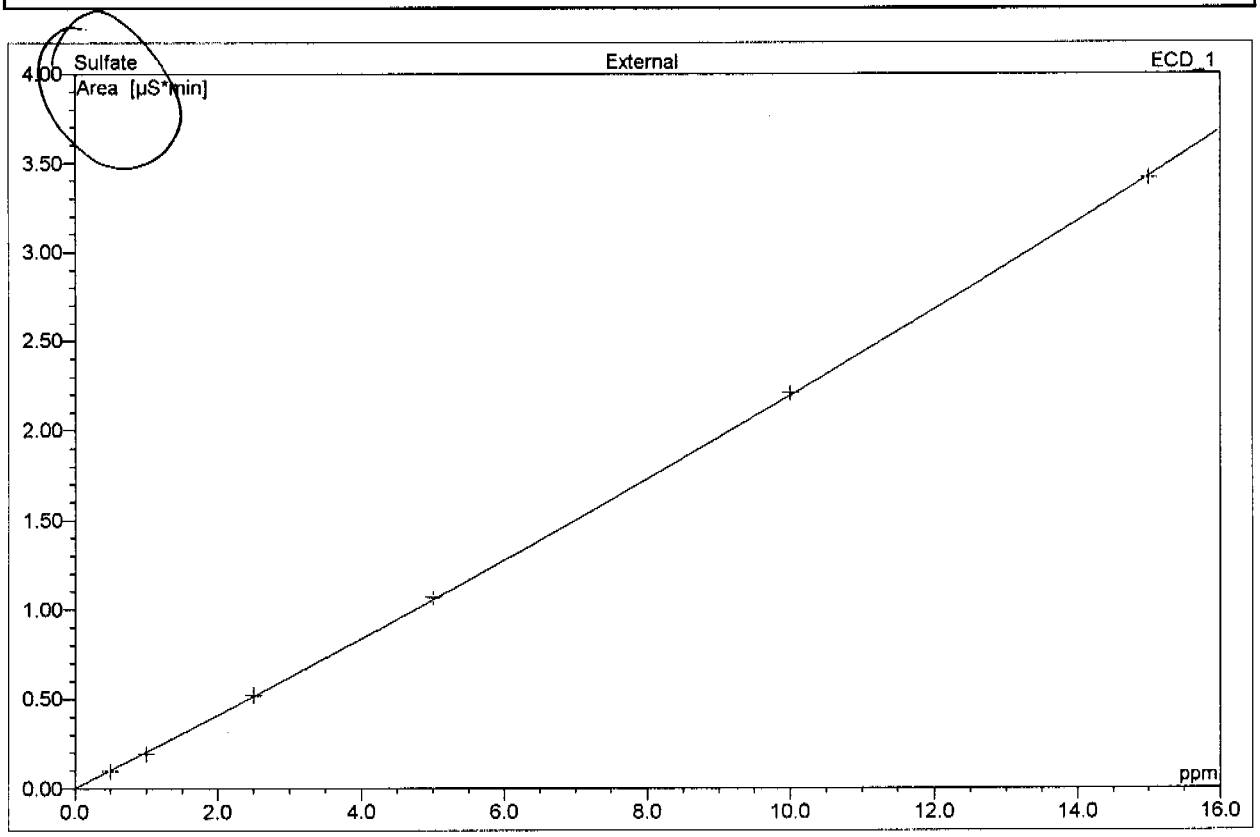
6	8.01	Nitrate-N	XQOff	6	1.0000	-0.155840	3.33276	0.073852
7	10.85	Phosphate-P	XQuad	6	0.9997	0.000000	0.23355	0.004325
8	13.13	Sulfate	XQuad	6	0.9998	0.000000	0.20250	0.001719
9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

Operator:kaukerc Timebase:ICS1500 Sequence:B28A_AS14A_ANIONS_022806

2/28/2006 12:32 PM

4 CAL STD #4 ICWS-8118

Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



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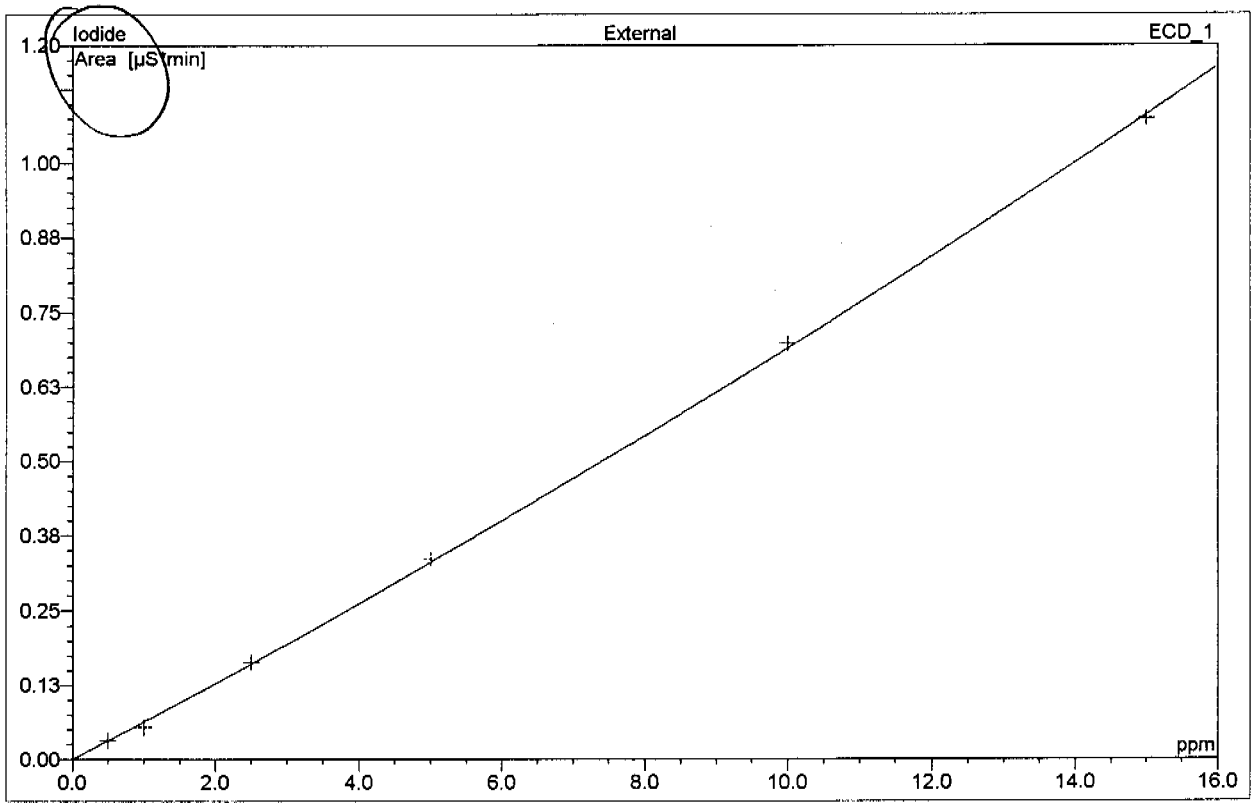
4 CAL STD #4 ICWS-8118

Sample Name:	**CAL STD #4 ICWS-8118**	*Injection Volume:*	**50.0**
Vial Number:	**1198**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS_IOD-**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/28/2006 10:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**25.00**	*Sample Amount:*	**1.0000**



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9	20.43	Iodide	XQuad	6	0.9992	0.000000	0.06310	0.000598
Average:					0.9997	-0.0356	1.6702	0.0351

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 2/28/06 Chemist: CWK Expiration Date: 3/1/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. IC WS 8115	F^-	22015	ERA	1/07	1,000 ppm	0.010	50ml	0.2 ppm
2. (Cal std 1)	Cl^-	36065		6/07		0.025		0.5
3.	NO_2 N	17075		7/07		1		1
4.	Br^-	27025		2/07		0.010		0.2
5.	NO_3 N	10025		1		0.025		0.5
6.	PO_4-P	11/04		10/06				
7.	SO_4^-	05094		9/06				
8.	I^-	Iodide A	442	3/13/06				
9.								
10.								
11.								
12.								
13.								
14.								

Reviewed By: _____

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 2/28/06 Chemist: CWK Expiration Date: 3/1/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. ICWS 8116	F-	Parent ID's same as		ICWS 8115	1,000 ppm	0.025	50ml	0.5 ppm
2. (cal std 2)	Cl-					0.050		1.0
3.	NO2-N					1		1.0
4.	Br-					0.025		0.5
5.	NO3-N					0.050		1.0
6.	PO4-P							
7.	SO4-							
8.	I-							
9.								
10.								
11.								
12.								
13.								
14.								

Reviewed By: _____

WC031R3.DOC, 8/28/03

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 2/28/06 Chemist: CWK Expiration Date: 3/1/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. 1CWS 8117	F-	Parent ID's same as		1CWS8115	1,000 ppm	0.0375	50 ml	0.75
2. (cal std 3)	Cl-					0.125		2.5
3.	NO_2-N							
4.	Br-					0.0375		0.75
5.	NO_3-N					0.125		2.5
6.	PO_4-P							
7.	SO_4-							
8.	I-							
9.								
10.								
11.								
12.								
13.								
14.								

Reviewed By: _____

WC031R3.DOC, 8/28/03

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 7/28/06 Chemist: CWK Expiration Date: 3/1/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. 1CWS 8118	F-	Parent ID's	same as	1CWS 8115	1,000 ppm	0.050	50ml	1.0 ppm
2. (Cal std 4)	Cl-					0.250		5.0
3.	NO2-N					1		5.0
4.	Br-					0.050		1.0
5.	NO3-N					0.250		5.0
6.	PO4-P							
7.	SO4-							
8.	I-							
9.								
10.								
11.								
12.								
13.								
14.								

Reviewed By: _____

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 2/28/06 Chemist: LWK Expiration Date: 3/1/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. ICWS 8119	F-	Parent ID's same as		ICWS 8115	1,000 ppm	0.125	50 ml	2.5 ppm
2. (Cal std 5)	Cl-					0.500		10.0
3. + CCV	NO2-N					0.375		7.5
4.	Br-					0.125		2.5
5.	NO3-N					0.375		7.5
6.	PO4-P					0.375		7.5
7.	SO4-					0.500		10.0
8.	I-					0.500		10.0
9.								
10.								
11.								
12.								
13.								
14.								

Reviewed By: _____

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 2/28/06 Chemist: iwk Expiration Date: 3/1/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. ICWS 8120	F-	Parent ID's	Same as	ICWS 8115	1,000 ppm	0.250	50 ml	5.0 ppm
2. (Cal std 6)	Cl-					0.750		15.0
3.	NO2-N					0.500		10.0
4.	Br-					0.250		5.0
5.	NO3-N					0.500		10.0
6.	PO4-P							10.0
7.	SO4-					0.750		15.0
8.	I-							15.0
9.								
10.								
11.								
12.								
13.								
14.								

Reviewed By: _____

STL Knoxville Total Halogens Data Review / Narrative Checklist
Methods: 5050 and 9056, SOPs: KNOX-WC-0016, Rev. 1 and KNOX-WC-0005, Rev. 6

Lot Number	H6D040102	Analytes:	☑ Total Chlorine ☐ Total Fluorine ☐ Total Bromine ☐ Total Iodine
Analysis Date: 4/18/06	File ID: D18-AS14A-ANIONS-041806	ICAL File ID:	B28A-AS14A-ANIONS-022806 QUAD

Review Items	NA	Y	N	If No, why is data reportable?	2nd 3
1. Were PM checklists, Lot Summary and any applicable QAS reviewed?		✓			✓
2. ICV within 90-110%R and ICB/CCB < 1/2 RL?		✓			✓
3. CCVs/CCBs run after every 10 samples & end of run?		✓			✓
4. Is %D ≤10% for each CCV?	✓	✓			✓
5. If CCV failed, was it rerun only once?	✓				NA
6. LCS/LCSD analytes within 80-120%R? *If no, list LCS ID:*		✓		☐ **[lcs3] LCS recovery >120% and sample results <RL.***	✓
7. Method blank < RL? *If no, list blank ID:*		✓		☐ **[mb3] No analyte > RL in associated samples.*** ☐ [mb8] Sample results > 20x higher than blank.	✓
8. MS/MSD done per prep batch?		✓			✓
9. MS/MSD within 80-120% recovery and ≤10 RPD? *If no, list ID:* H2H65 (120.9% R)			✓	☒ [ms3] LCS acceptable indicating sample matrix effects. ☐ [ms4] Native analyte concentration >4x spike level. *	MS3
10. DUP done per 10 samples or per trial burn?		✓			✓
11. DUP RPD ≤ 10%? *If no, list ID:* H2H65			✓	☐ [rpd] OS and/or DUP < RL. ☒ [rpd2] LCS acceptable. Sample heterogeneity.	RPD2
12. Were MS run #'s assigned correctly?		✓			✓
13. Sample analyses done within holding time (HT)? *If no, list samples:*		✓		☐ [ht1] HT expired upon receipt. ☐ *[ht2] Analysis requested after HT expired.**	✓
14. Were results processed using correct ICAL?		✓			✓
15. Are positive results within the calibration range?		✓			✓
16. Is integration acceptable for all samples, QC samples and standards?		✓			✓
17. For manual integrated standards and QC samples, are before/after chromatograms provided with initials/date/reason?		✓		Reasons: S=Split peak, U=Undetected peak, I=Incorrect peak integration, B=Baseline correction, W=Wrong peak chosen by data system.	✓
18. Calculations checked for error? (Document manual calculation checks.)		✓			✓
19. Were spreadsheets checked for transcription errors?		✓			✓
20. Are results below RL obtained from undiluted IC runs?		✓		☐ [elev1] Elevated RLs due to matrix interfences.	✓
21. For results below RL, were samples prepared using at least 0.5 g sample?		✓			✓
22. F6 report correct? (Verify results, RLs, units, qualifiers, DFs, dates, spikes.)		✓			✓

Analyst: CWK	Date: 4/20/06	2nd Level Reviewer: [signature]	Date: 4/21/06

Comments: H2H65 MS - 1/10

$y = 0.038605 + 1.98263(14.86779) + 0.034121(14.86779)^2$

$y = 0.038605 + 29.47732649 + 7.542487295$

$y = 37.058$ ✓

Comments:

Final Review by:	Date:	NA	Y	N	If No, why is data reportable?
1. Are all NCMs documented and discussed in narrative?		✓			List NCM #:
2. Narrative correct? (Appropriate autotext included and all deviations noted.)			✓		☐ [chlor] Total chlorine. ☐ [hal] Total chlorine, fluorine, bromine, iodine.
3. For trial burn samples, are sample results from the same waste feed consistent? (Spread of values < 20% of avg.)				✓	☐ [tb1] Related PT data show similar variation. ☑ [tb2] Solid samples likely to be heterogeneous. TB2 ☐ [tb3] Reactive matrix. ☐ [tb4] Mutiphasic samples run as one analysis per client.
4. For trial burn samples, do the results agree within 10% of the known or presumed values?		✓			☐ [tb5] Related PT data show similar variation. ☐ [tb6] Extremely volatile materials suspected. ☐ [tb7] Samples obviously impure (e.g., cloudy, biphasic).

Comments: * Sample heterogeneity caused variation in the results. The original result is lower than the duplicate. If the MS/MSD recoveries were calculated from the average of the OS + Dup, the % recovery would be within limits

* Such action must be taken in consultation with client.

Nonconformance memos are required for **bold** and *italicized* [autotext] statements: **Bold** = deficiency, *italicized* = anomoly.

