SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

FINAL REPORT

SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET 010001

Sample ID
PB2-503-1D

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/14/03

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: 230256

Analysis	Sample Result (mg/L)	Reporting Limit (mg/L)
Bromide	0.167	0.1
Chloride	19.7	2.0
Fluoride	2.08	0.1
Nitrate-N	0.141	0.1
Nitrite-N	<0.1	0.1
Phosphate-P	0.0578	0.01
Sulfate	463	40.0

SOUTHWEST RESEARCH INSTITUTE

DUPLICATE SUMMARY 010002

Sample ID
PB2-503-1D

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/14/03

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: 230256

Analysis	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD
Bromide	0.167	0.191	13.4%
Chloride	19.7	20.1	2.01%
Fluoride	2.08	2.06	0.97%
Nitrate-N	0.141	0.135	4.35%
Nitrite-N	<0.1	<0.1	0.00%
Phosphate-P	0.0578	0.0599	3.57%
Sulfate	463	446	3.74%

SOUTHWEST RESEARCH INSTITUTE

MATRIX SPIKE SUMMARY 010003

Sample ID
PB2-503-1D

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/14/03

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: 230256

Analysis	Sample Result (mg/L)	Spike Result (mg/L)	Spike Added (mg/L)	Recovery
Bromide	0.167	3.63	4.00	86.6%
Chloride	19.7	58.5	40.0	97.0%
Fluoride	2.08	3.03	1.00	95.0%
Nitrate-N	0.141	0.928	0.904	87.1%
Nitrite-N	<0.1	1.21	1.00	121%
Phosphate-P	0.0578	0.263	0.200	103%
Sulfate	463	2044	1600	98.8%

SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET 010004

Sample ID
PB4-503-1D

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/14/03

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: 230257

Analysis	Sample Result (mg/L)	Reporting Limit (mg/L)
Bromide	<0.1	0.1
Chloride	3.50	0.1
Fluoride	0.742	0.1
Nitrate-N	<0.1	0.1
Nitrite-N	<0.1	0.1
Phosphate-P	0.0112	0.01
Sulfate	11.2	0.1

SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

010005
Sample ID
Pocos-503-1D

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/14/03

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: 230258

Analysis	Sample Result (mg/L)	Reporting Limit (mg/L)
Bromide	<0.1	0.1
Chloride	4.14	0.1
Fluoride	1.37	0.1
Nitrate-N	1.15	0.1
Nitrite-N	<0.1	0.1
Phosphate-P	0.0107	0.01
Sulfate	66.0	2.0

SOUTHWEST RESEARCH INSTITUTE

LABORATORY CONTROL SAMPLE 010006

Sample ID
LCSW

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: NA

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: NA

Analysis	Sample Result (mg/L)	True Value (mg/L)	Recovery
Bromide	406	400	102%
Chloride	202	200	101%
Fluoride	101	100	101%
Nitrate-N	89.9	90.4	99.4%
Nitrite-N	106	100	106%
Phosphate-P	2.40	2.31	104%
Sulfate	394	400	98.5%

NA- Not Applicable.

SOUTHWEST RESEARCH INSTITUTE

BLANK SUMMARY

010007

Sample ID
PBW

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: NA

Matrix: Water

Project No.: 20.06002.01.141

Task Order: 030714-6

SRR: 24617

Lab System ID: NA

Analysis	Sample Result (mg/L)	Reporting Limit (mg/L)
Bromide	<0.1	0.1
Chloride	<0.1	0.1
Fluoride	<0.1	0.1
Nitrate-N	<0.1	0.1
Nitrite-N	<0.1	0.1
Phosphate-P	<0.01	0.01
Sulfate	<0.1	0.1

NA- Not Applicable.

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

Task Orders/01-QPP-015

Southwest Research Institute

Laboratory Task Order

010008

TO #: 030714-6 Revision: 1

SDG: 230256

SRR #'s: 24617
Client(s): DIV 20

Project(s): 06002.01.141
Manager(s): DAMMANN, MIKE
To PM:
To QA: 08/08/03
To Client: 08/11/03

Instructions

Project is Nuclear Safety Related, 10 CFR 50, PART 21, Appendix B. Contact Charles Butcher or Institute QA before beginning work.

Have latest SPQP.

Documents Related to this task order: 5596

Test: IC-300.0
Section: WETCHEM

Holding: 28 days from CED

IC Method 300.0 anions (only for Bromide, Chloride, Fluoride, Sulfate, nitrate and nitrite)

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230256		1	Water	PB2-503-1D	11 Jul 03	08 Aug 03
230257		1	Water	PB4-503-1D	11 Jul 03	08 Aug 03
230258		1	Water	Pocos-503-1D	11 Jul 03	08 Aug 03

Test: PO4_365.3
Section: WETCHEM

Holding: 2 days from CED

Phosphate by Method 365.3

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230256		1	Water	PB2-503-1D	11 Jul 03	13 Jul 03
230257		1	Water	PB4-503-1D	11 Jul 03	13 Jul 03
230258		1	Water	Pocos-503-1D	11 Jul 03	13 Jul 03

01-QPP-015 010009
Division 01
Revision 4
November 2002

Document No. 3

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IF STAMP IS NOT RED, THIS DOCUMENT IS UNCONTROLLED

Chemistry and Chemical
Engineering Division

QUALITY PROJECT PLAN FOR

PERFORMANCE OF CHEMICAL ANALYSES FOR COMMERCIAL NUCLEAR POWER PLANTS WITHIN THE DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

SOUTHWEST RESEARCH INSTITUTE
Chemistry and Chemical Engineering Division
6220 CULEBRA ROAD, SAN ANTONIO, TEXAS 78238

010010

QUALITY PROJECT PLAN FOR PERFORMANCE OF CHEMICAL ANALYSES FOR COMMERCIAL NUCLEAR POWER PLANTS WITHIN THE DEPARTMENT OF ANALYTICAL AND ENVIONMENTAL CHEMISTRY

SwRI AUTHORIZATION SIGNATORIES

This is to certify that this Quality Project Plan of Southwest Research Institute (SwRI) has been reviewed and approved by the following personnel:

JoAnn Boyd — 10/30/02

JOANN BOYD (210) 522-2169 — **DATE**
Quality Assurance Manager

10/30/02

REZA KARIMI (210) 522-2412 — **DATE**
Director, Department of Analytical and Environmental Chemistry

10/30/02

for **MICHAEL G. MACNAUGHTON** (210) 522-5162 — **DATE**
Vice President, Chemistry and Chemical Engineering Division

10/30/02

CHRISTOPHER HOBSON (210) 522-5838 — **DATE**
Quality Assurance Engineer

TABLE OF CONTENTS

PERFORMANCE OF CHEMICAL ANALYSES FOR COMMERCIAL NUCLEAR POWER PLANTS WITHIN THE DEPARTMENT OF ANALYTICAL AND ENVIRONMENTAL CHEMISTRY

1.0 INTRODUCTION

This Quality Project Plan (QPP) defines the Quality Assurance (QA) program requirements for personnel providing the chemical analyses for commercial nuclear power plants. Southwest Research Institute (SwRI) ***Program Quality Plan (PQP-Nuclear)***, *Nuclear Services* shall implement the QA requirements. Project activities controlled by the PQP-Nuclear shall be accomplished as specified by the appropriate sections of **01-QAP-004**, *Quality Assurance Plan for Analytical and Environmental Services* and/or nationally recognized testing methods as specified on individual purchase orders. This QPP shall be applied to all projects initiated for nuclear utilities in the Department of Analytical and Environmental Chemistry. If, as a result of complexity, duration, or other factors, it is determined that a unique, project-specific quality plan is required, the project QAE shall notify the Project Manager and a project-specific quality plan shall be generated in accordance with **SOP-01-5.2**, *Preparation and Revision of Plans*.