STL Knoxville
SOP KNOX-WC-0016rev2
Total Halogen Data Worksheet

Batch # : 6107072
Prep Date: 04/17/2006 0000
Comp Date: 04/17/2006 0000

Analyte: Total Chlorine **Analyst:** cwk **Reviewed by:** **Date:** 4/21/06

Lot Number	Lot Sample Number	Suffix	Method Code	Client ID	WO #	Sample Weight (g)	Dilution Volume (mL)	Diluted Aliquot Combusted (mL)	Sample Weight in Final Prep (g)	Final Prep Volume (L)	Bench DF	IC Conc. (mg/L)	Total Halide in Prep (mg)	Sample Conc. (mg/kg)	LIMS DF	Analysis Date
H6D040102	1		JLYU	G-2886-R1-SPENT ACTIVATED CARB	H2H651AA	1.1051			1.10510	0.1000	5	42.7099	4.2710	3865	4.5	4/19/06
H6D040102	1	X	JLYU	G-2886-R1-SPENT ACTIVATED CARB	H2H651AC	1.0001			1.00010	0.1000	5	52.3256	5.2326	5232	5.0	4/19/06
H6D040102	1	S	JLYU	G-2886-R1-SPENT ACTIVATED CARB	H2H651AD	1.0039			1.00390	0.1000	10	148.6779	14.8678	14810	10.0	4/18/06
H6D040102	1	D	JLYU	G-2886-R1-SPENT ACTIVATED CARB	H2H651AE	1.0444			1.04440	0.1000	20	161.3053	16.1305	15445	19.1	4/19/06
H6D040102	2		JLYU	G-2984-R2-SPENT ACTIVATED CARB	H2H661AA	1.1146			1.11460	0.1000	5	52.8583	5.2858	4742	4.5	4/19/06
H6D040102	3		JLYU	G-3067-R3-SPENT ACTIVATED CARB	H2H671AA	1.1346			1.13460	0.1002	5	41.3711	4.1454	3654	4.4	4/19/06
H6D170000	72	B	JLYU	INTRA-LAB BLANK	H3EC01AA	1.0000			1.00000	0.1000	1	0.6338	0.0634	63	1.0	4/18/06
H6D170000	72	C	JLYU	INTRA-LAB CHECK	H3EC01AC	1.0000			1.00000	0.1000	10	103.8579	10.3858	10386	10.0	4/18/06

Total Halogen Concentration in Sample (mg/kg) = IC Concentration (mg/L) x Final Prep Volume (L) / Sample Weight in Final Prep (g) x 1000 g / 1 kg
Sample Weight in Final Prep (g) = Sample Weight (g) x Diluted Aliquot Combusted (mL) / Dilution Volume (mL)
LIMS Dilution Factor (DF) = Final Prep Volume (L) / 0.100 L x 1.00 g / Sample Weight in Final Prep (g) x Bench Dilution Factor (DF)

STL Knoxville
SOP KNOX-WC-0016rev2
Total Halogen Data Worksheet

Spike Information:

Spike	Standard ID	Spike Vol. (mL)	Standard Conc. (ug/mL)	Work Order	Sample Weight in Final Prep (g)	True Spike Concentration (mg/kg)
LCS	AS587	0.50	20000	H3EC01AC	1.00000	10000
LCSD						
MS (1)	AS587	0.50	20000	H2H651AD	1.00390	9961
MSD (1)	AS587	0.50	20000	H2H651AE	1.04440	9575
MS (2)						
MSD (2)						
MS (3)						
MSD (3)						
MS (4)						
MSD (4)						
MS (5)						
MSD (5)						

Comments: _____

True Spike Concentration (mg/kg or ug/g) = Standard Concentration (ug/mL) x Spike Volume (mL) / Sample Weight in Final Prep (g)

STL Knoxville
Sample Preparation Data Log
Total Halogens by SOP KNOX-WC-0016

Batch Number: 6107072

	Analyst Initials	Date	Sample Number	Work Order Number	Sample Weight (g)	Diluent	Total Diluted Volume (mL)	Combusted Aliquot Volume (mL)	Final Prep Volume (L)	Notes & Commnts
1	JMH	4-17-06	H6D170000-072 B	H3EC01AA	1.0000	MeOH	–	–	0.1000	7/10
2	↓	↓	↓ -072 C	H3EC01AC	1.0000	↓	–	–	↓	3/10
3			H6D040102-001	H2H651AA	1.1051	1-Octanol				5/10
4			-001 X	H2H651AC	1.0001					5/10
5			-001 D	H2H651AE	1.0444					2.5/10
6			-001 S	H2H651AD	1.0039			JMH		2/10
7			-002	H2H661AA	1.1146			4-17-06		4.5/10
8	↓	↓	↓ -003	H2H671AA	1.1346	↓			0.1002	6/10
9										
10										
11										
12										
13										
14										
15										
16						JMH				
17										
18										
19						4-17-06				
20										
21										
22										
23										
24										
25										

LCS MS/MSD Spike:	Spike Vol. (mL)	Standard ID	Exp. Date
	0.500	AS587	3-24-07
BASE	dropwise	AS582	9-27-07
BUFFER	10.0 mL	AS584	11-12-11
Conc. Eluate	1.0 mL	AS-14A	6-6-06

Reagents

Methanol Lot #:	B29E02	$NaHCO_3/Na_2CO_3$ Lot #:	AS584
Acetone Lot #:	B32E42	Hydrogen Peroxide Lot #:	–
1-Octanol Lot #	A0201292001	Other:	–

STL Knoxville
Dionex IC Runlog Cover Page

Analyst:	CWK	Date:	4/18/06	Sequence ID:	D18-AS14A-ANIONS-041806

Instrument:	☐ DX-600	Method:	☐ KNOX-WC-0003, SW-846 0061/7199
	☑ ICS-1500		☐ KNOX-WC-0005, ☑ SW-846 9056 ☑ EPA 300.0 ☐ SW-846 9057-Mod ☐ EPA 26A-Mod
	☐ DX-320		☐ KNOX-WC-0014, EPA 314.0

Preventive Maintenance	Instrument Conditions		
Daily:	Flow Rate =	1.00	mL/min
☑ Check pump and gas pressure	Pressure =	2070	psi
☑ Check all lines for crimping, leaks and discoloration	Conductance =	24.6	µS
As Needed:	Suppressor Current =	43	mA
☐ Change column and guard column	Eluent Generator =	—	mM KOH
☐ Change column and/or guard column bed support			
☐ Clean conductivity cell			
☐ De-gas pump head when flow is erratic			
☐ Check/replace eluant end line filter			

MS/MSD Spike Information

WO #	Compound	Spike ID	Parent Conc.	Spike Added (mL)	Final Volume (mL)	Final Conc.
H262D	Cl	1-5CL-2	1,000 ppm	0.040 ml	10 ml	4 ppm
1	Br	27-142AS	1,000 ppm	0.020 ml	10 ml	2 ppm

Comments:

Bomb Samples Spiked by ACS group.

☐ Sodium Thiosulfate added to NaOH impinger samples.

Sequence: D18_AS14A_ANIONS_041806
Operator: kaukerc

Printed: 4/19/2006 8:12:52 AM

CWK 4/19/06

Title:
Datasource: ICS_1500_net
Location: ICS1500
Timebase: ICS1500
#Samples: 35

Created: 4/18/2006 9:22:19 AM by kaukerc
Last Update: 4/18/2006 3:53:05 PM by kaukerc

No.	Name	Sample ID	Inj. Vol.	Inj. Date/Time	Dil. Factor
1	CAL STD #1 ICWS-8115		50.0	2/28/2006 9:22:23 AM	1.0000
2	CAL STD #2 ICWS-8116		50.0	2/28/2006 9:49:48 AM	1.0000
3	CAL STD #3 ICWS-8117		50.0	2/28/2006 10:17:12 AM	1.0000
4	CAL STD #4 ICWS-8118		50.0	2/28/2006 10:44:36 AM	1.0000
5	CAL STD #5 ICWS-8119		50.0	2/28/2006 11:12:00 AM	1.0000
6	CAL STD #6 ICWS-8120		50.0	2/28/2006 11:39:25 AM	1.0000
7	ICV/LCS ICWS-8308		50.0	4/18/2006 9:27:13 AM	1.0000
8	ICV/LCSD ICWS-8309		50.0	4/18/2006 9:44:37 AM	1.0000
9	ICB/METHOD BLK		50.0	4/18/2006 10:02:01 AM	1.0000
10	H6D130171 H262D 1/2		50.0	4/18/2006 10:19:26 AM	2.0000
11	H6D130171 H262D 1/10000		50.0	4/18/2006 10:42:36 AM	10000.0000
12	H6D130171 H262D 1/1000		50.0	4/18/2006 11:52:58 AM	1000.0000
13	H6D130171 H262D MS 1/1000 4PPM CL, 2PPM BR		50.0	4/18/2006 12:21:14 PM	1000.0000
14	H6D130171 H262D MSD 1/1000 4PPM CL, 2PPM BR		50.0	4/18/2006 12:38:38 PM	1000.0000
15	H6D130171 H262D 1/50		50.0	4/18/2006 12:56:02 PM	50.0000
16	H6D130171 H262D MS 1/50 2PPM BR		50.0	4/18/2006 1:13:26 PM	50.0000
17	CCV ICWS-8310		50.0	4/18/2006 1:30:50 PM	1.0000
18	CCB		50.0	4/18/2006 1:48:15 PM	1.0000
19	H6D130171 H262D MSD 1/50 2PPM BR		50.0	4/18/2006 2:05:39 PM	50.0000
20	H6D130171 H262D 1/10		50.0	4/18/2006 2:23:04 PM	10.0000
21	H6D130171 H262D MS 1/10 2PPM BR		50.0	4/18/2006 2:40:28 PM	10.0000
22	H6D130171 H262D MSD 1/10 2PPM BR		50.0	4/18/2006 2:57:52 PM	10.0000
23	METHOD BLK H3EC01AA		50.0	4/18/2006 3:15:17 PM	1.0000
24	METHOD LCS H3EC01AC 1/10		50.0	4/18/2006 3:32:41 PM	10.0000
25	H6D040102 H2H651AA		50.0	4/18/2006 3:50:05 PM	1.0000
26	H6D040102 H2H651AC DUP		50.0	4/18/2006 4:07:29 PM	1.0000
27	H6D040102 H2H651AD MS 1/10		50.0	4/18/2006 4:24:53 PM	10.0000
28	H6D040102 H2H651AE MSD 1/10		50.0	4/18/2006 4:42:17 PM	10.0000
29	CCV ICWS-8310		50.0	4/18/2006 4:59:41 PM	1.0000
30	CCB		50.0	4/18/2006 5:17:05 PM	1.0000
31	H6D040102 H2H661AA		50.0	4/18/2006 5:34:29 PM	1.0000
32	H6D040102 H2H671AA		50.0	4/18/2006 5:51:53 PM	1.0000
33	CCV ICWS-8310		50.0	4/18/2006 6:09:18 PM	1.0000
34	CCB		50.0	4/18/2006 6:26:42 PM	1.0000
35	SHUTDOWN		50.0	4/18/2006 6:44:06 PM	1.0000

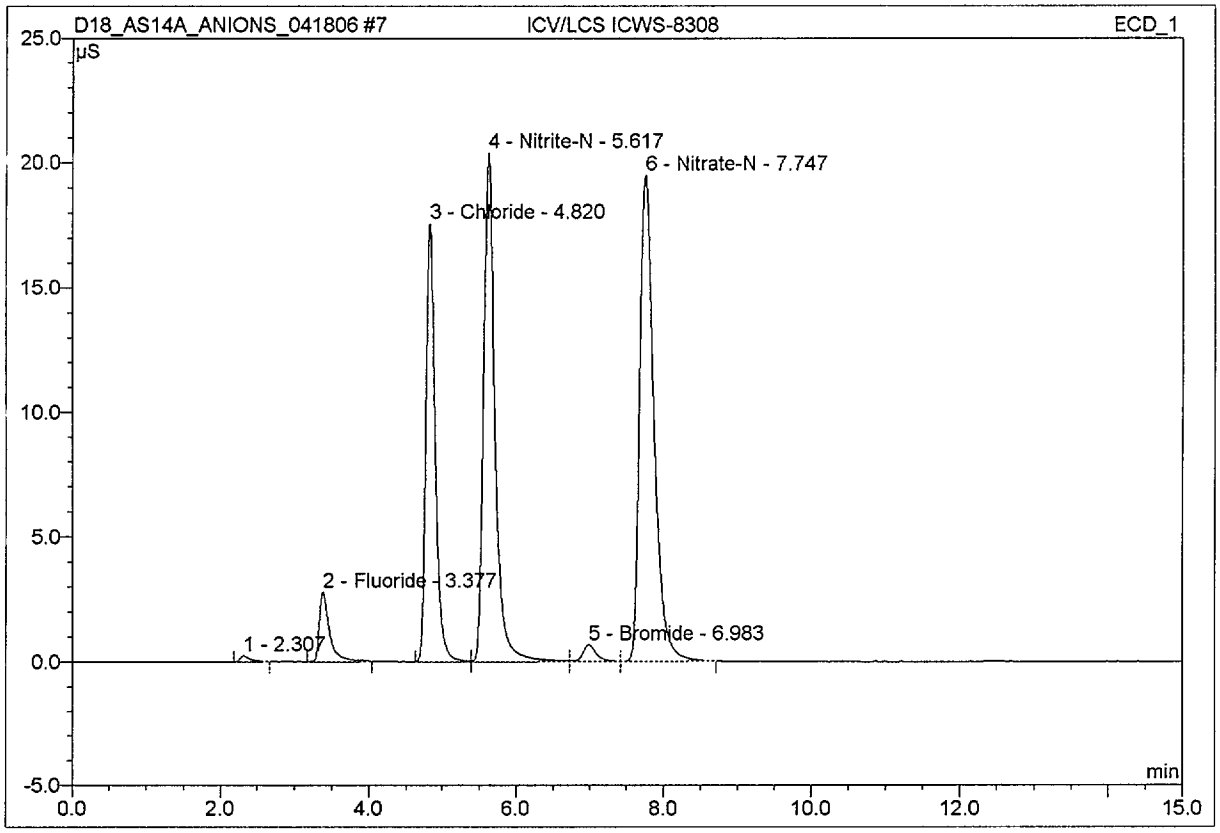
Chromeleon © Dionex Corporation, Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D18_AS14A_ANIONS_041806

4/18/2006 9:50 AM

7 ICV/LCS ICWS-8308

Sample Name:	**ICV/LCS ICWS-8308**	*Injection Volume:*	**50.0**
Vial Number:	**1201**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 9:27**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.24181	0.038	0.34	n.a.	BMB
2	3.38	Fluoride	2.77873	0.441	3.93	0.8887	BMB
3	4.82	Chloride	17.57885	2.568	22.89	7.7999	BM
4	5.62	Nitrite-N	20.37271	3.657	32.60	5.0366	M
5	6.98	Bromide	0.66065	0.137	1.22	1.0689	M
6	7.75	Nitrate-N	19.46077	4.377	39.02	5.2705	MB

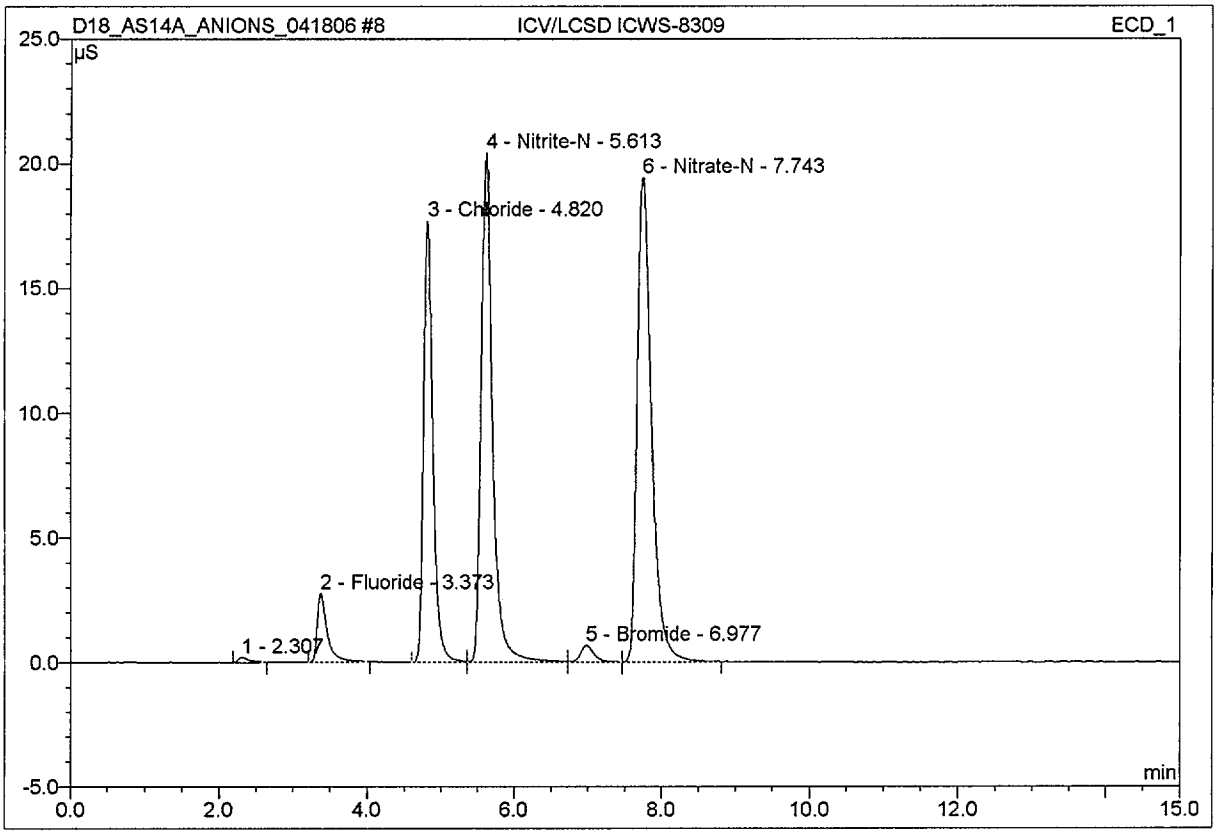
✓ 104.0 ✓

Qual

Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

8 ICV/LCSD ICWS-8309

Sample Name:	**ICV/LCSD ICWS-8309**	*Injection Volume:*	**50.0**
Vial Number:	**1202**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 9:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.19955	0.033	0.30	n.a.	BMB
2	3.37	Fluoride	2.75626	0.433	3.86	0.8818	BMB
3	4.82	Chloride	17.68308	2.584	23.00	7.8413	BM
4	5.61	Nitrite-N	20.39836	3.665	32.62	5.0426	M
5	6.98	Bromide	0.66122	0.140	1.25	1.0698	M
6	7.74	Nitrate-N	19.40107	4.379	38.98	5.2559	MB

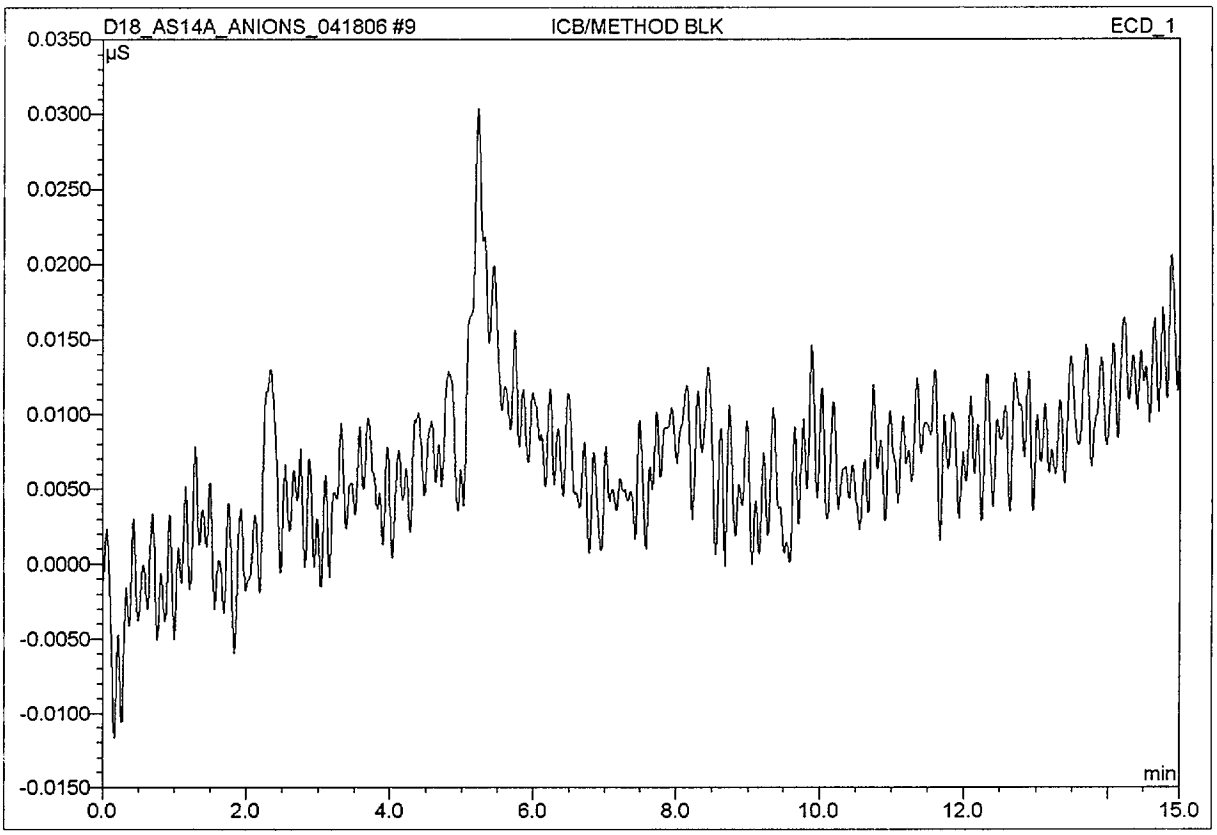
/ 104.5

Operator:kaukerc Timebase:ICS1500 Sequence:D18_AS14A_ANIONS_041806

4/18/2006 10:21 AM

9 ICB/METHOD BLK

Sample Name:	**ICB/METHOD BLK**	*Injection Volume:*	**50.0**
Vial Number:	**1203**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 10:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



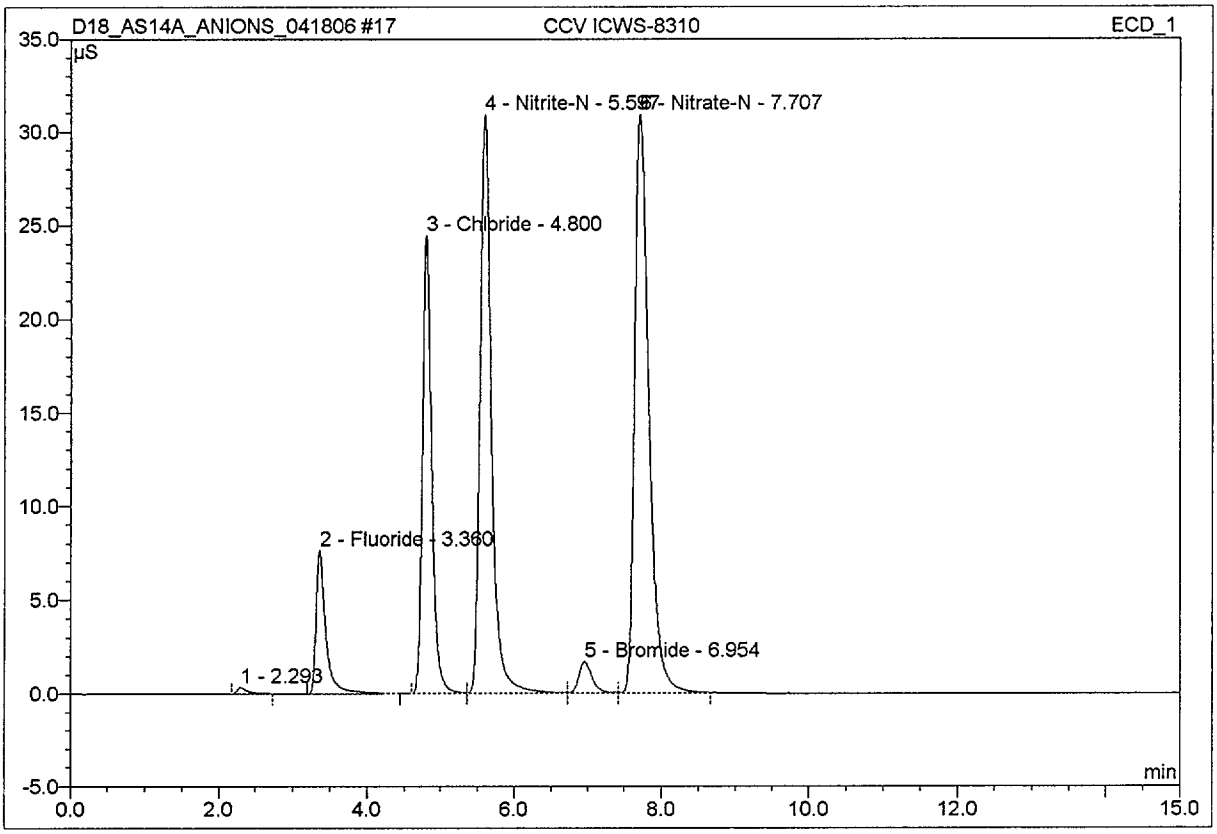
No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

ND

Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

17 CCV ICWS-8310

Sample Name:	**CCV ICWS-8310**	*Injection Volume:*	**50.0**
Vial Number:	**1210**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 13:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.29	n.a.	0.33746	0.056	0.32	n.a.	BMB
2	3.36	Fluoride	7.62215	1.168	6.64	2.2997	BMB
3	4.80	Chloride	24.39943	3.549	20.18	10.4189	BM
4	5.60	Nitrite-N	30.86235	5.545	31.54	7.4513	M
5	6.95	Bromide	1.66884	0.344	1.96	2.6393	M
6	7.71	Nitrate-N	30.85101	6.921	39.36	7.9153	MB

104.2 ✓

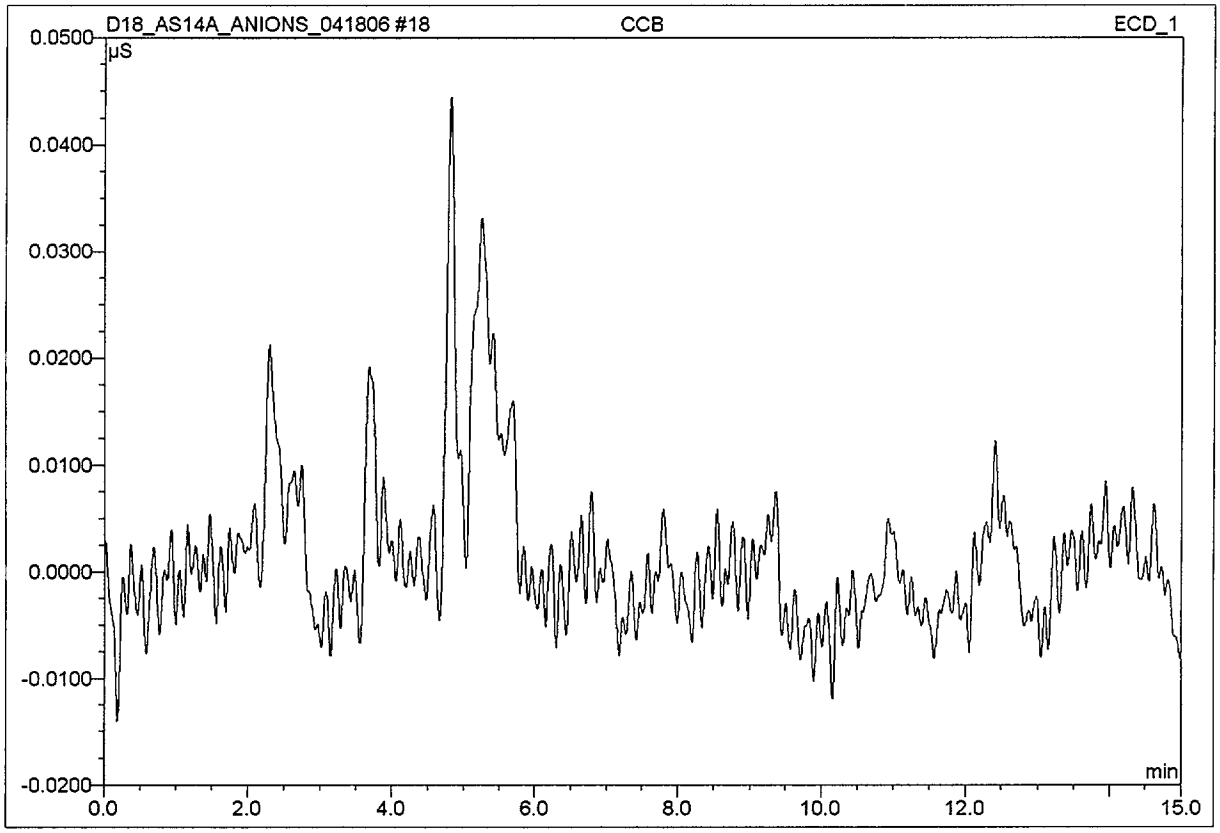
Quad

Operator:kaukerc Timebase:ICS1500 Sequence:D18_AS14A_ANIONS_041806

4/18/2006 2:06 PM

18 CCB

Sample Name:	**CCB**	*Injection Volume:*	**50.0**
Vial Number:	**1210**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 13:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

ND

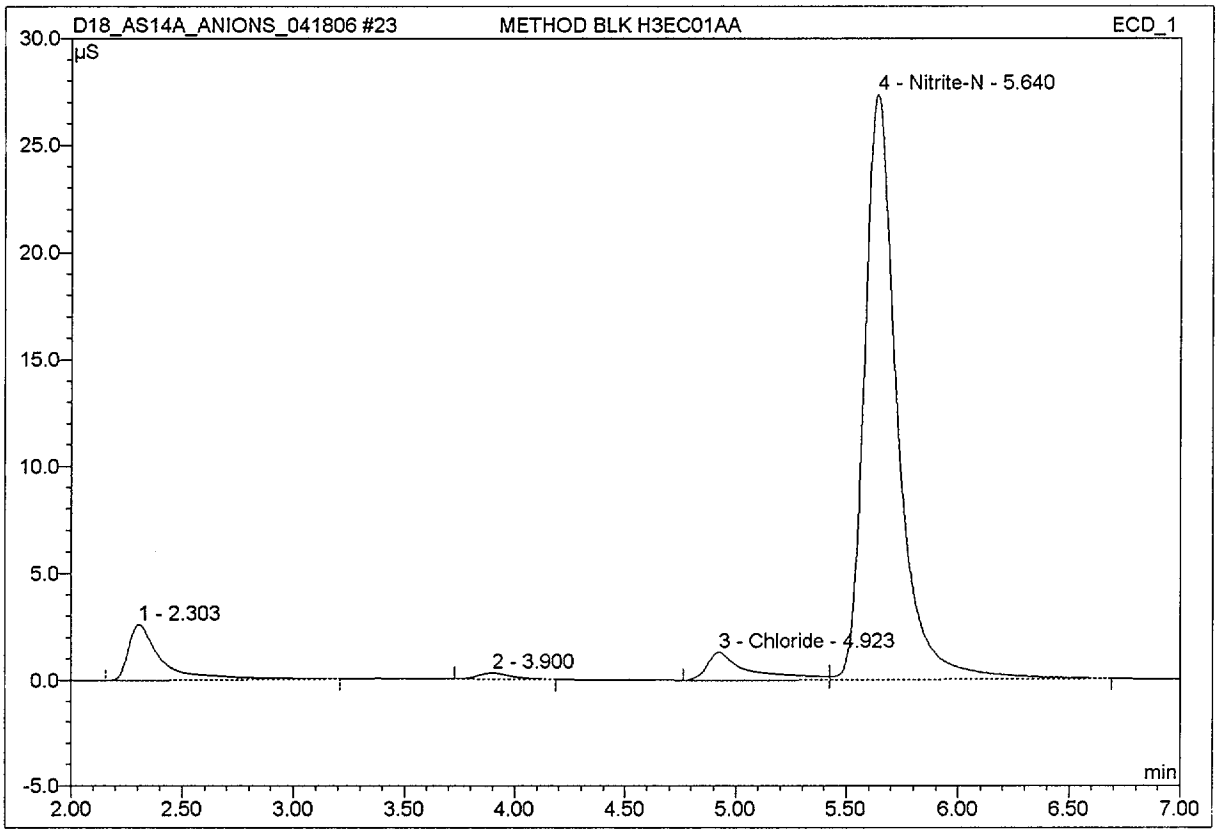
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D18_AS14A_ANIONS_041806