2.0 SCOPE

This Quality Project Plan shall be applied to the chemical analyses performed for commercial nuclear power plants by the Department of Analytical and Environmental Chemistry within the Chemistry and Chemical Engineering Division. Although the majority of the work performed for nuclear facilities resides within the Department of Analytical and Environmental Chemistry, other departments within the division may utilize this Quality Project Plan as deemed necessary when nuclear projects are conducted.

3.0 REFERENCES

3.1 *SwRI Quality System Manual – 2000*

3.2 *10 CFR 50, Appendix B, ASME NQA-1*

3.3 *SwRI Program Quality Plan (PQP-Nuclear), Nuclear Services*

3.4 01-QAP-004, *Quality Assurance Plan for Analytical and Environmental Services*

4.0 APPLICABLE SECTIONS OF SwRI PROGRAM QUALITY PLAN (PQP-NUCLEAR)

4.1 Indoctrination and Training

4.1.1 Personnel performing duties affecting quality shall receive quality training to the *SwRI Program Quality Plan (PQP-Nuclear), Nuclear Services* prior to performing any work on projects for nuclear utilities. Institute Quality Systems (IQS) personnel shall perform this training and documentation shall be evident in the personnel training files maintained in Division Quality Assurance.

4.1.2 Indoctrination and training of personnel shall be conducted in accordance with **SOP-01-18.1**, *Qualification and Training*.

4.2 Qualification of Personnel

4.2.1 Testing personnel shall be designated as qualified to perform applicable project activities as specified in **SOP-01-18.1**, *Qualification and Training*.

4.2.2 During the performance of each testing process, testing personnel shall have access to the necessary documented procedures, i.e., QPP, QAP, Work Order, Division Quality System Standard Operating Procedures (SOPs), and applicable test/analytical procedures (TAPs) available for ready reference.

4.2.3 Any person who has not performed testing activities associated with any particular method being used for nuclear utilities projects for a period of one year shall be reevaluated prior to the conduct of the test.

4.2.4 Quality Assurance personnel witnessing the testing process for nuclear utilities shall have documented evidence of qualifications maintained by Institute Quality Systems.

4.3 Design Control

Not applicable to activities conducted within the Department of Analytical and Environmental Chemistry.

4.4 Right of Access

4.4.1 Procurement documents shall provide for access to the suppliers' facilities and records for surveillance, inspection, or audit by SwRI and clients.

4.4.2 Where appropriate, quality clause **Q32** shall be noted on the procurement documents to indicate that right of access for inspection and surveillance of activities associated with the order shall be afforded to SwRI and clients.

4.5 Control of Supplier-Generated Documents

4.5.1 Client documents shall be controlled in accordance with procedures under **SOP-01-5.0**, *Document and Data Control*, depending on the type of document supplied. These procedures provide the requirements for the preparation, review, approval, issue, distribution, and revision of documents controlled by the Chemistry and Chemical Engineering Division.

4.5.2 Documents may be controlled as Plans or Work Instructions and shall be accessible through the Division Intranet link, ***Contract Requirements*** as PDF files.

4.5.3 Nationally recognized test methods shall be of the most current issue or as specified in the purchase order. Work orders shall identify the applicable test methods to be used on the nuclear project.

4.6 Acceptance of Services Only

Not applicable to activities conducted within the Department of Analytical and Environmental Chemistry.

4.7 Commercial Grade Items

4.7.1 Where an item is to be incorporated into a test or deliverable to a client, and that item is not subject to design or specification requirements that are unique to nuclear facilities, used in applications other then nuclear facilities, and procured from the supplier on the specifications set forth in the manufacturers' published product and description, the item shall be considered "commercial grade".

4.7.2 Chemical reagents and standards used for testing purposes shall be ordered to specific chemical grades and certificates of analysis shall be required with each lot.

4.7.3 Controls for procurement planning, supplier selection, supplier performance evaluation, and acceptance of procured items and services other than chemical reagents and standards shall be as identified in **SOP-01-6.1**, *Purchasing*, and any referenced document within that procedure.

4.7.4 Receipt inspection of chemical reagents, standards, and test items for use on nuclear safety-related projects shall be performed by department personnel and documented on the *SwRI Receipt Traveler* or **FRM-109**, *Item Receipt Report*, as specified in **SOP-01-10.1**, *Inspection and Test Conduct*. Any discrepancy such as a damaged container or container label shall be documented on the form and the client shall be contacted for disposition.

4.7.5 Prior or acceptance of a commercial grade item, the receipt inspection shall determine the following:

(a) Damage was not sustained during shipment;

(b) The item has satisfied the specified acceptance criteria; and

(c) Specified documentation, as applicable to the item, was received and is acceptable.

4.7.6 Receipt inspection of chemical reagents and standards shall also consist of verification of chemical type, grade, container integrity, certificate of analysis, and shelf life, where applicable. Upon acceptance of chemical reagents and standards, the containers shall be labeled with the following:

(a) Chemical name;

(b) Chemical grade;

(c) Lot code;

(d) Date received; and

(e) Shelf life, when applicable.

4.7.7 Expired shelf life items shall not be used for testing purposes.

4.7.8 Lot codes of chemical reagents and standards used during equipment standardization and testing shall be recorded on the individual testing data sheets to provide traceability.

4.7.9 Samples supplied to SwRI for testing shall be received by the Sample Custodian and logged into the laboratory logbook. Sample documentation and sample custody shall be maintained in accordance with **TAP-01-0407-001**, *Sample Receipt and Login*, and **TAP-01-0407-035**, *Sample/Extract Storage and Custody*.

4.7.10 Samples supplied to SwRI for testing shall be labeled with the following:

(a) Sample control number;

(b) Purchase order number;

(c) Purchase order line item number, as applicable;

(d) Work order number;

(e) Nuclear QA label; and

(f) Sample retention date, when applicable.

4.7.11 In the event that samples are damaged upon receipt, a ***Sample Discrepancy Record*** shall be generated from the Division Intranet.

4.7.12 The testing work order shall list the project number, tests required, test methods required, and shall be labeled *Nuclear Quality*.

4.7.13 Identification and traceability shall be maintained in accordance with **SOP-01-8.1**, *Item Identification and Traceability*.

4.8 Inspection

4.8.1 Inspection for acceptance shall be performed by qualified persons other than those who conduct or directly supervise the work being inspected.

4.8.2 Institute Quality System (IQS) personnel shall perform surveillance activities as required to ensure compliance with the contract and this Quality Project Plan. Specific areas in which IQS may perform surveillance activities include, but are not limited to, the following:

(a) Receiving inspection and labeling of chemical reagents, standards, and testing samples;

(b) Testing processes;

(c) Calibration and major equipment;

(d) Sample and record retention; and

(e) Test records.

4.9 Inspection and Testing

4.9.1 Required tests for acceptance shall be conducted under appropriate environmental conditions using the tools and equipment necessary to conduct the test in a manner to fulfill test requirements and acceptance criteria.

4.9.2 Tests shall be conducted, controlled, and verified in accordance with **SOP-01-10.1**, *Inspection and Test Conduct*.

4.9.3 Controls for measuring and test equipment shall be as specified in **SOP-01-11.1**, *Control of Measuring and Test Equipment*.

4.9.4 Controls for identification, segregation, reporting, and resolution of nonconforming items and conditions shall be as specified in **SOP-01-13.1**, *Nonconformance Reporting*.

4.10 Handling, Storage, Packaging, Preservation, and Delivery

4.10.1 Controls for handling, storage, packaging, preservation, and delivery of items are identified in **SOP-01-15.1**, *Handling, Storage, Packaging, Preservation, and Delivery of Items*.

4.10.2 Samples specified on the purchase order to be returned to the client shall be prepared and packaged as specified on the purchase order. Each package shall be marked legibly and indelibly with the purchase order/release number and line item number(s) relevant to the package.

4.11 Quality Assurance Records

4.11.1 Quality assurance records shall furnish documentary evidence that items or activities meet specified quality requirements. Documents that ensure this evidence include **TAP-01-0407-014**, *Inventory of Case File Purges*, and **SOP-01-16.1**, *Storage and Maintenance of Quality Records*. These documents and this QPP ensure that QA records shall be legible, identifiable, retrievable, and maintained in dual storage.

4.11.2 Records shall be traceable to associated items and activities and shall accurately reflect the work accomplished or information required.

4.11.3 Documents shall be considered valid records only if stamped, initialed or signed and dated by authorized personnel or otherwise authenticated.

4.11.4 Records of test analyses performed by the Department of Analytical and Environmental Chemistry are classified as *nonpermanent* and shall be retained for a minimum of five years. Nonpermanent records are those required to show evidence that an activity was performed in accordance with the applicable requirements, but need not be retained for the life of the item. Based on the use of the final data, the client shall be responsible for determining and implementing permanent storage requirements.

4.11.5 In order to satisfy duplicate storage requirements, one copy of the QA record shall maintained by the Project Manager in Building 70 and a separate copy shall be maintained in the Division Quality Assurance Archives in Building 201. Storage requirements shall be as stated in **SOP-01-16.1**, *Storage and Maintenance of Quality Records*, to ensure protection against the risk of damage or destruction.

4.12 10 CFR, Part 21

4.12.1 SwRI procurement documents shall include requirements for reporting and approving disposition of supplier nonconformances and, when required, compliance to 10 CFR, Part 21.

4.12.2 The Manager of Institute Quality Assurance or Director of Institute Quality Systems shall determine if a nonconforming condition is reportable under 10 CFR, Part 21, and initiate reporting and condition in accordance with the SwRI Operating Policies and Procedures (OPP). Safety hazards or defects that could create a substantial safety hazard shall be reported. Substantial safety hazard means a loss of safety function to the extent that there is a major reduction in the degree of protection provided to public health and safety.

4.13 Certified Test Report

The Project Manager and Institute Quality Assurance Manager as complying with all contractual requirements shall certify test reports. The certified test report shall reference the purchase order/release number, the test methods performed, and the purchase order/release line item number.

4.14 Valid Documents List

The Department of Analytical and Environmental Chemistry work order shall specify all applicable documents and appropriate document revision level for each document. The work order shall then serve as the Valid Documents List (VDL) for each individual project.

5.0 HISTORY OF REVISIONS

Revision 4
Title of document changed from the Standard Project Quality Plan *SPQP-CH/AN* to Quality Project Plan, *QPP-015*
Extensive revision to comply with Project Quality Plan PQP-Nuclear, *Nuclear Services*, which replaces SwRI NQAPM, *Nuclear Quality Assurance Program Manual.*

MA 8-27-03

~~010018~~

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
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Chain of Custody/Login Paperwork

5596

SAMPLE LIST/CHAIN OF CUSTODY

Southwest Research Institute
Chemistry and Chemical Engineering Division
6220 Culebra Road
San Antonio, Texas 78238-5166

Shipper Name/ Address: Bradley Werling
CNWRA - Div 20
BLD 57

Client:

Client Purchase Order/Other ID:

Site/Zone ID:

Requested Turnaround:
~~2 Weeks~~ 7-11-03
3 Weeks
Other: 4 weeks

SwRI Contact: Mike Dammann

Sample ID	Sample Collection Date (mm/dd/yy)	Sample Collection Time	Matrix Type	Sample Type	# of Containers	Anions by IC except phosphate	phosphate by 365.3	Intact
✓ Pocos-503-1D	7-11-03	✓	W		1	X	X	↓
✓ PB2-503-1D	↓	✓	W		1	X	X	
✓ PB4-503-1D	↓	✓	W		1	X	X	

REMARKS

Preservation
a = HCl to pH <2
b = HNO_3 to pH <2
c = H_2SO_4 to pH <2
d = NaOH to pH >12
e = Cool (4°C±2°C)
~~**f** = Other (specify)~~ none

Nuclear Safety Related - use appropriate QA procedures

POC Bradley Werling x6565

Matrix Types:
A – Air
B – Biota
D - Dust
E – Emission/Stack
L - Liquid
P – Product
Sd - Solid
S – Soil
SED – Sediment
T - Tissue
W - Water
WP - Wipe

Sample Types:
D - Duplicate
ER – Equipment Rinsate
ES – Environmental Sample
FB – Field Blank
FD – Field Duplicate
MS – Matrix Spike
MSD – Matrix Spike Dup
TB – Trip Blank

Temp: 22°C
Therm #: 026

Comments:
556/100

	Date	Time
Relinquished by (Print/Signature): Brad Werling / Brad Werling	7-14-03	930
Received by (Print/Signature):		
Relinquished by (Print/Signature):		
Received by (Print/Signature):		
Relinquished by (Print/Signature):		

SwRI Project#: 1.20.06002.01.141

Received by SwRI Lab: (Signature)

Date: 7/14/03 Time: 0930

Samples Disposed: Date / Time

Samples Disposed by:

01818

SAMPLE LOG-IN SHEET

010019

Lab Name: Southwest Research Institute

Received By (Print Name): KHALED EDRISI

Received By (Signature): Khaled Edrisi

Log-in Date: 07/14/2003

Case Number: CNWRA

Sample Delivery Group No.

SAS Number: N/A

Remarks: 06602.01.141

			EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
1.	Custody Seal(s)	Present/(Absent)* Intact/Broken	PB2-503-1D	None	230256	Intact
			PB4-503-1D	None	230257	Intact
2.	Custody Seal Nos.	N/A	Pocos-503-1D	None	230258	Intact
3.	Chain-of Custody Records	(Present)/Absent*				
4.	Traffic Reports or Packing Lists	Present/(Absent)*				
5.	Airbill	Airbill/Sticker (Present)/Absent*				
6.	Airbill No.	HAND DELIVERED				
7.	Sample Tags	Present/(Absent)*				
	Sample Tag Numbers	Listed/(Not) listed on Chain of Custody				
8.	Sample Condition	(Intact)/Broken*/ Leaking				
9.	Cooler Temperature	22.0C				
10.	Does Information on custody records, traffic reports, and sample tags agree?	(Yes)/No*				
11.	Date Received at Lab	07/14/2003				
12.	Time Received	09:30:00				

Sample Transfer

Fraction	Fraction
Inorganics	
Area # Inorg 1	Area # 7/14/03
By KE	By KE
On 7/14/03	On

* Contact SMO and attach record of resolution

Reviewed By	Cynthia A. Salcedo	Logbook No.	Sample Receipt (24617)
Date	07/15/2003	Logbook Page No.	4767 (1 of 3)