4/19/2006 8:11 AM

23 METHOD BLK H3EC01AA

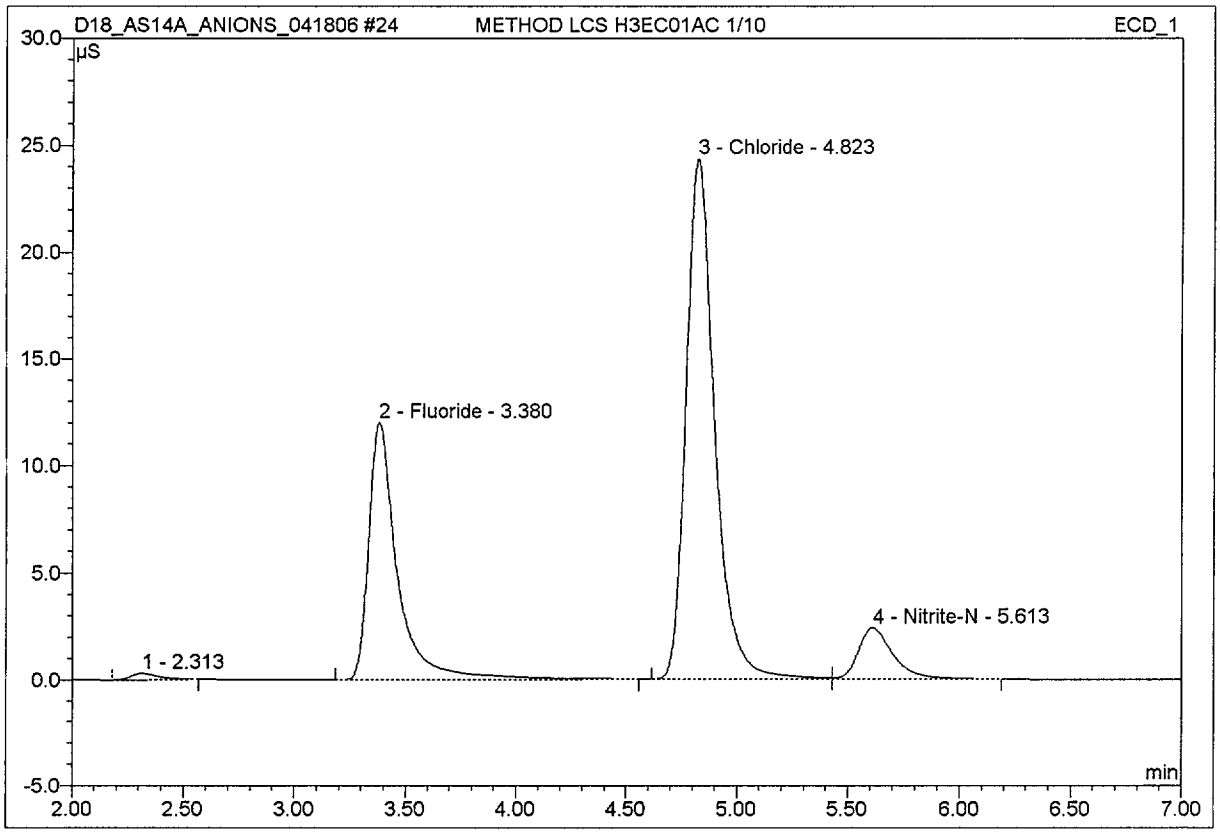
Sample Name:	**METHOD BLK H3EC01AA**	*Injection Volume:*	**50.0**
Vial Number:	**1303**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 15:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.30	n.a.	2.60229	0.451	0.25	n.a.	BMB
2	3.90	n.a.	0.27856	0.048	0.03	n.a.	BMB
3	4.92	Chloride	1.30884	0.292	0.16	0.6338	BM
4	5.64	Nitrite-N	27.33269	4.676	2.58	6.6496	MB
5	7.60	Nitrate-N	#########	175.593	96.93	80.6814	BMB
6	12.54	Sulfate	0.24154	0.089	0.05	0.4374	BMB

24 METHOD LCS H3EC01AC 1/10

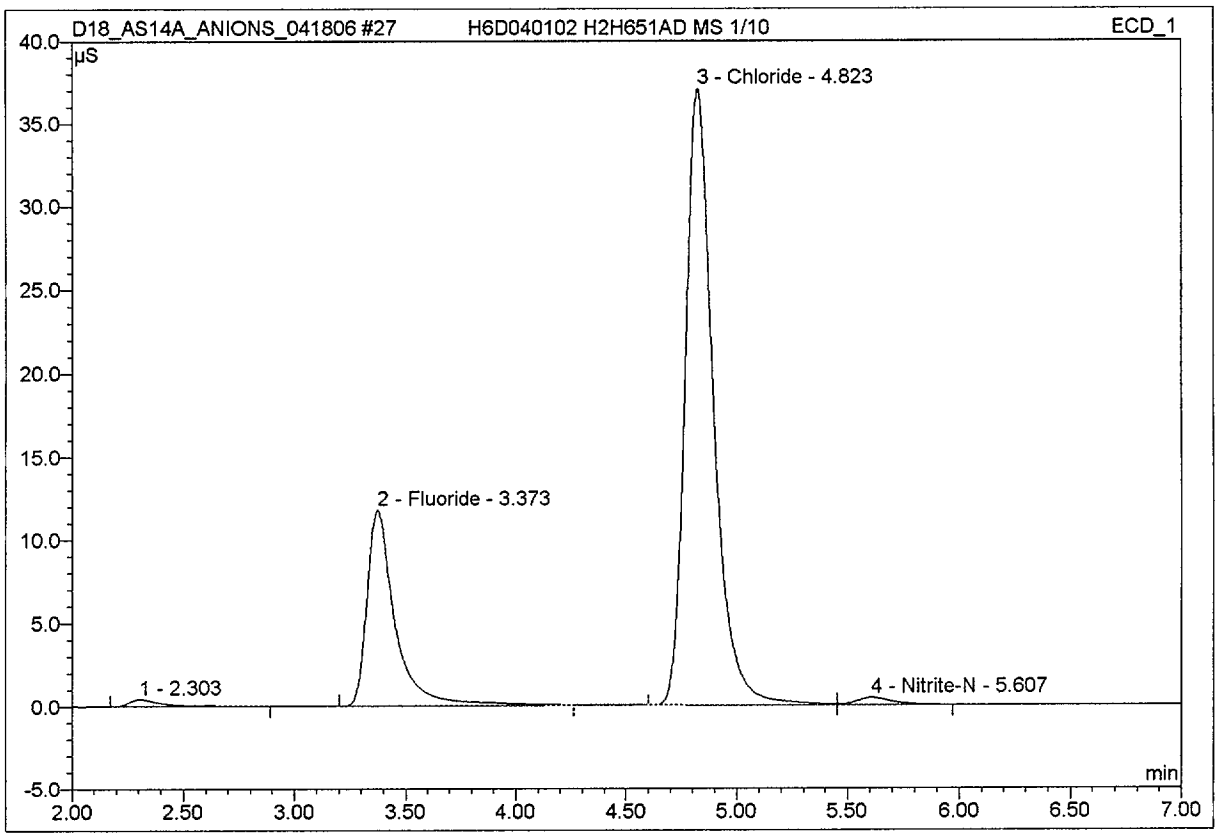
Sample Name:	**METHOD LCS H3EC01AC 1/10**	*Injection Volume:*	**50.0**
Vial Number:	**1304**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**10.0000**
Recording Time:	**4/18/2006 15:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.29715	0.043	0.20	n.a.	BMB
2	3.38	Fluoride	12.00609	1.801	8.56	34.7083	BMB
3	4.82	Chloride	24.31028	3.636	17.29	103.8579	BM
4	5.61	Nitrite-N	2.40701	0.435	2.07	6.5135	MB
5	7.71	Nitrate-N	66.78505	15.095	71.77	150.5991	BMB
6	12.52	Sulfate	0.07418	0.024	0.11	1.1795	BMB

27 H6D040102 H2H651AD MS 1/10

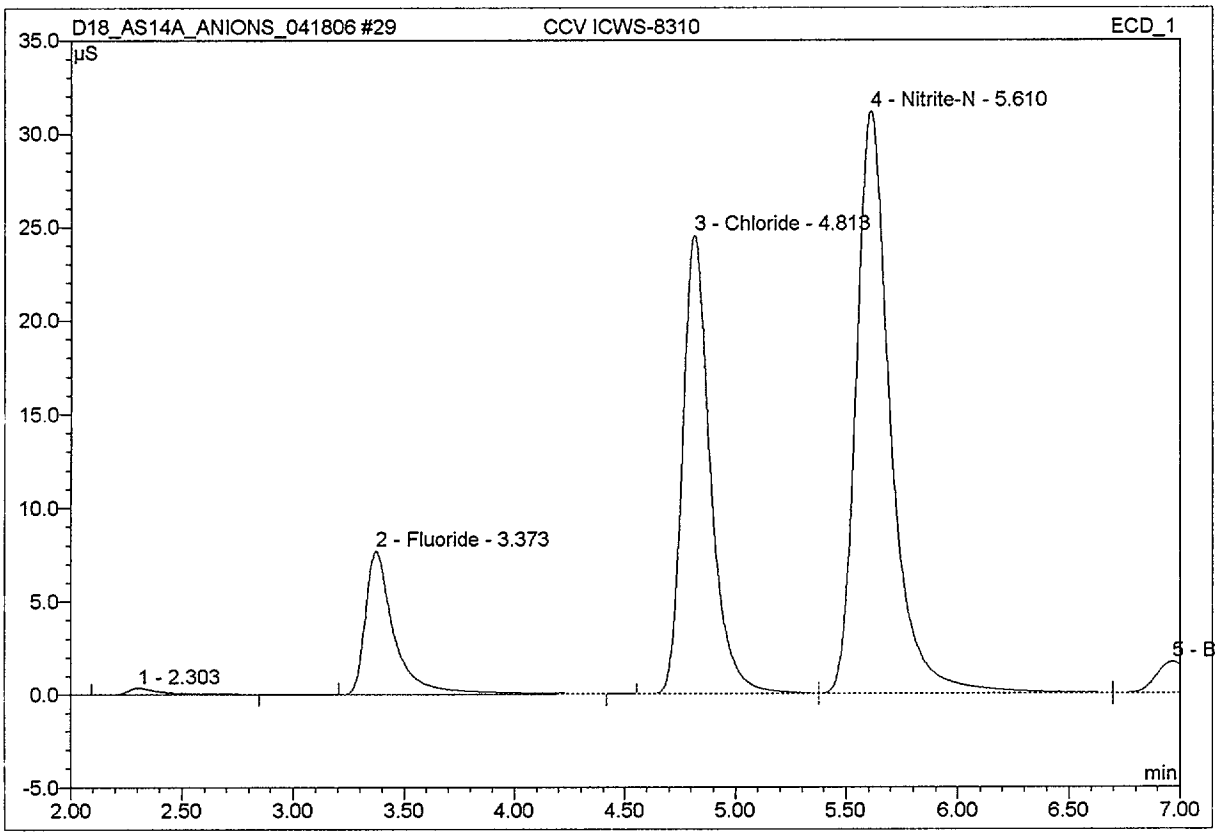
Sample Name:	**H6D040102 H2H651AD MS 1/10**	*Injection Volume:*	**50.0**
Vial Number:	**1307**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**10.0000**
Recording Time:	**4/18/2006 16:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.30	n.a.	0.43609	0.074	0.25	n.a.	BMB
2	3.37	Fluoride	11.76890	1.738	5.75	34.0965	BMB
3	4.82	Chloride	37.05852	5.453	18.03	148.6779	BM
4	5.61	Nitrite-N	0.43670	0.079	0.26	1.4860	MB
5	7.68	Nitrate-N	96.42886	22.000	72.76	200.6175	BMB
6	12.52	Sulfate	2.55124	0.893	2.95	42.5545	BMB

29 CCV ICWS-8310

Sample Name:	**CCV ICWS-8310**	*Injection Volume:*	**50.0**
Vial Number:	**1309**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 16:59**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.30	n.a.	0.35960	0.066	0.37	n.a.	BMB
2	3.37	Fluoride	7.68310	1.178	6.65	2.3166	BMB
3	4.81	Chloride	24.50626	3.563	20.10	10.4585	BM
4	5.61	Nitrite-N	31.11872	5.577	31.47	7.5091	M
5	6.97	Bromide	1.68022	0.343	1.94	2.6566	MB
6	7.72	Nitrate-N	31.07318	6.994	39.47	7.9646	BMB

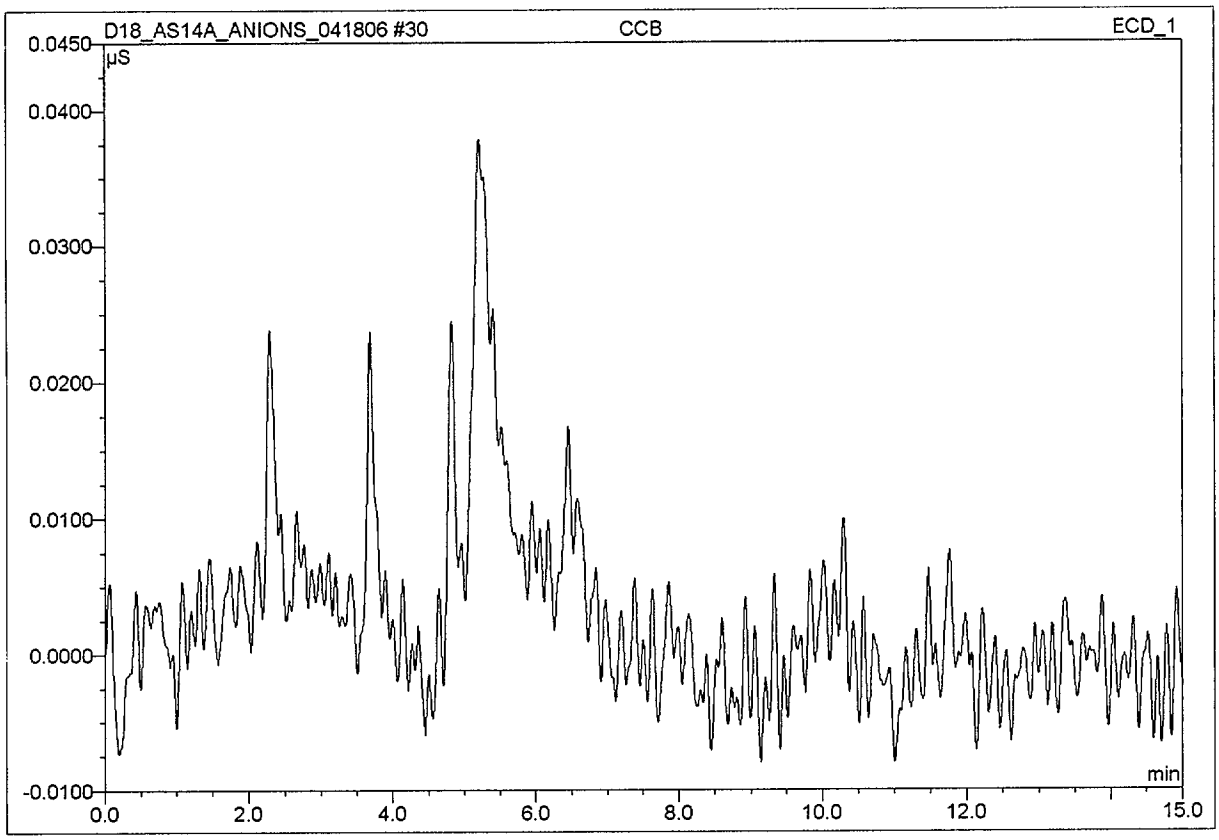
✓ 104.6 ✓

Qual

Operator:kaukerc Timebase:ICS1500 Sequence:D18_AS14A_ANIONS_041806

30 CCB

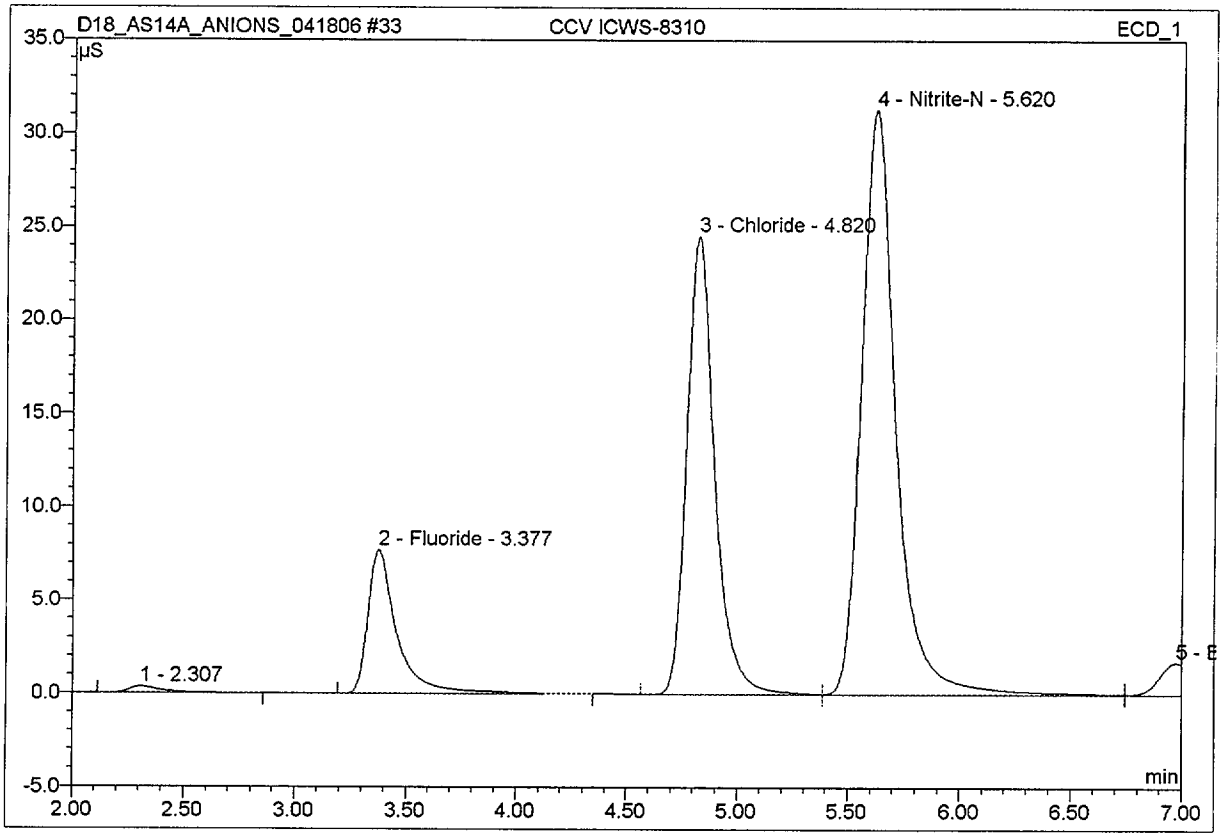
Sample Name:	**CCB**	*Injection Volume:*	**50.0**
Vial Number:	**1310**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 17:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

33 CCV ICWS-8310

Sample Name:	**CCV ICWS-8310**	*Injection Volume:*	**50.0**
Vial Number:	**1313**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 18:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



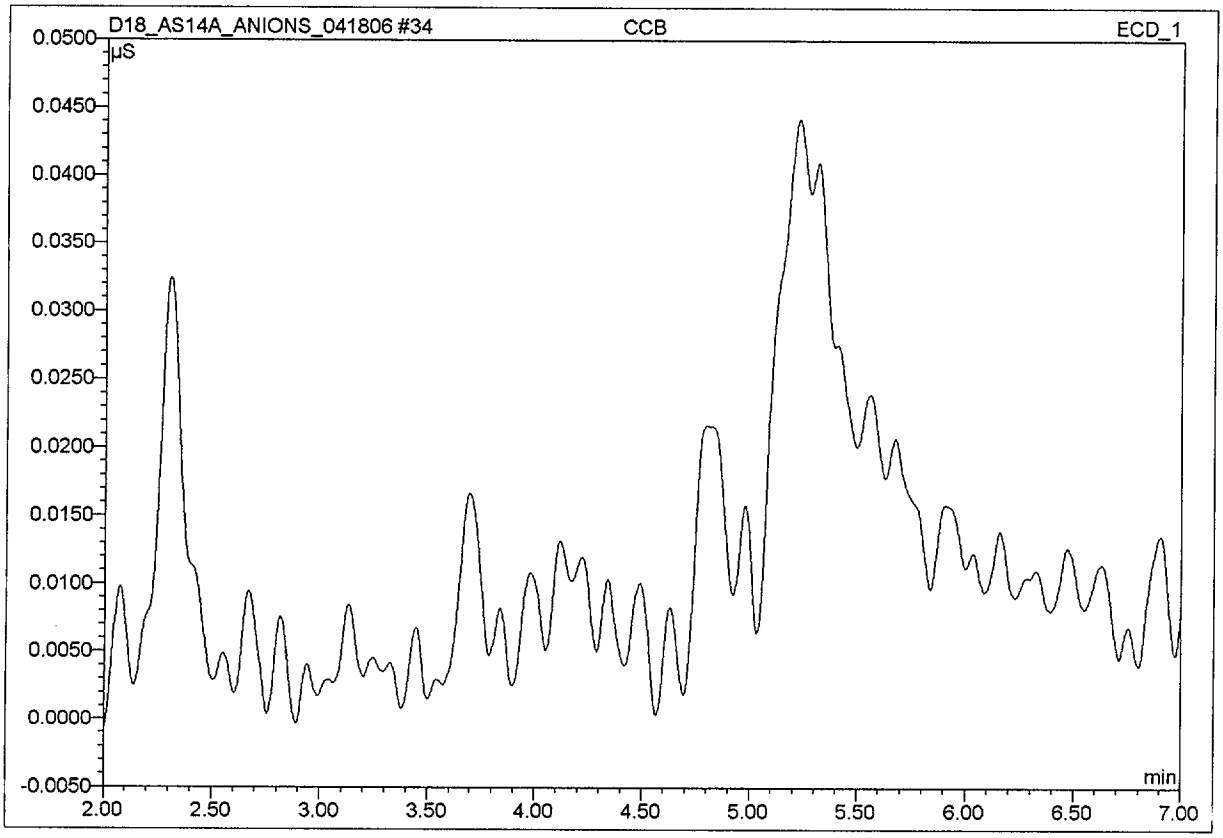
No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.34528	0.063	0.35	n.a.	BMB
2	3.38	Fluoride	7.69391	1.171	6.61	2.3196	BMB
3	4.82	Chloride	24.47627	3.576	20.17	10.4474	BM
4	5.62	Nitrite-N	31.25095	5.602	31.59	7.5389	M
5	6.98	Bromide	1.67885	0.345	1.94	2.6545	MB
6	7.73	Nitrate-N	31.08651	6.974	39.33	7.9676	BMB

✓ 104.5 ✓

Operator:kaukerc Timebase:ICS1500 Sequence:D18_AS14A_ANIONS_041806

34 CCB

Sample Name:	**CCB**	*Injection Volume:*	**50.0**
Vial Number:	**1314**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/18/2006 18:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

ND

Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

STL Knoxville Total Halogens Data Review / Narrative Checklist
Methods: 5050 and 9056, SOPs: KNOX-WC-0016, Rev. 1 and KNOX-WC-0005, Rev. 6

Lot Number	H6D040102	Analytes:	☑ Total Chlorine ☐ Total Fluorine ☐ Total Bromine ☐ Total Iodine
Analysis Date: 4/19/06	File ID: D19-A514A-ANIONS-022806 QUAD	ICAL File ID:	B28A-A514A-ANIONS-022806 QUAD

Review Items	NA	Y	N	If No, why is data reportable?	2nd 3
1. Were PM checklists, Lot Summary and any applicable QAS reviewed?		✓			✓
2. ICV within 90-110%R and ICB/CCB < 1/2 RL?		✓			✓
3. CCVs/CCBs run after every 10 samples & end of run?		✓			✓
4. Is %D ≤10% for each CCV?		✓			✓
5. If CCV failed, was it rerun only once?	✓				NA
6. LCS/LCSD analytes within 80-120%R? *If no, list LCS ID:*		✓		☐ **[lcs3] LCS recovery >120% and sample results <RL.***	✓
7. Method blank < RL? *If no, list blank ID:*		✓		☐ **[mb3] No analyte > RL in associated samples.*** ☐ [mb8] Sample results > 20x higher than blank.	✓
8. MS/MSD done per prep batch?		✓			✓
9. MS/MSD within 80-120% recovery and ≤10 RPD? *If no, list ID:* H2H65			✓	☑ [ms3] LCS acceptable indicating sample matrix effects. ☐ [ms4] Native analyte concentration >4x spike level.	MS3
10. DUP done per 10 samples or per trial burn?		✓			✓
11. DUP RPD ≤ 10%? *If no, list ID:* H2H65			✓	☐ [rpd] OS and/or DUP < RL. ☑ [rpd2] LCS acceptable. Sample heterogeneity.	RPD2
12. Were MS run #'s assigned correctly?		✓			✓
13. Sample analyses done within holding time (HT)? *If no, list samples:*		✓		☐ [ht1] HT expired upon receipt. ☐ *[ht2] Analysis requested after HT expired.**	✓
14. Were results processed using correct ICAL?		✓			✓
15. Are positive results within the calibration range?		✓			✓
16. Is integration acceptable for all samples, QC samples and standards?		✓			✓
17. For manual integrated standards and QC samples, are before/after chromatograms provided with initials/date/reason?	✓			Reasons: S=Split peak, U=Undetected peak, I=Incorrect peak integration, B=Baseline correction, W=Wrong peak chosen by data system.	NA
18. Calculations checked for error? (Document manual calculation checks.)		✓			✓
19. Were spreadsheets checked for transcription errors?		✓			✓
20. Are results below RL obtained from undiluted IC runs?		✓		☐ [elev1] Elevated RLs due to matrix interfences.	✓
21. For results below RL, were samples prepared using at least 0.5 g sample?		✓			✓
22. F6 report correct? (Verify results, RLs, units, qualifiers, DFs, dates, spikes.)		✓			✓

Analyst: CWK **Date:** 4/20/06 **2nd Level Reviewer:** [signature] **Date:** 4/21/06

Comments: H2H65 IAA '15

$y = 0.038605 + 1.98263(8.54198) + 0.034121(8.54198)^2$

$y = 0.038605 + 16.93558581 + 2.489653175$

$y = 19.463$ ✓

Comments:

Final Review by: [signature] Date: 4/21/06	NA	Y	N	If No, why is data reportable?
1. Are all NCMs documented and discussed in narrative?	✓			List NCM #:
2. Narrative correct? (Appropriate autotext included and all deviations noted.)		✓		☐ [chlor] Total chlorine. ☐ [hal] Total chlorine, fluorine, bromine, iodine.
3. For trial burn samples, are sample results from the same waste feed consistent? (Spread of values < 20% of avg.)			✓	☐ [tb1] Related PT data show similar variation. ☑ [tb2] Solid samples likely to be heterogeneous. ☐ [tb3] Reactive matrix. ☐ [tb4] Mutiphasic samples run as one analysis per client. TB2
4. For trial burn samples, do the results agree within 10% of the known or presumed values?	✓			☐ [tb5] Related PT data show similar variation. ☐ [tb6] Extremely volatile materials suspected. ☐ [tb7] Samples obviously impure (e.g., cloudy, biphasic).

Comments:

* Such action must be taken in consultation with client.

Nonconformance memos are required for **bold** and *italicized* [autotext] statements: **Bold** = deficiency, *italicized* = anomoly.

STL Knoxville
Dionex IC Runlog Cover Page

Analyst:	CWK	Date:	4/19/06	Sequence ID:	D19-A514A-ANIONS-041906

Instrument:	☐ DX-600	Method:	☐ KNOX-WC-0003, SW-846 0061/7199
	☑ ICS-1500		☐ KNOX-WC-0005, ☐ SW-846 9056 ☐ EPA 300.0 ☐ SW-846 9057-Mod ☐ EPA 26A-Mod
	☐ DX-320		☐ KNOX-WC-0014, EPA 314.0

Preventive Maintenance	Instrument Conditions		
Daily:	Flow Rate =	1.00	mL/min
☑ Check pump and gas pressure	Pressure =	2060	psi
☑ Check all lines for crimping, leaks and discoloration	Conductance =	24.6	µS
As Needed:	Suppressor Current =	43	mA
☐ Change column and guard column	Eluent Generator =	—	mM KOH
☐ Change column and/or guard column bed support			
☐ Clean conductivity cell			
☐ De-gas pump head when flow is erratic			
☐ Check/replace eluant end line filter			

MS/MSD Spike Information

WO #	Compound	Spike ID	Parent Conc.	Spike Added (mL)	Final Volume (mL)	Final Conc.
H2625	Br^-	27-142AS	1,000 ppm	0.020 ml	10 ml	2 ppm
H3J2W	NO_3-N	Y-NIX02027	1,000 ppm	0.020 ml	10 ml	2 ppm

Comments:

Bomb Samples Spiked by ACS group.

☐ Sodium Thiosulfate added to NaOH impinger samples.

Sequence: D19_AS14A_ANIONS_041906
Operator: kaukerc

Printed: 4/19/2006 3:21:57 PM

CWK
4/19/06

Title:
Datasource: ICS_1500_net
Location: ICS1500
Timebase: ICS1500
#Samples: 29

Created: 4/19/2006 8:25:57 AM by kaukerc
Last Update: 4/19/2006 3:21:48 PM by kaukerc

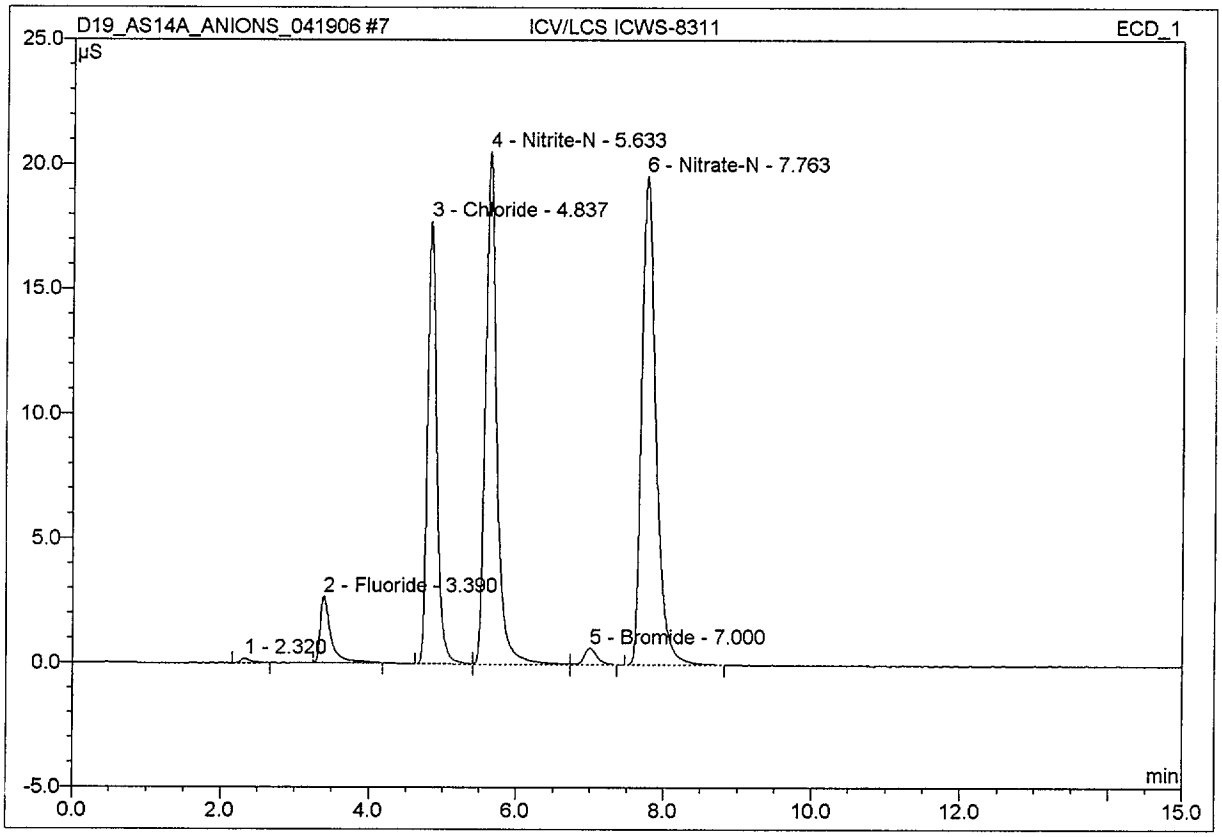
No.	Name	Sample ID	Inj. Vol.	Inj. Date/Time	Dil. Factor	*Multiplier [Liters]	Weight
1	CAL STD #1 ICWS-8115		50.0	2/28/2006 9:22:23 AM	1.0000		1.0000
2	CAL STD #2 ICWS-8116		50.0	2/28/2006 9:49:48 AM	1.0000		1.0000
3	CAL STD #3 ICWS-8117		50.0	2/28/2006 10:17:12 AM	1.0000		1.0000
4	CAL STD #4 ICWS-8118		50.0	2/28/2006 10:44:36 AM	1.0000		1.0000
5	CAL STD #5 ICWS-8119		50.0	2/28/2006 11:12:00 AM	1.0000		1.0000
6	CAL STD #6 ICWS-8120		50.0	2/28/2006 11:39:25 AM	1.0000		1.0000
7	ICV/LCS ICWS-8311		50.0	4/19/2006 8:29:54 AM	1.0000		1.0000
8	ICV/LCSD ICWS-8312		50.0	4/19/2006 8:47:18 AM	1.0000		1.0000
9	ICB/METHOD BLK		50.0	4/19/2006 9:04:42 AM	1.0000		1.0000
10	H6D040102 H2H651AA 1/5		50.0	4/19/2006 9:22:07 AM	5.0000		1.0000
11	H6D040102 H2H651AC DUP 1/5		50.0	4/19/2006 9:39:32 AM	5.0000		1.0000
12	H6D040102 H2H651AD MSD 1/20		50.0	4/19/2006 9:56:56 AM	20.0000		1.0000
13	H6D040102 H2H661AA 1/5		50.0	4/19/2006 10:14:20 AM	5.0000		1.0000
14	H6D040102 H2H671AA 1/5		50.0	4/19/2006 10:31:44 AM	5.0000		1.0000
15	H6D130171 H262D 1/2		50.0	4/19/2006 10:49:08 AM	2.0000		1.0000
16	H6D130171 H262D MS 1/2 2PPM BR		50.0	4/19/2006 11:06:33 AM	2.0000		1.0000
17	CCV ICWS-8313		50.0	4/19/2006 11:23:57 AM	1.0000		1.0000
18	CCB		50.0	4/19/2006 11:41:21 AM	1.0000		1.0000
19	H6D130171 H262D MSD 1/2		50.0	4/19/2006 11:58:45 AM	2.0000		1.0000
20	CCV ICWS-8313		50.0	4/19/2006 12:21:52 PM	1.0000		1.0000
21	CCB		50.0	4/19/2006 12:39:17 PM	1.0000		1.0000
22	H6D190123 H3J2W		50.0	4/19/2006 1:08:11 PM	1.0000		1.0000
23	H6D190123 H3J2W MS 2PPM NO3		50.0	4/19/2006 1:33:48 PM	1.0000		1.0000
24	H6D190123 H3J2W MSD 2PPM NO3		50.0	4/19/2006 1:51:12 PM	1.0000		1.0000
25	H6D190123 H3J22		50.0	4/19/2006 2:08:36 PM	1.0000		1.0000
26	H6D190123 H3J23		50.0	4/19/2006 2:26:01 PM	1.0000		1.0000
27	CCV ICWS-8313		50.0	4/19/2006 2:45:42 PM	1.0000		1.0000
28	CCB		50.0	4/19/2006 3:03:06 PM	1.0000		1.0000
29	SHUTDOWN		50.0	4/19/2006 3:21:49 PM	1.0000		1.0000