010020

Southwest Research Institute

LOG-IN CHECKLIST

Sample Receipt Report No.: **24617**

Project Information All product information shall be derived from a contract, statement of work (SOW), or project manager (PM).				
Previous PM information	Yes	☒	No	☐
Current PM information	Yes	☒	No	☐
Sponsor's Documentation All original documentation must be attached to the work order and sent to Div 01 Quality Assurance (DQA).				
Delivery documentation (*) = (Tape on 8 ½ x 11 white paper)	Yes	☐	No	☒
Hand carried	Yes	☒	No	☐
Correspondence	Yes	☒	No	☐
Custody seals*	Yes	☐	No	☒
Chain-of-custody/Traffic report	Yes	☒	No	☐
Sample tags* (Confirm with container information before removal)	Yes	☐	No	☒
Hazard notifications	Yes	☐	No	☒
Product Condition Sample(s) shall not be left unattended once an ice chest has been opened.				
Sample(s) received intact	Yes	☒	No	☐
Container(s) received leaking	Yes	☐	No	☒
Container(s) received damaged	Yes	☐	No	☒
Lid(s) received damaged	Yes	☐	No	☒
Product Preparation				
FRM-115 (pH) Preservation Report / Metals & Wetchem H2O	Yes	☐	No	☒
Product Storage Sample(s) shall be stored in a designated location with their corresponding sample control records (SCR).				
Sample(s) in designated location	Yes	☒	No	☐
Sample Receipt Report All copies must be legible.				
Computerized sample receipt report with original documents	Yes	☒	No	☐
Sample custodian signature and date on all original documents.	Yes	☒	No	☐
Copy of sample receipt report to PM	Yes	☒	No	☐
PM sample receipt report approval with initial and date	Yes	☒	No	☐
Case file documents to DQA	Yes	☒	No	☐
Print sample log-in page and place in log-in notebook	Yes	☒	No	☐
Chain-of-Custody/Traffic Report				
Sample Custodian's signature, date, and time	Yes	☒	No	☐
Document thermometer no. / temperature (Confirm calibration is current)	Yes	☒	No	☐
Document condition of sample(s)	Yes	☒	No	☐
FRM-109				
Discrepancies	Yes	☐	No	☒
FRM-109 to PM	Yes	☐	No	☒
FRM-109 to Client (Only for required contracts)	Yes	☐	No	☒
FRM-109 to Inorganics for discrepancies of FRM-115	Yes	☐	No	☒
Ice Chest Shipment				
Clean ice chest/Discard used bags and ice/Return Sponsor's packing material	Yes	☐	No	☒
SwRI shipping ticket with project identification	Yes	☐	No	☒
Log-In Closure				
Sample Custodian's Signature:	Date: 07/14/03		Time: 11:49 AM	

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
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CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

Copies of Login Book

Sample Login Book

Jul 14, 2003

SwRI Login Area
Division 1

Sample Receipt: 24616	Project: 05750.01.004	Client: Harris County Po
VTSR Date: Jul 14, 2003	VTSR Time: 10:20:00	Manager: TAN, CK

System ID	Customer Sample ID	Matrix
230254	KM-028 Can #19	Air
230255	KM-029 Can #182	Air

Sample Receipt: 24617	Project: 06002.01.141	Client: DIV 20
VTSR Date: Jul 14, 2003	VTSR Time: 09:30:00	Manager: DAMMANN, MIKE

System ID	Customer Sample ID	Matrix
230256	PB2-503-1D	Water
230257	PB4-503-1D	Water
230258	Pocos-503-1D	Water

Sample Receipt: 24618	Project: 06002.01.141	Client: DIV 20
VTSR Date: Jul 14, 2003	VTSR Time: 09:30:00	Manager: DAMMANN, MIKE

System ID	Customer Sample ID	Matrix
230259	11 C 1	Water
230260	11 C 2	Water
230261	11 D 1	Water
230262	11 D 2	Water
230263	11 E 1	Water
230264	11 E 2	Water
230265	11 F 1	Water
230266	11 F 2	Water
230267	11 Q 1	Water
230268	11 Q 2	Water
230269	12 C 1	Water
230270	12 C 2	Water
230271	12 D 1	Water
230272	12 D 2	Water
230273	12 E 1	Water
230274	12 E 2	Water

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

RAW DATA

Southwest Research Institute

Electronic Bench Sheet

Phosphate - WATERS

RSpeir 8/5/03

Project #: 06002.01.141
Client: Division 20
Method: 365.3
WO#: 030714-6

Date: 07/31/03
Analyst: AMS
MDL: 0.010 mg/L
Sig Figs: 3

010022

Standardization:

Standard mg/L	Calc mg/L	Absorbance @650
0.000	-0.0	0.004
0.01	0.0	0.023
0.05	0.0	0.102
0.10	0.1	0.207
0.50	0.5	0.962
1.00	1.0	1.871

Regression Output:

Constant	-0.0059
Std Err of Y Est	0.006192
R Squared	0.9998
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	0.535
Std Err of Coef.	0.0037

NOTES: Phosphate std. = SPEX 24-63AS TV = 1000mg/L PO4 = 326 mg/L PO4-P
ICV/CCV = ERA 99114(Nutrients) TV = 2.31 mg/L PO4-P

Final Volume Colored: 10 ml

Seq #	Sample ID	Aliquot Vol ml	Abs @650	PO4P mg/L	Comments
1	ICV	2	0.910	2.40	104% R, TV = 2.31 mg/L
2	ICB	10	0.009	<0.01	
3	LLC	10	0.048	0.0198	99.0% R, TV = 0.02 mg/L
4	230256	10	0.119	0.0578	
5	230256D	10	0.123	0.0599	3.57% RPD
6	230256MS	10	0.503	0.263	103% R, TV = 0.20 mg/L
7	230257	10	0.032	0.0112	
8	230258	10	0.031	0.0107	
9	CCV	2	0.914	2.42	105% R, TV = 2.31 mg/L
10	CCB	10	0.007	<0.01	

Sample calc:

$$230256 = (0.119 \times 0.535 - 0.0059) \times 10/10 =$$

$$= 0.0578 \text{ mg/L}$$

Sample Calc: (mg/L read from curve * Final Vol. Colored) / Aliquot Vol. = mg/L PO4P

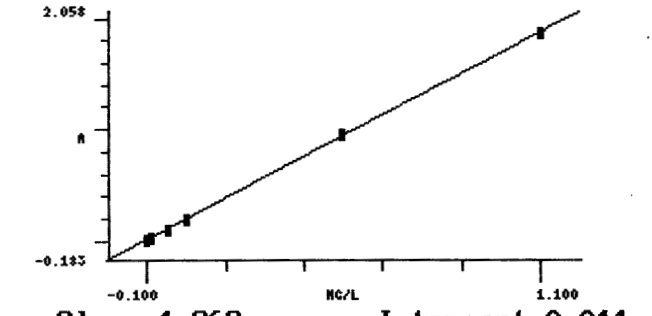
Southwest Research Institute
Logbook: Phosphate 010023

Analysis / Method: PO4 EPA 365.3 Project# 06002.01.141

Client: Div. 20 WO# 030714-10

space provided for spectrophotometer printouts

JMS 7/31/03



Slope=1.869 **Intercept=0.011**
StdDev=0.011573 **Corr.Coef.=1.000**

31 JUL 2003 16:53:06
Application: STANDARD CURVE
Model: LINREGR
Test name: PO4
ABS Correction: NONE
Wavelength: 650.0
Units: mg/L
Slope=1.869 Intercept=0.011
StdDev=0.011573 Corr.Coef.=1.000

Std	CONC	ABS
1	0.00000	0.004
2	0.010000	0.023
3	0.050000	0.102
4	0.10000	0.207
5	0.50000	0.962
6	1.0000	1.871

JMS 7/31/03

	ID	ABS	CONC
1:5	ICV	0.910	0.48099
	ID	ABS	CONC
	ICB	0.009	-0.00114
	ID	ABS	CONC
	LLC	0.048	0.019729
	ID	ABS	CONC
	230256	0.119	0.057721
	ID	ABS	CONC
	230256D	0.123	0.059861
	ID	ABS	CONC
	230256MS	0.503	0.26320
	ID	ABS	CONC
	230257	0.032	0.011167
	ID	ABS	CONC
	230258	0.031	0.010632
	ID	ABS	CONC
1:5	CCV	0.914	0.48313
	ID	ABS	CONC
	CCB	0.007	-0.00221

Analyst Signature: JMS Date: 7/31/03

Reviewed by: DSpies Date: 8/5/03.

Logbook ~~##~~ Page #: 03 041

Southwest Research Institute
Logbook: Phosphate

010024

Analysis / Method: PO4 EPA 365.3 Project# 06002.01.141

Client: Div 20 WO# 030714-C

space provided for spectrophotometer printouts

- Ammonium molybdate - antimony potassium tartrate solution
dissolved 4g ammonium molybdate (Fisher Lot 915140) + 0.1g antimony potassium tartrate in 400 ml DI + dilute to 1L with DI
(Aldrich Lot 03929CV) ams 7/31/03

- Sulfuric acid 11N
Add 31ml H_2SO_4 to 60ml DI. Dilute to 100ml with DI
(Fisher Lot 027753)

- ascorbic acid solution
dissolve 3g ascorbic acid (Fisher Lot 033636) in 40ml DI. Dilute to 50ml and add 0.1ml acetone (Fisher Lot 030523)

Balance: 34

Pipets: 5000 L
1000 C
200 D

Analyst Signature: ams Date: 7/31/03

Reviewed by: [signature] Date: 8/5/03

Logbook #/ Page # 03 040

DIV 20
06002.01.141
TO# 030714-6

Analyst: RSS
Method EPA 300

R Spies
8/6/03

18 Aug 03

010025

Date Analyzed	System ID	Analyte	Conc. mg/L	RESULT mg/L	Qual	DL	TV	%REC %RPD
07/31/03	230256	FLUORIDE	2.084	2.08		0.1		
07/31/03	230256	CHLORIDE	19.690	19.7		2.0		
07/31/03	230256	NITRITE-N	0.000	0.10	U	0.1		
07/31/03	230256	BROMIDE	0.167	0.167		0.1		
07/31/03	230256	NITRATE-N	0.141	0.141		0.1		
07/31/03	230256	SULFATE	463.357	463		40.0		
07/31/03	230256D	FLUORIDE	2.056	2.06		0.1		1.35%
07/31/03	230256D	CHLORIDE	20.071	20.1		2.0		1.92%
07/31/03	230256D	NITRITE-N	0.000	0.10	U	0.1		0.00%
07/31/03	230256D	BROMIDE	0.191	0.191		0.1		13.4%
07/31/03	230256D	NITRATE-N	0.135	0.135		0.1		4.35%
07/31/03	230256D	SULFATE	445.574	446		40.0		3.91%
07/31/03	230256S	FLUORIDE	3.027	3.03		0.1	1	94.3%
07/31/03	230256S	CHLORIDE	58.514	58.5		2.0	40	97.1%
07/31/03	230256S	NITRITE-N	1.211	1.21		0.1	1	121%
07/31/03	230256S	BROMIDE	3.633	3.63		0.1	4	86.7%
07/31/03	230256S	NITRATE-N	0.928	0.93		0.1	0.904	87.1%
07/31/03	230256S	SULFATE	2044.320	2044		40.0	1600	98.8%
07/31/03	230257	FLUORIDE	0.742	0.742		0.1		
07/31/03	230257	CHLORIDE	3.498	3.50		0.1		
07/31/03	230257	NITRITE-N	0.097	0.10	U	0.1		
07/31/03	230257	BROMIDE	0.095	0.10	U	0.1		
07/31/03	230257	NITRATE-N	0.060	0.10	U	0.1		
07/31/03	230257	SULFATE	11.201	11.2		0.1		
07/31/03	230258	FLUORIDE	1.365	1.37		0.1		
07/31/03	230258	CHLORIDE	4.135	4.14		0.1		
07/31/03	230258	NITRITE-N	0.000	0.10	U	0.1		
07/31/03	230258	BROMIDE	0.087	0.10	U	0.1		
07/31/03	230258	NITRATE-N	1.149	1.15		0.1		
07/31/03	230258	SULFATE	66.015	66.0		2.0		

U - Undetected

DIV 20
06002.01.141
TO# 030714-6

Analyst: RSS
Method EPA 300

010026

QC DATA

Date Analyzed	System ID	Analyte	Conc. mg/L	RESULT mg/L	Qual	MDL	TV	%Rec/RPI	SOURCE
07/31/03	ICV	FLUORIDE	100.687	101		0.1	100	101%	SPEX 24-79AS
07/31/03	ICV	CHLORIDE	201.970	202		0.1	200	101%	SPEX 24-79AS
07/31/03	ICV	NITRITE-N	106.464	106		0.1	100	106%	190-01-IC3
07/31/03	ICV	BROMIDE	405.677	406		0.1	400	101%	SPEX 24-79AS
07/31/03	ICV	NITRATE-N	89.903	89.9		0.1	90.4	99.5%	SPEX 24-79AS
07/31/03	ICV	SULFATE	393.620	394		0.1	400	98.4%	SPEX 24-79AS
07/31/03	ICB	FLUORIDE	0.000	0.1	U	0.1			
07/31/03	ICB	CHLORIDE	0.000	0.1	U	0.1			
07/31/03	ICB	NITRITE-N	0.000	0.1	U	0.1			
07/31/03	ICB	BROMIDE	0.000	0.1	U	0.1			
07/31/03	ICB	NITRATE-N	0.000	0.1	U	0.1			
07/31/03	ICB	SULFATE	0.034	0.1	U	0.1			

U = UNDETECTED

Schedule File: C:\PeakNet\schedule\31JUL03.sch

Line	Sample	Sample Type	Level	Method	Data File	Dilution
1	ICV	Sample		anions030624.met	030730_001.dxd	20
2	ICB	Sample		anions030624.met	030730_002.dxd	1
3	231141	Sample		anions030624.met	030730_003.dxd	200
4	231141D	Sample		anions030624.met	030730_004.dxd	200
5	231141S	Sample		anions030624.met	030730_005.dxd	200
6	231142	Sample		anions030624.met	030730_006.dxd	200
7	230256	Sample		anions030624.met	030730_007.dxd	1
8	230256D	Sample		anions030624.met	030730_008.dxd	1
9	230256S	Sample		anions030624.met	030730_009.dxd	1
10	230257	Sample		anions030624.met	030730_010.dxd	1
11	230258	Sample		anions030624.met	030730_011.dxd	1
12	CCV	Sample		anions030624.met	030730_012.dxd	20
13	CCB	Sample		anions030624.met	030730_013.dxd	1
14	230256	Sample		anions030624.met	030730_014.dxd	20
15	230256D	Sample		anions030624.met	030730_015.dxd	20
16	230256S	Sample		anions030624.met	030730_016.dxd	20
17	230257	Sample		anions030624.met	030730_017.dxd	20
18	230258	Sample		anions030624.met	030730_018.dxd	20
19	230256	Sample		anions030624.met	030730_019.dxd	400
20	230256D	Sample		anions030624.met	030730_020.dxd	400
21	230256S	Sample		anions030624.met	030730_021.dxd	400
22	CCV	Sample		anions030624.met	030730_022.dxd	20
23	CCB	Sample		anions030624.met	030730_023.dxd	20

010027

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: c:\peaknet\data\030731
Comment:
DIV 20 TO#030714-6 06002.01.141
DIV 20 TO#030728-4 06002.01.081

ICV Source SPEX 24-79AS (Inorg# 3989)
& CCV
F = 100 mg/L
Cl = 200
NO_3N = 90.4
Br = 400
SO_4 = 400
NO_2N (190-01-IC3) TV = 100 mg/L

spike 50 uL Spex 24-79AS + NO_2N (190-01-IC3)
into 5 mL sample or dilution.