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 9:06 AM

7 ICV/LCS ICWS-8311

Sample Name:	**ICV/LCS ICWS-8311**	*Injection Volume:*	**50.0**
Vial Number:	**1201**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 8:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.32	n.a.	0.18400	0.030	0.27	n.a.	BMB
2	3.39	Fluoride	2.68099	0.446	3.95	0.8587	BMB
3	4.84	Chloride	17.76636	2.582	22.88	7.8744	BM
4	5.63	Nitrite-N	20.56516	3.678	32.60	5.0818	M
5	7.00	Bromide	0.66378	0.137	1.21	1.0739	MB
6	7.76	Nitrate-N	19.61899	4.411	39.09	5.3089	BMB

Quad

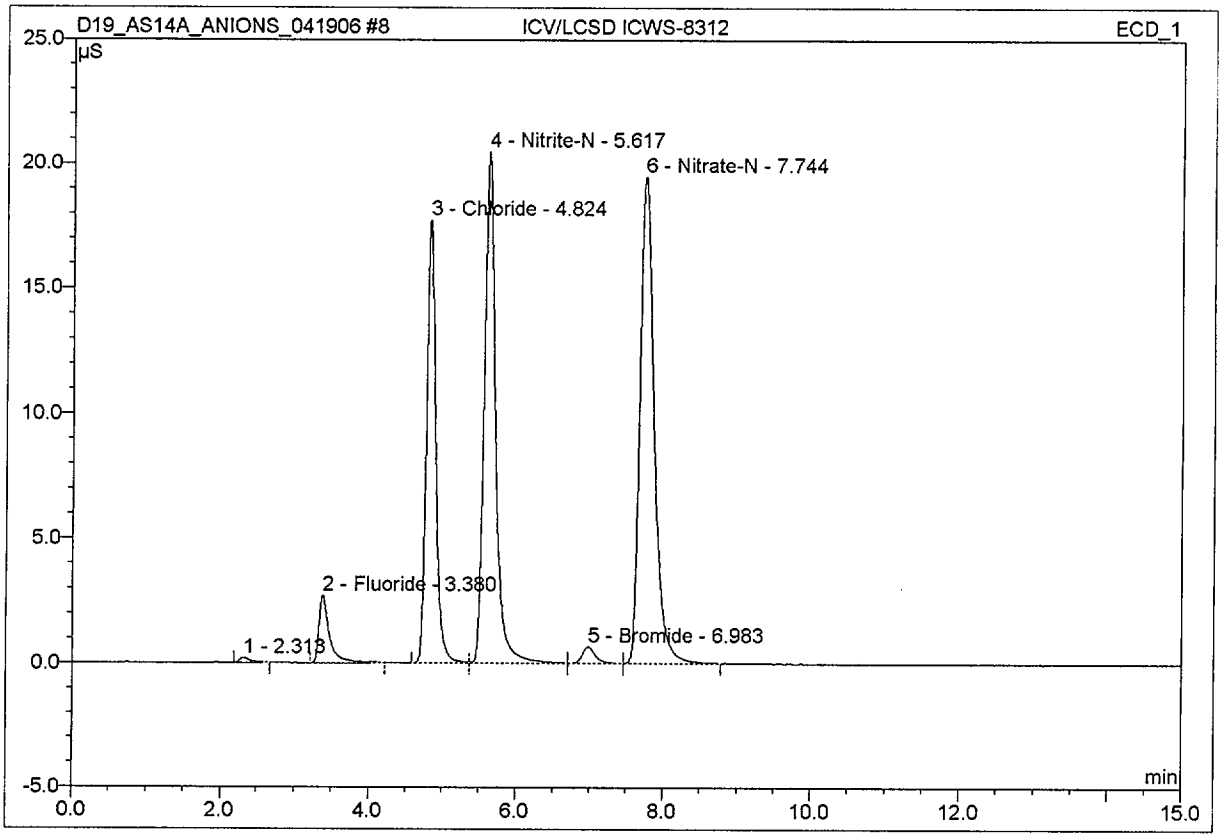
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 9:06 AM

8 ICV/LCSD ICWS-8312

Sample Name:	**ICV/LCSD ICWS-8312**	*Injection Volume:*	**50.0**
Vial Number:	**1202**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 8:47**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.20566	0.034	0.30	n.a.	BMB
2	3.38	Fluoride	2.70250	0.442	3.93	0.8653	BMB
3	4.82	Chloride	17.73900	2.590	23.02	7.8635	BM
4	5.62	Nitrite-N	20.49821	3.671	32.62	5.0661	M
5	6.98	Bromide	0.65939	0.138	1.23	1.0669	MB
6	7.74	Nitrate-N	19.48364	4.378	38.90	5.2760	BMB

Quad

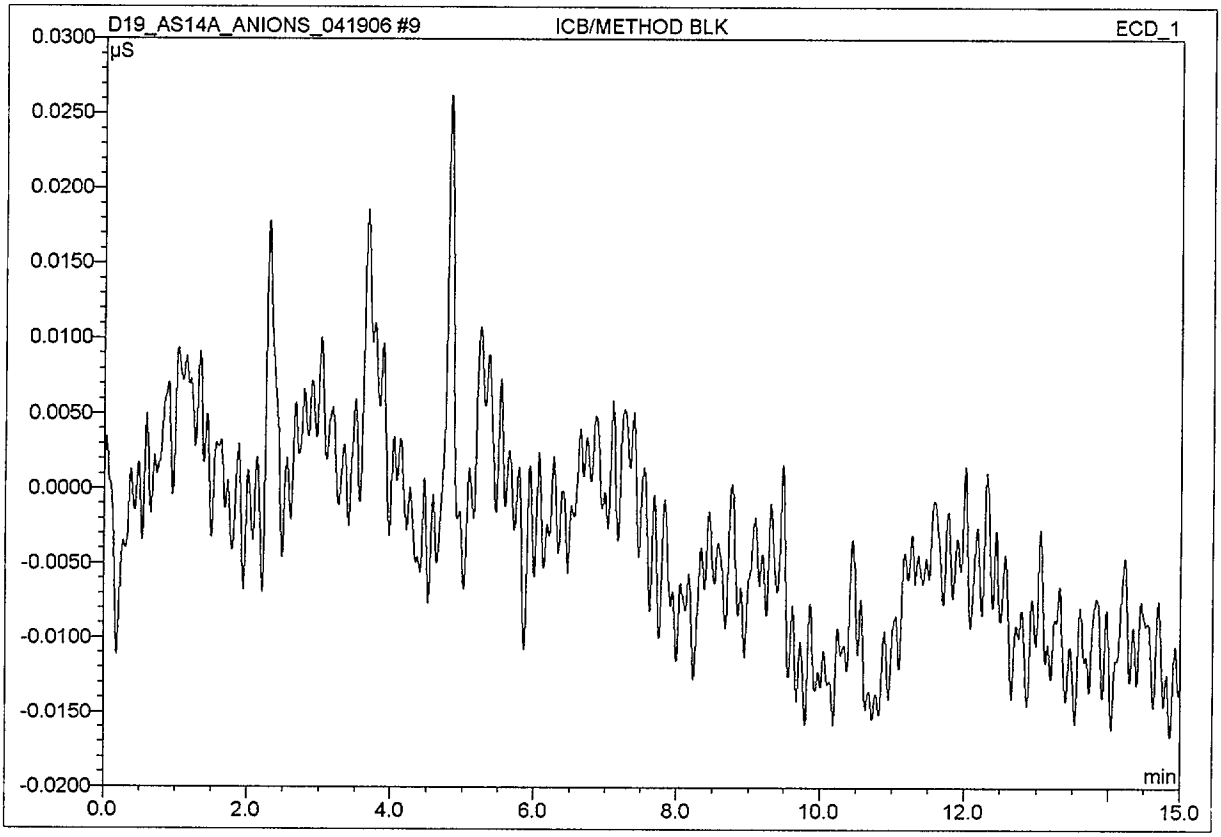
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 9:28 AM

9 ICB/METHOD BLK

Sample Name:	**ICB/METHOD BLK**	*Injection Volume:*	**50.0**
Vial Number:	**1203**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 9:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

H3KQA1AA Br^-

H3K571AA NO_3-N

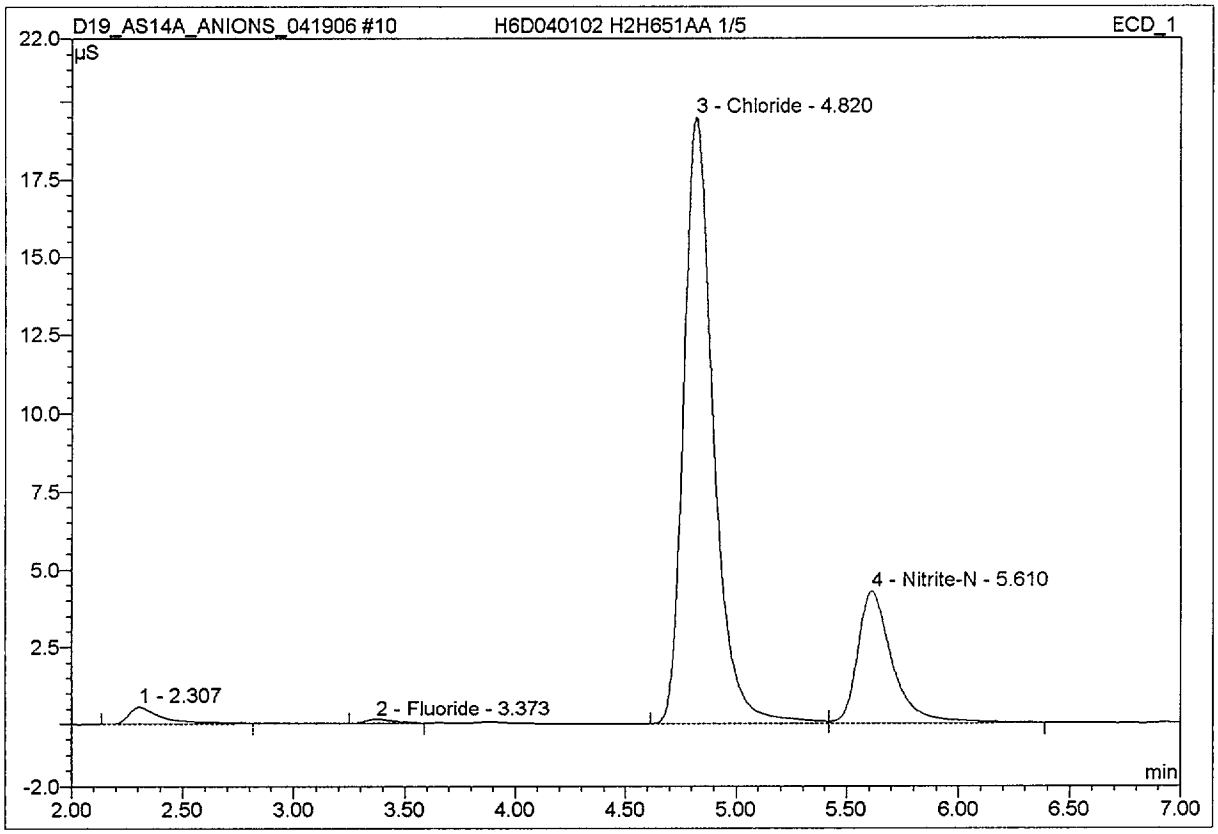
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 10:14 AM

10 H6D040102 H2H651AA 1/5

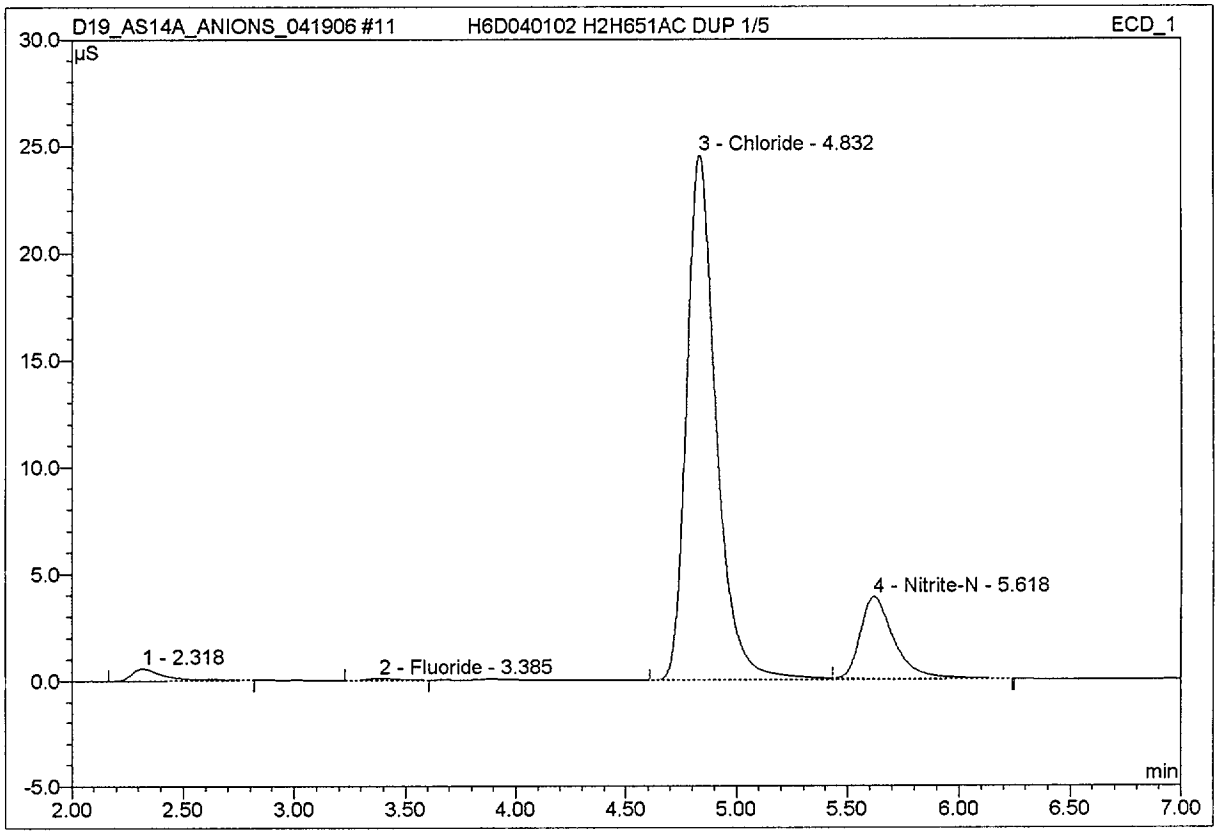
Sample Name:	**H6D040102 H2H651AA 1/5**	*Injection Volume:*	**50.0**
Vial Number:	**1204**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**5.0000**
Recording Time:	**4/19/2006 9:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.56541	0.096	0.23	n.a.	BMB
2	3.37	Fluoride	0.12990	0.019	0.05	0.2548	BMB
3	4.82	Chloride	19.46387	3.022	7.38	42.7099	BM
4	5.61	Nitrite-N	4.27133	0.774	1.89	5.6140	MB
5	7.66	Nitrate-N	#########	34.694	84.76	138.9383	BMB
6	10.40	Phosphate-P	0.06997	0.021	0.05	0.4583	BMB
7	12.51	Sulfate	6.70892	2.307	5.64	52.3211	BMB

11 H6D040102 H2H651AC DUP 1/5

Sample Name:	**H6D040102 H2H651AC DUP 1/5**	*Injection Volume:*	**50.0**
Vial Number:	**1205**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**5.0000**
Recording Time:	**4/19/2006 9:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**14.99**	*Sample Amount:*	**1.0000**



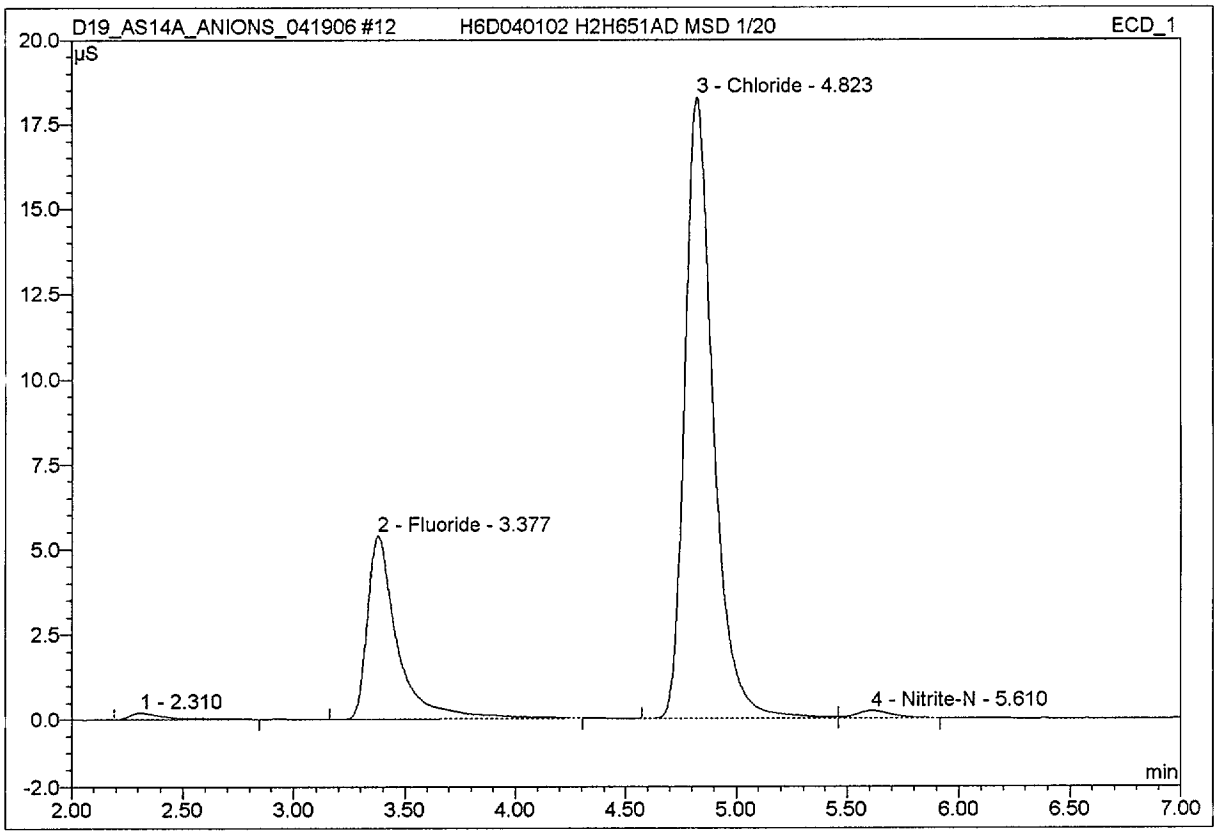
No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.32	n.a.	0.57936	0.099	0.24	n.a.	BMB
2	3.38	Fluoride	0.09745	0.014	0.03	0.2017	BMB
3	4.83	Chloride	24.52399	3.809	9.21	52.3256	BMB
4	5.62	Nitrite-N	3.81481	0.665	1.61	5.0386	Rd
5	7.66	Nitrate-N	##########	35.243	85.22	140.2732	BMB
6	12.51	Sulfate	4.41792	1.528	3.69	35.5735	BMB

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 10:14 AM

12 H6D040102 H2H651AD MSD 1/20

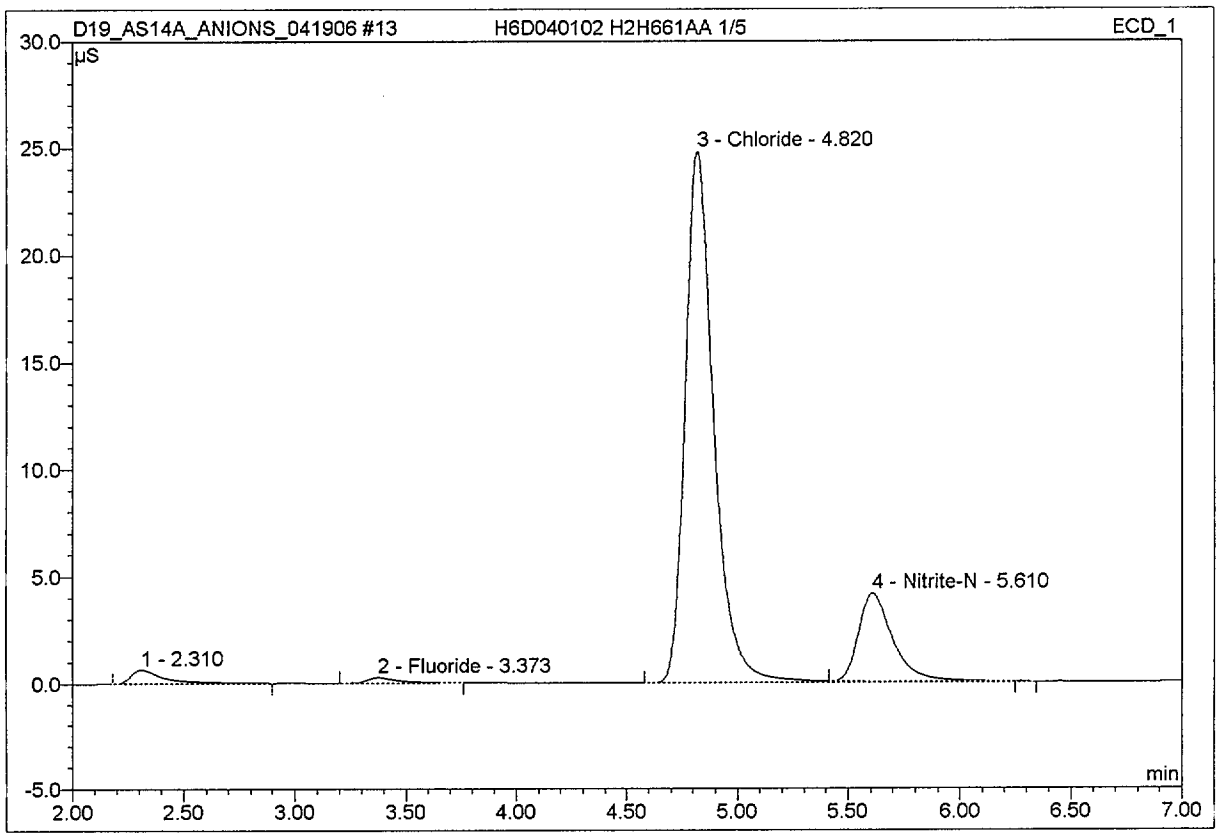
Sample Name:	**H6D040102 H2H651AD MSD 1/20**	*Injection Volume:*	**50.0**
Vial Number:	**1206**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**20.0000**
Recording Time:	**4/19/2006 9:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.20960	0.039	0.27	n.a.	BMB
2	3.38	Fluoride	5.37618	0.858	5.99	33.2528	BMB
3	4.82	Chloride	18.24860	2.714	18.95	161.3053	BM
4	5.61	Nitrite-N	0.22231	0.040	0.28	1.8723	MB
5	7.72	Nitrate-N	46.02499	10.284	71.81	222.3532	BMB
6	12.53	Sulfate	1.10346	0.387	2.70	37.6009	BMB

13 H6D040102 H2H661AA 1/5

Sample Name:	**H6D040102 H2H661AA 1/5**	*Injection Volume:*	**50.0**
Vial Number:	**1206**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**5.0000**
Recording Time:	**4/19/2006 10:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



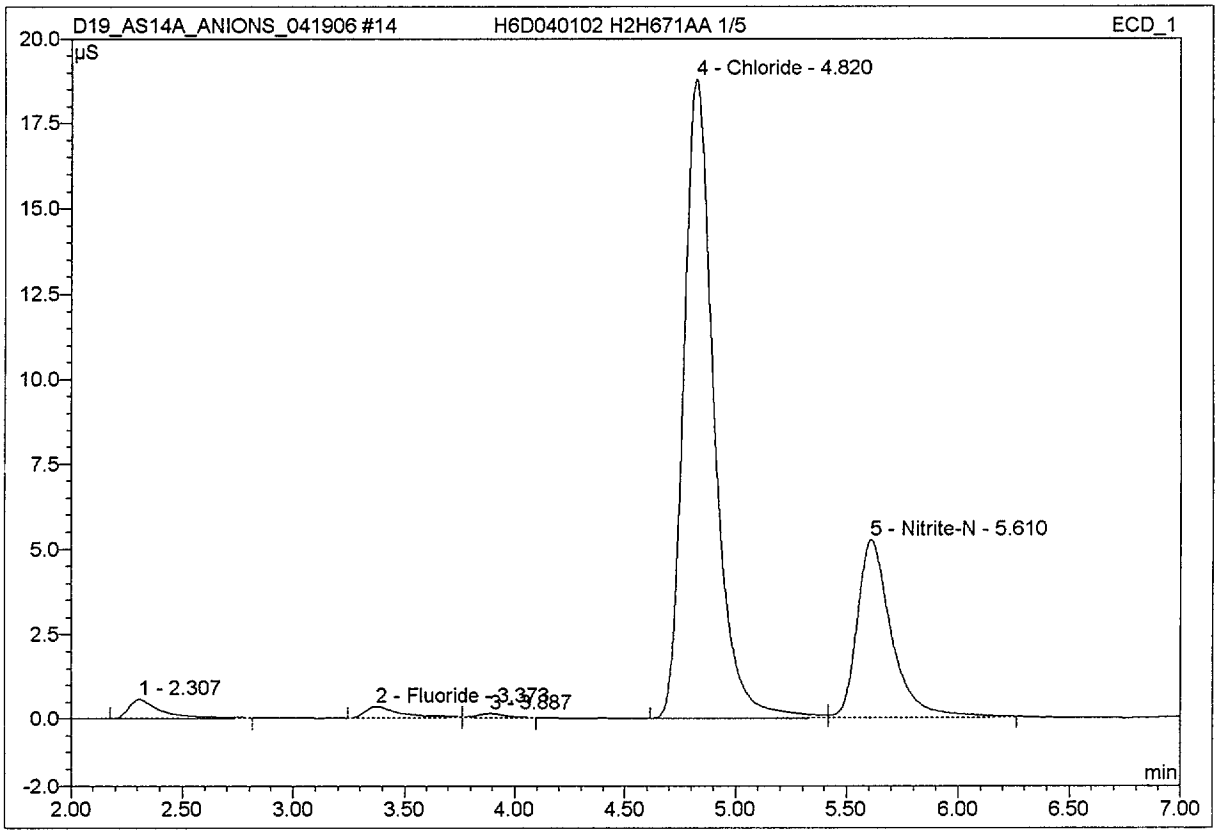
No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.64260	0.115	0.27	n.a.	BMB
2	3.37	Fluoride	0.24699	0.039	0.09	0.4457	BMB
3	4.82	Chloride	24.81170	3.725	8.62	52.8583	BMB
4	5.61	Nitrite-N	4.10432	0.726	1.68	5.4036	Rd
5	7.66	Nitrate-N	##########	36.066	83.44	142.3774	BMB
6	10.41	Phosphate-P	0.14190	0.043	0.10	0.9275	BMB
7	12.51	Sulfate	7.26581	2.508	5.80	56.5090	BMB

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 10:49 AM

14 H6D040102 H2H671AA 1/5

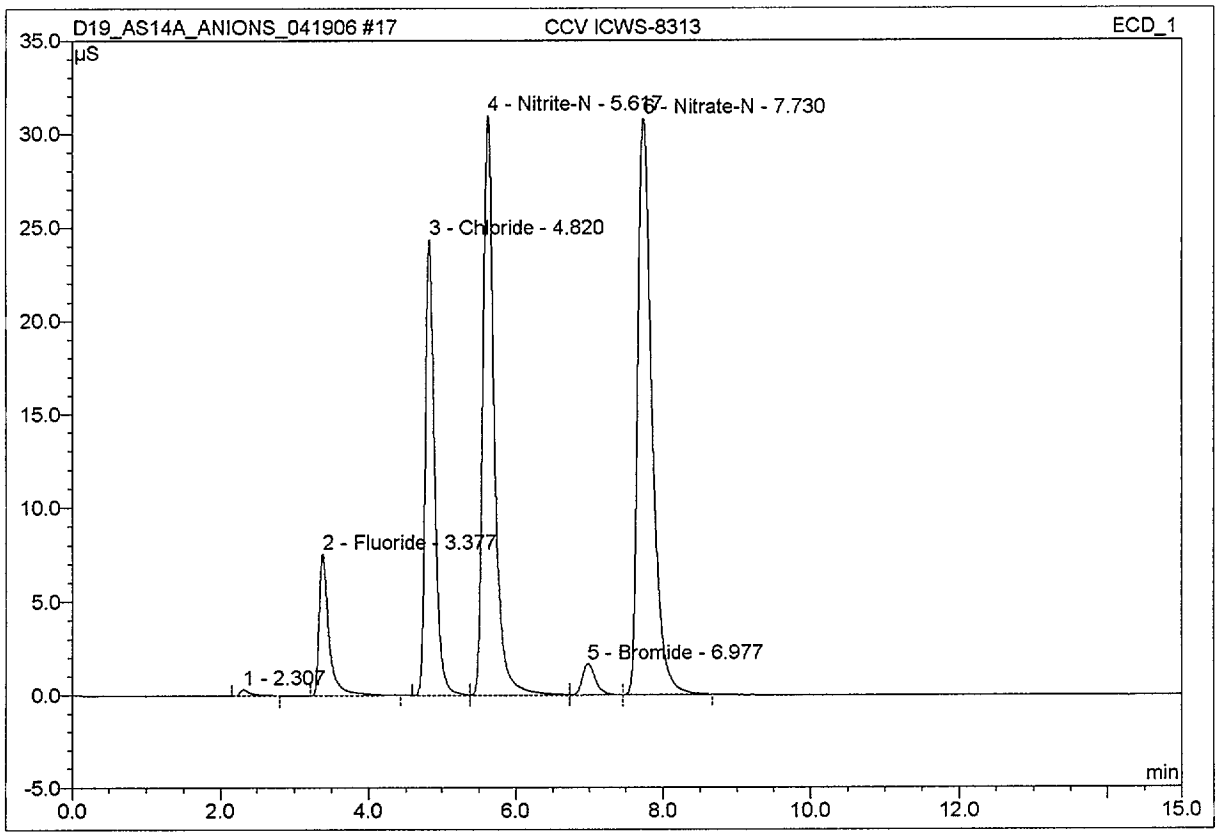
Sample Name:	**H6D040102 H2H671AA 1/5**	*Injection Volume:*	**50.0**
Vial Number:	**1206**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**5.0000**
Recording Time:	**4/19/2006 10:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type
1	2.31	n.a.	0.57385	0.097	0.26	n.a.	BMB
2	3.37	Fluoride	0.34801	0.061	0.16	0.6100	BMB
3	3.89	n.a.	0.10833	0.014	0.04	n.a.	bMB
4	4.82	Chloride	18.77940	2.975	8.02	41.3711	BM
5	5.61	Nitrite-N	5.22126	0.930	2.51	6.8072	MB
6	7.66	Nitrate-N	#########	30.248	81.55	126.2397	BMB
7	10.41	Phosphate-P	0.06485	0.020	0.06	0.4376	BMB
8	12.50	Sulfate	7.99616	2.747	7.41	61.4136	BMB

17 CCV ICWS-8313

Sample Name:	**CCV ICWS-8313**	*Injection Volume:*	**50.0**
Vial Number:	**1210**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 11:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type	
1	2.31	n.a.	0.33434	0.059	0.34	n.a.	BMB	
2	3.38	Fluoride	7.54771	1.167	6.64	2.2790	BMB	✓ 103.9%
3	4.82	Chloride	24.33200	3.556	20.23	10.3939	BM	
4	5.62	Nitrite-N	30.93490	5.554	31.60	7.4676	M	
5	6.98	Bromide	1.66726	0.342	1.95	2.6104	MB	
6	7.73	Nitrate-N	30.75559	6.897	39.24	8.0438	BMB	107.2