Sample Name : ICV
Dilution Factor : 20.00
Injection Number : 1
Data File Name : C:\PeakNet\data\030731\030730_001.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

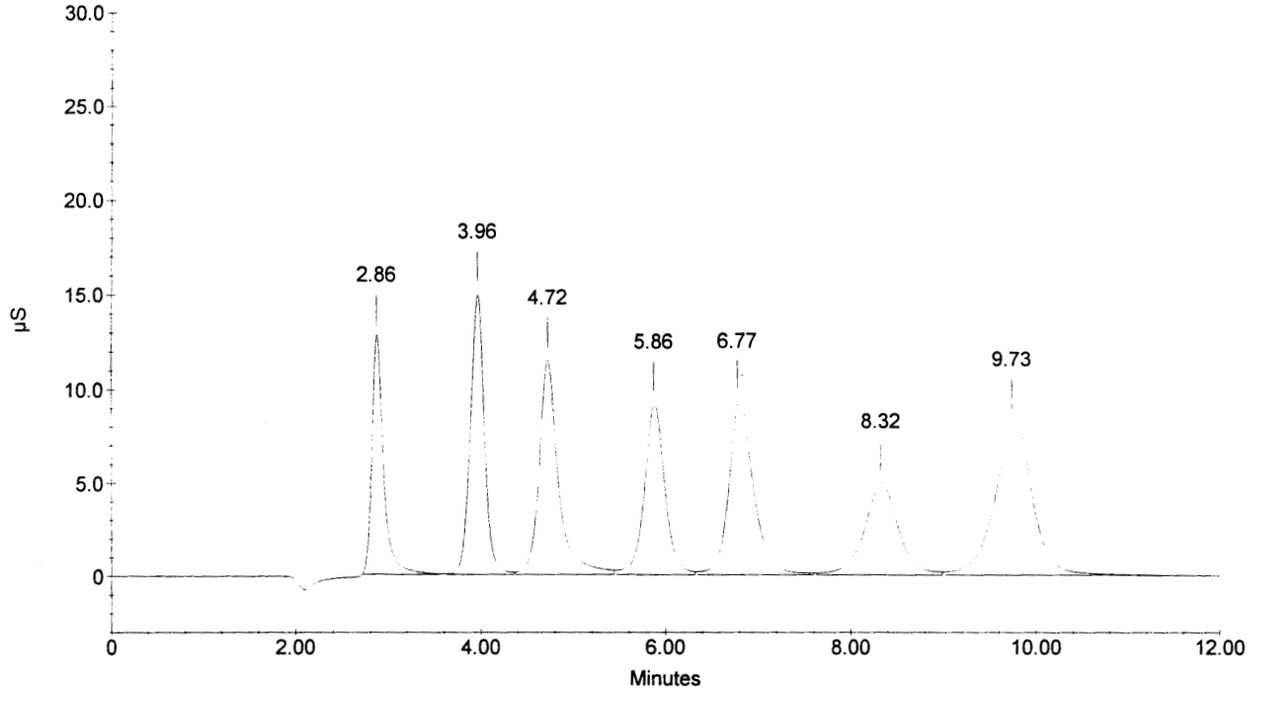
Date Time Collected : 7/31/03 11:07:52 AM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010028

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.86	FLUORIDE	100.687	126057	1107923	2	-1.94
2	3.96	CHLORIDE	201.970	148794	1586596	2	-1.98
3	4.72	NITRITE-N	106.464	114173	1669006	2	-1.12
4	5.86	BROMIDE	405.677	90963	1405273	2	-0.45
5	6.77	NITRATE-N	89.903	91376	1739071	2	1.20
6	8.32	PHOSPHATE-P	204.995	48769	1263118	2	-4.30
7	9.73	SULFATE	393.620	81746	2326401	2	-7.13
	0.00	---total(s)---	1503.316		11097388		

ICV



Sample Name : ICB
Dilution Factor : 1.00
Injection Number : 2
Data File Name : C:\PeakNet\data\030731\030730_002.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

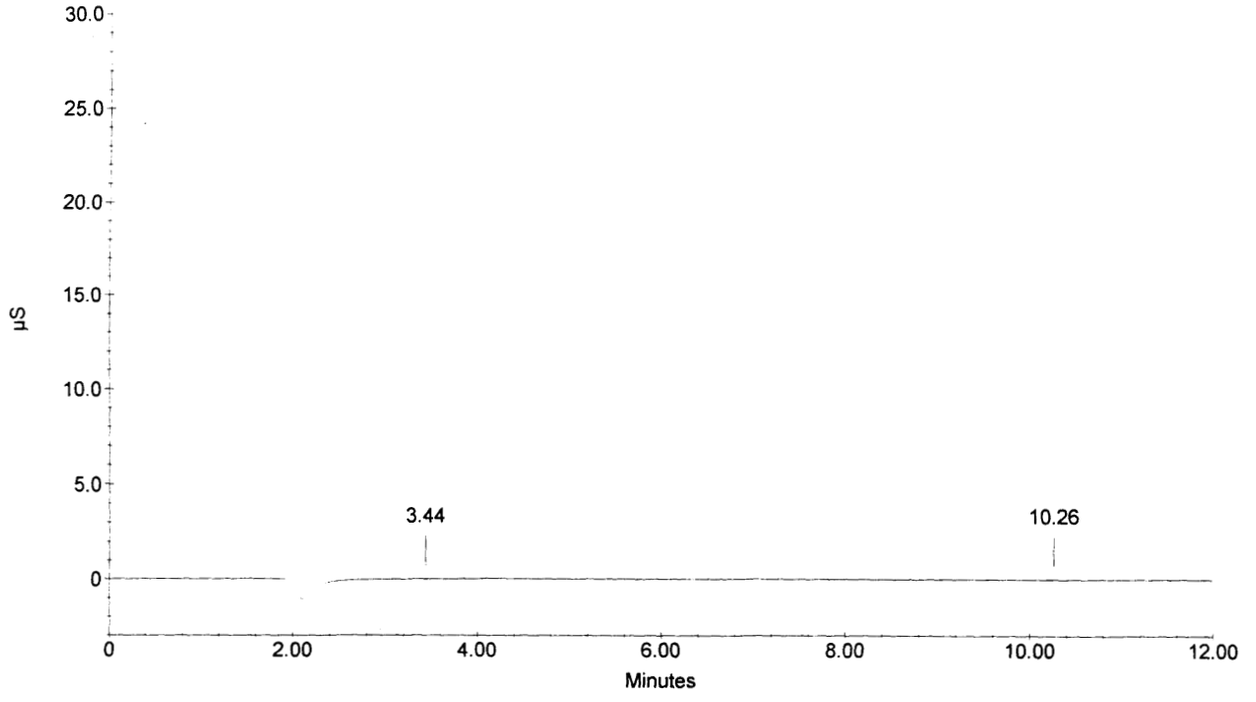
Date Time Collected : 7/31/03 11:22:40 AM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010029