Cl^- Quad

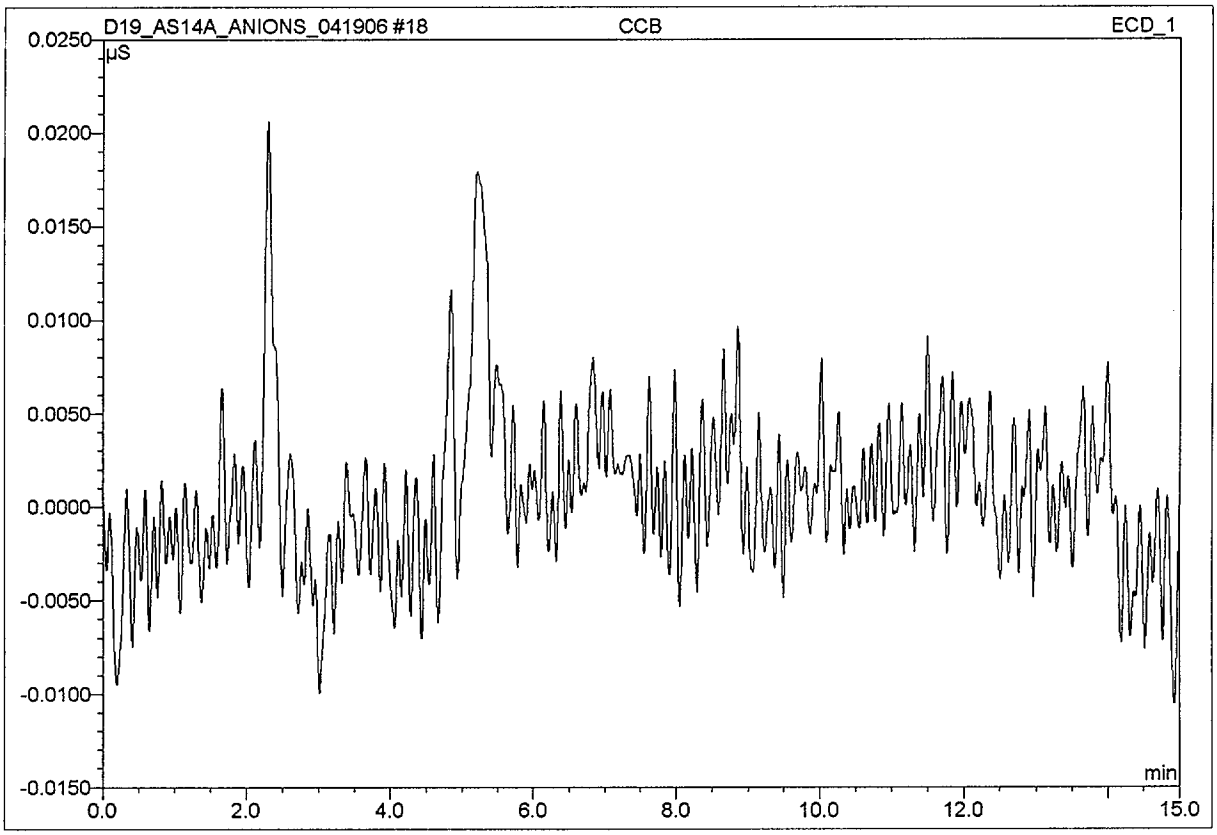
Br^-, NO_3-N - Linear

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 12:19 PM

18 CCB

Sample Name:	**CCB**	*Injection Volume:*	**50.0**
Vial Number:	**1210**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 11:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

ND

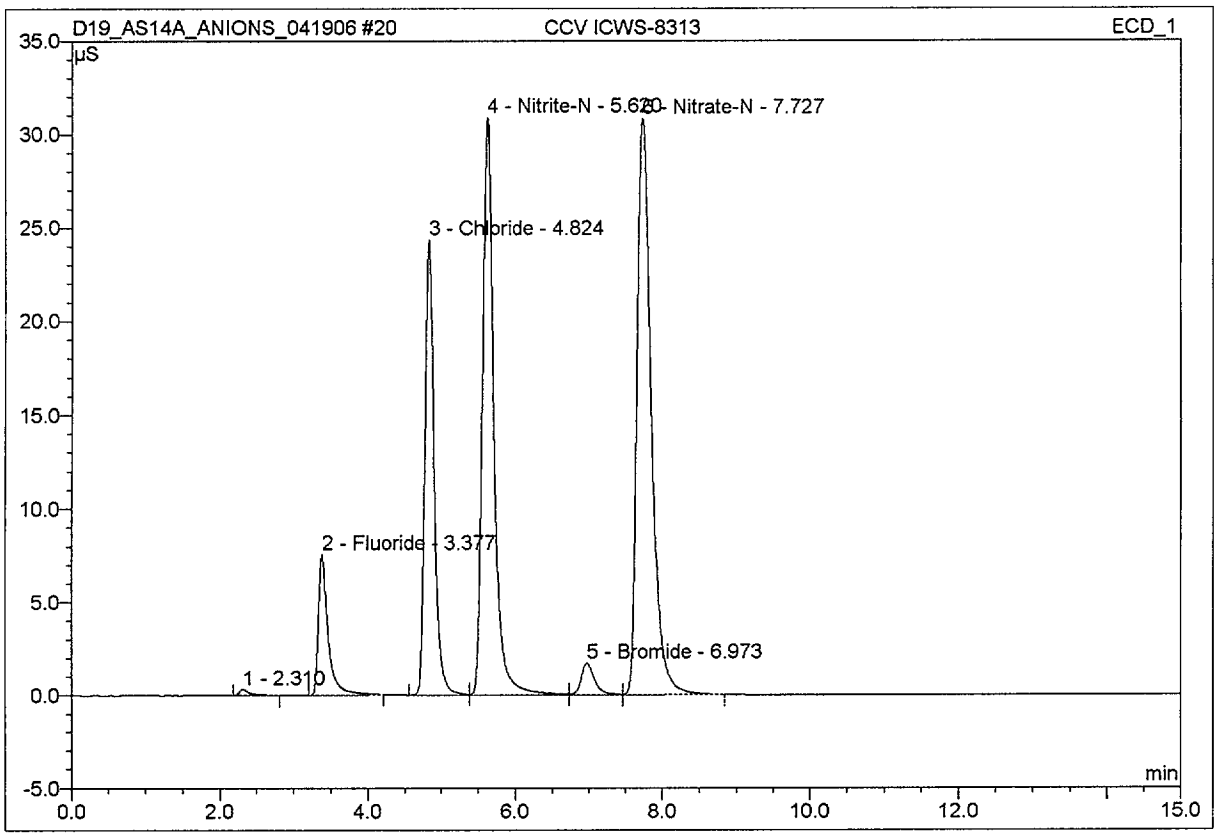
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 2:05 PM

20 CCV ICWS-8313

Sample Name:	**CCV ICWS-8313**	*Injection Volume:*	**50.0**
Vial Number:	**1300**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 12:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type	
1	2.31	n.a.	0.32116	0.056	0.32	n.a.	BMB	
2	3.38	Fluoride	7.54495	1.146	6.51	2.2782	BMB	
3	4.82	Chloride	24.30970	3.545	20.15	10.3856	BM	103.9 ✓
4	5.62	Nitrite-N	30.85853	5.564	31.63	7.4504	M	
5	6.97	Bromide	1.67975	0.351	2.00	2.6300	M	105.2
6	7.73	Nitrate-N	30.78134	6.932	39.40	8.0506	MB	107.3

Cl- Quad

Br, NO3 N Linear

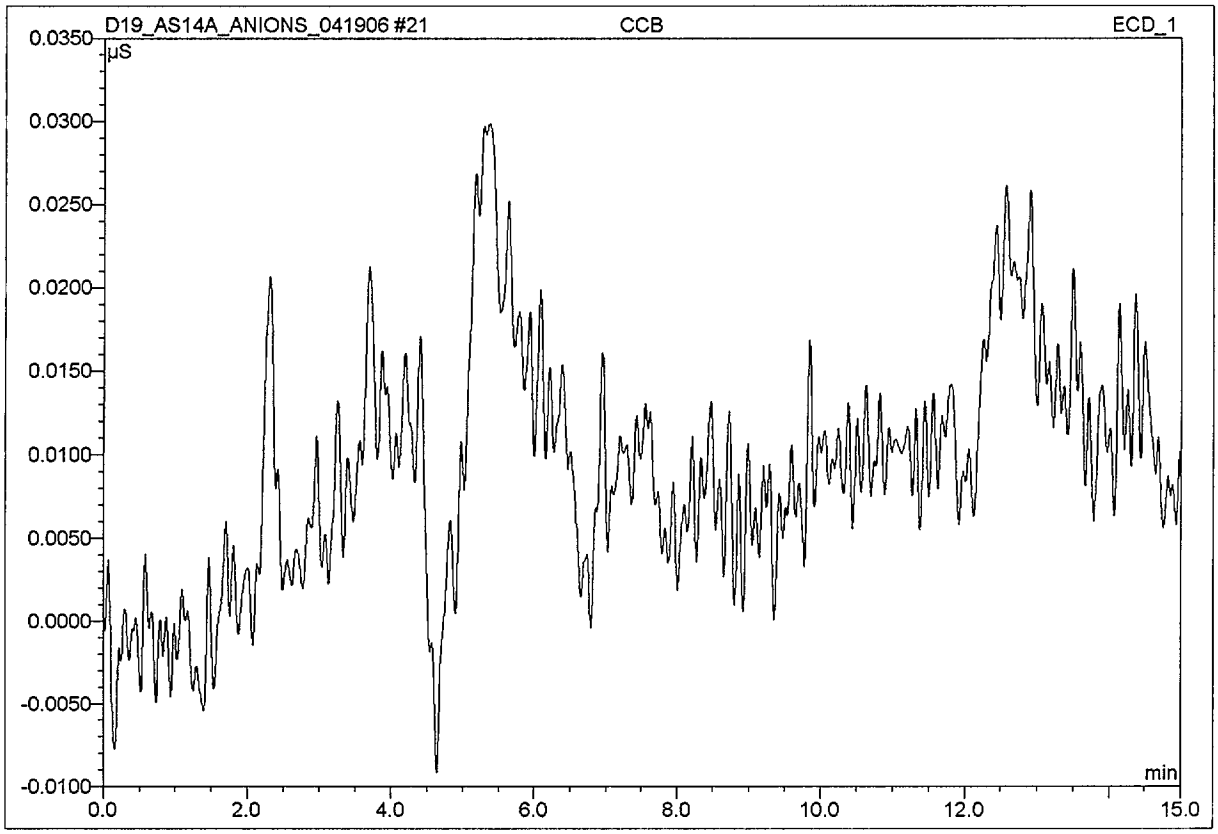
Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

Operator:kaukerc Timebase:ICS1500 Sequence:D19_AS14A_ANIONS_041906

4/19/2006 12:58 PM

21 CCB

Sample Name:	**CCB**	*Injection Volume:*	**50.0**
Vial Number:	**1301**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**AS14A ANIONS METHOD**	*Bandwidth:*	**n.a.**
Quantif. Method:	**AS4A-SC ANION METHOD**	*Dilution Factor:*	**1.0000**
Recording Time:	**4/19/2006 12:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**15.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time (min.)	Peak Name	Height (uS)	Area µS*min	Rel.Area (%)	Amount (mg/L)	Peak Type

ND

Chromeleon (c) Dionex 1996-2001
Version 6.50 SP4 Build 1000

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 4/19/06 Chemist: CWK Expiration Date: 4/20/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. ICWS 8311	F-	28-126AS	Spex	9/15/06	1,000ppm	0.050	50ml	1.0 ppm
2. (ICV/LCS)	Cl-	1-5CL-2	Spex	3/15/07		0.375		7.5
3.	NO_3-N	1-13NO2N-2	Spex	10/30/06		0.250		5.0
4.	Br-	27-142AS	Spex	5/30/06		0.050		1.0
5.	NO_3-N	Y-NO3-02027	Inorg Vent	6/1/06		0.250		5.0
6. ICWS8312	F-	Parent ID's	same as	ICWS 8311		0.050		1.0
7. (ICV/LCSD)	Cl-					0.375		7.5
8.	NO_2-N					0.250		5.0
9.	Br-					0.050		1.0
10.	NO_3-N					0.250		5.0
11. ICWS8313	F-	22015	ERA	1/31/07		0.125		2.5
12. (CCV)	Cl-	36065		6/30/07		0.500		10.0
13.	NO_2-N	17075		7/31/07		0.375		7.5
14.	Br-	27025		2/28/07		0.125		2.5
	NO_3-N	10025		~~2/28/07~~ ~~7/07~~ 2/28/07		0.375		7.5

CWK
4/19/07

Reviewed By: _____

STL KNOXVILLE
PREPARATION OF FINAL WORKING STANDARD SOLUTIONS FROM VENDOR PREPARED STOCKS
WET CHEMISTRY

Date: 4/18/06 Chemist: CWK Expiration Date: 4/19/06

ID Number	Compound Name	Parent Lot Number	Parent Source	Parent Exp. Date	Parent Conc.	Aliquot Volume (ml)	Dilution Volume (ml)	Final Conc.
1. ICWS 8308	F-	28-126AS	Spex	9/15/06	1,000 ppm	0.050	50 ml	1.0 ppm
2. (ICV/LCS)	Cl-	1-5CL-2		3/15/07		0.375		7.5
3.	NO_2-N	1-13NO2N-2		10/30/06		0.250		5.0
4.	Br-	27-142AS		5/30/06		0.050		1.0
5.	NO_3-N	Y-NOX 02027	Inorg Vent	6/1/06		0.250		5.0
6. ICWS 8309	F-	Parent ID's	same as	ICWS 8308		0.050		1.0
7. (ICV/LCSD)	Cl-					0.375		7.5
8.	NO_2-N					0.250		5.0
9.	Br-					0.050		1.0
10.	NO_3-N					0.250		5.0
11. ICWS 8310	F-	22015	ERA	1/31/07		0.125		2.5
12. (CCV)	Cl-	36065		6/30/07		0.500		10.0
13.	NO_2-N	17075		7/31/07		0.375		7.5
14.	Br-	27025		2/28/07		0.125		2.5
	NO_3-N	10025		~~2/28/07~~ ~~7/07~~ 2/28/07		0.375		7.5

Reviewed By: _____

CWK 4/18/06

Sample Receipt Documentation

Request for Analysis/Chain-of-Custody – RFA/COC #009 [Total Chlorine]
Focus/US Filter Westates Carbon
Comprehensive Performance Test at Parker, Arizona

STL Knoxville Lot Number: H6D040102
STL Knoxville Project Number: 142541

NOTE: After Log-In, please give the original completed RFA/COC to Patti Carswell.

Project Identification:	**Westates Carbon CPT**
STL Knoxville Project Number:	142541
STL Contact:	Ms. Patti Carswell (865) 291-3010
STL - ACS Project Manager:	Dr. William C. Anderson (865) 291-3080

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	21 Days from Lab Receipt
Laboratory Destination:	STL Knoxville 5815 Middlebrook Pike Knoxville, Tennessee 37921 (865) 291-3000
Courier:	Federal Express

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows:
"MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate,
"DUP" = Duplicate, and "PDS" = Post Digestion Spike

Project Deliverables:
Report analytical results on R-02 Reports and in data packages.
Include "Field Number", "Sample Type", and "Run Number" on all R-02 Reports.

Holding Time Requirements:	
Total Chlorine	30 Days to Analysis.

Field Sample No./ Sample Coding ID	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type/Analysis**	**Analytical Specifications**
G-2886-R1-Spent Activated Carbon	3-28-06	**DUP**	125 mL Powder Jar	**Spent Activated Carbon - Run #1** Total Chlorine Analysis	Prepare the sample by SW-846 Method 5050 and analyze for Total Chlorine by SW-846 Method 9056.
G-2984-R2-Spent Activated Carbon	3-29-06		125 mL Powder Jar	**Spent Activated Carbon - Run #2** Total Chlorine Analysis	Prepare the sample by SW-846 Method 5050 and analyze for Total Chlorine by SW-846 Method 9056.
G-3067-R3-Spent Activated Carbon	3-30-06		125 mL Powder Jar	**Spent Activated Carbon - Run #3** Total Chlorine Analysis	Prepare the sample by SW-846 Method 5050 and analyze for Total Chlorine by SW-846 Method 9056.

Request for Analysis/Chain-of-Custody – RFA/COC #009 [Total Chlorine]
Focus/US Filter Westates Carbon
Comprehensive Performance Test at Parker, Arizona

H6D040102

Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NA
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	5.0°C
(3) Record any apparent sample loss/breakage.	N/A
(4) Record any unidentified samples transported with this shipment of samples:	N/A
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	N/A

Custody Transfer:

Hand delivered

	Name	Company	Date/Time
Relinquished By:			
Accepted By:	[signature]	STL-Knoxville	4/2/06 1625
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

STL KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Client: Focus **Project:** westates carbon **Lot Number:** H6D040102

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	14a- COC not relinquished - sign, date or time
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C; NC, 1668, 1613B: 0-4°C; VOST: 10°C; MA: 2-6 °C)	✓			☐ **2a** Temp Blank = _____ ☐ **2b** Cooler Temp = _____	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?		✓		☑ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	✓			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			✓	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?	Not 4/3/06		✓	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For SOG water samples (1613B, 1668A, 8290, LR PAHs), do samples have visible solids present?			✓	If yes & appears to be >1%, was SOG notified? _____	
13. Are the shipping containers intact?	✓			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)		✓		☑ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	✓			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?			✓		

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: [signature] Date: 4/3/06

QA026R18.doc, 1/30/06