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	3.44	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	0.000	119	1345	1	
2	10.26	SULFATE	0.034	160	1748	1	-2.04
	0.00	---total(s)---	0.034		3094		

ICB



Sample Name : 231141
Dilution Factor : 200.00
Injection Number : 3
Data File Name : C:\PeakNet\data\030731\030730_003.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

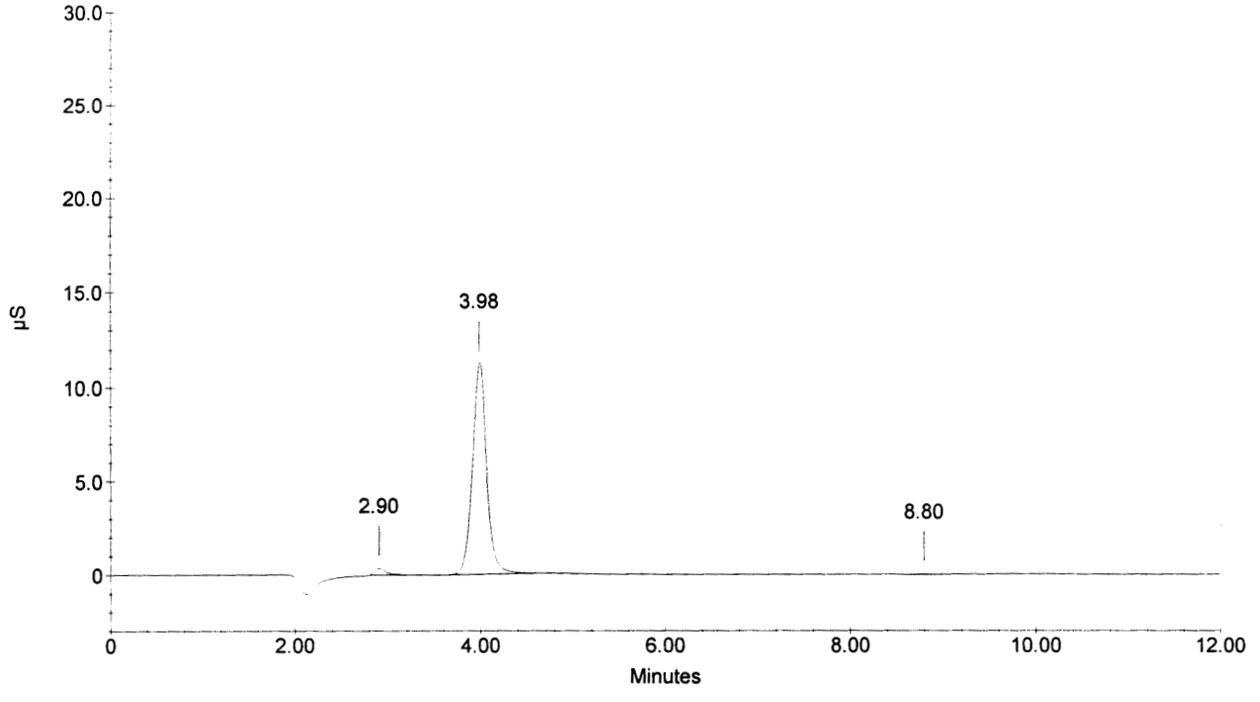
Date Time Collected : 7/31/03 11:37:26 AM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010030

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	40.990	3448	29029	1	-0.57
2	3.98	CHLORIDE NITRITE-N BROMIDE NITRATE-N	1564.008	111448	1198895	1	-1.32
3	8.80	PHOSPHATE-P SULFATE	16.624	144	2511	1	1.23
	0.00	---total(s)---	1621.622		1230435		

231141



Sample Name : 231141D
Dilution Factor : 200.00
Injection Number : 4
Data File Name : C:\PeakNet\data\030731\030730_004.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

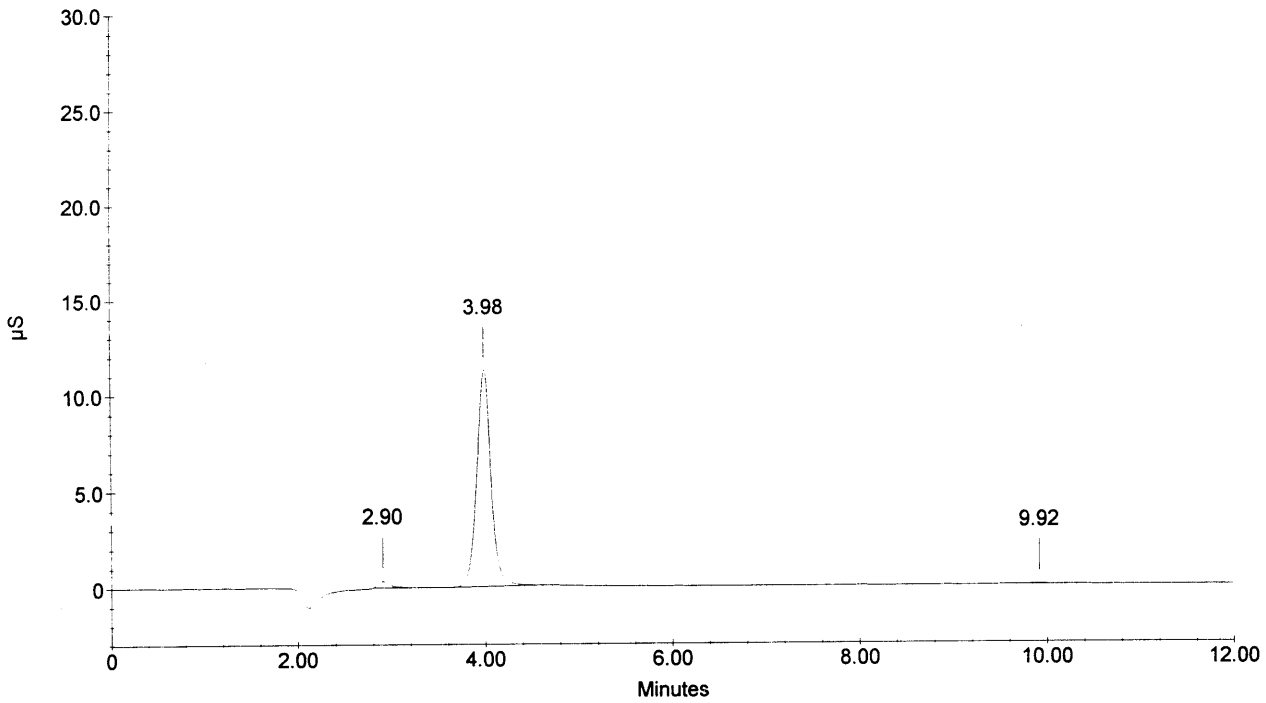
Date Time Collected : 7/31/03 11:52:13 AM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010031

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	40.264	3339	28263	1	-0.57
2	3.98	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	1547.460	111950	1185149	1	-1.32
3	9.92	SULFATE	8.616	225	2698	1	-5.35
	0.00		---total(s)--- 1596.341		1216109		

231141D



Sample Name : 231141S
Dilution Factor : 200.00
Injection Number : 5
Data File Name : C:\PeakNet\data\030731\030730_005.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

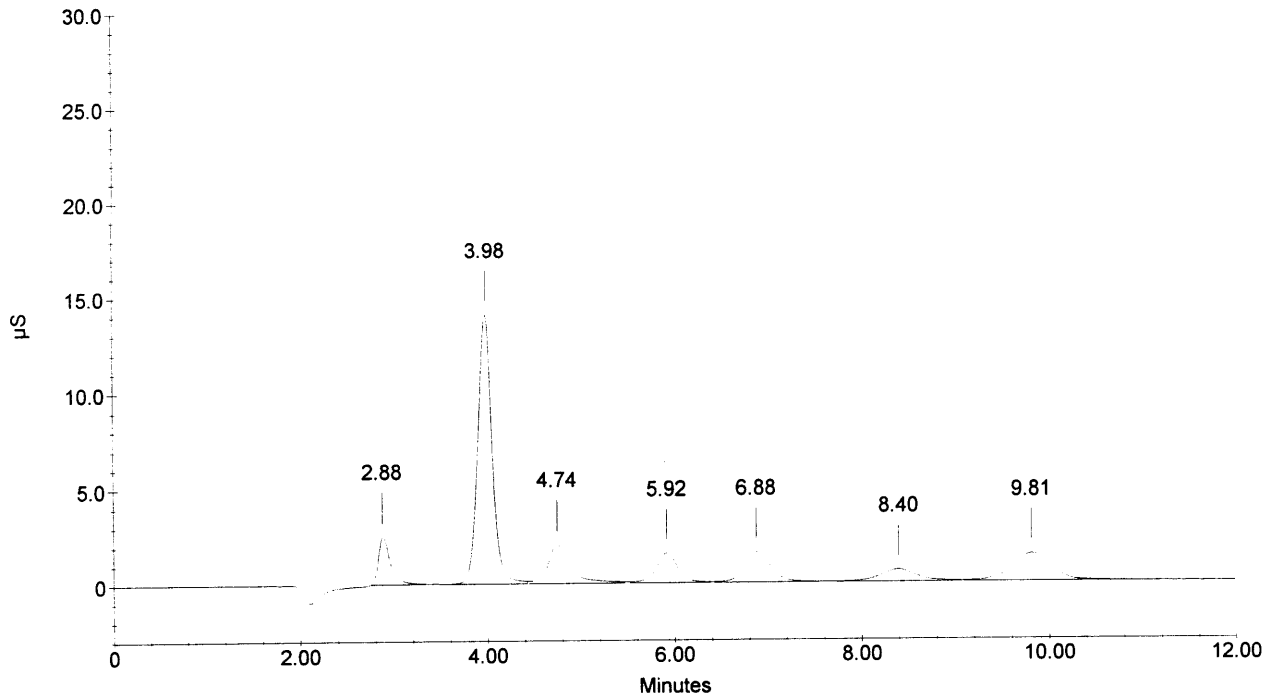
Date Time Collected : 7/31/03 12:07:00 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010032

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.88	FLUORIDE	222.997	25248	223222	1	-1.48
2	3.98	CHLORIDE	1920.554	140271	1500749	2	-1.32
3	4.74	NITRITE-N	234.100	20794	341360	2	-0.56
4	5.92	BROMIDE	783.880	15795	257201	2	0.45
5	6.88	NITRATE-N	176.552	16029	311891	2	2.79
6	8.40	PHOSPHATE-P	336.908	6588	182800	2	-3.38
7	9.81	SULFATE	790.528	14733	429272	2	-6.36
	0.00		---total(s)--- 4465.519		3246494		

231141S



Sample Name : 231142
Dilution Factor : 200.00
Injection Number : 6
Data File Name : C:\PeakNet\data\030731\030730_006.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

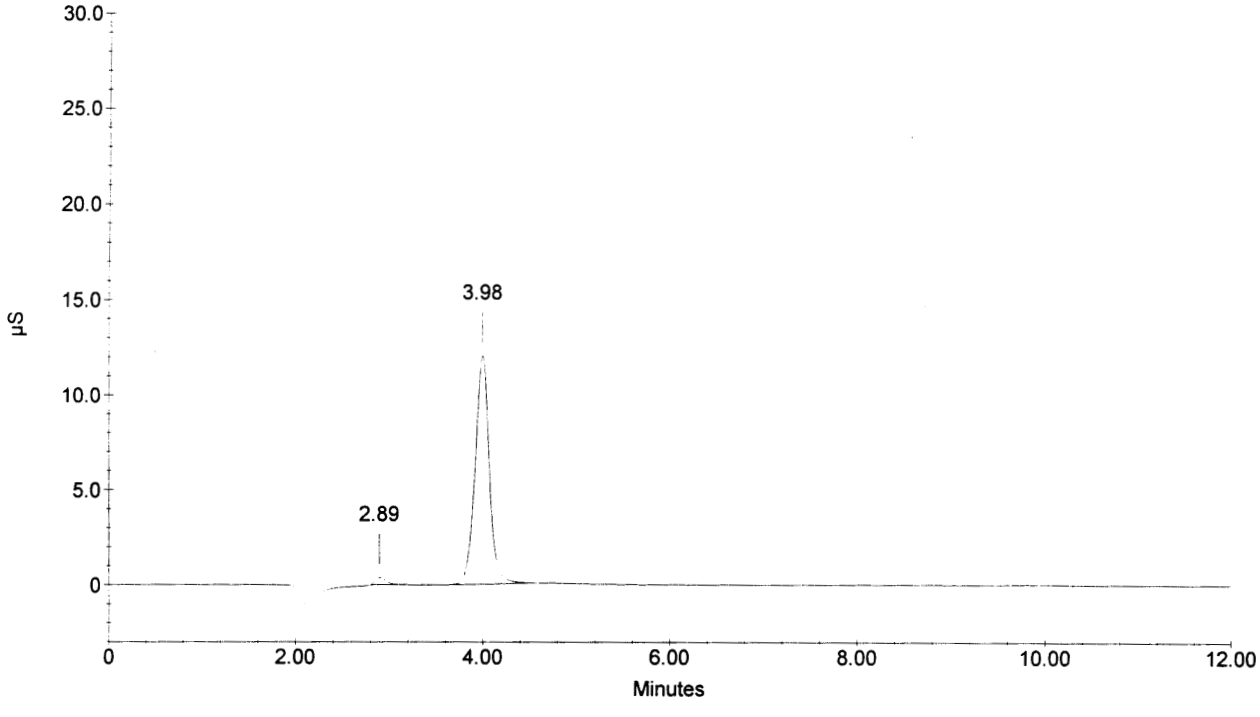
Date Time Collected : 7/31/03 12:21:48 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010033

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.89	FLUORIDE	40.622	3660	28640	1	-1.03
2	3.98	CHLORIDE	1651.715	119989	1272145	1	-1.32
		NITRITE-N					
		BROMIDE					
		NITRATE-N					
		PHOSPHATE-P					
		SULFATE					
	0.00		---total(s)--- 1692.337		1300785		

231142



Sample Name : 230256
Dilution Factor : 1.00
Injection Number : 7
Data File Name : C:\PeakNet\data\030731\030730_007.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

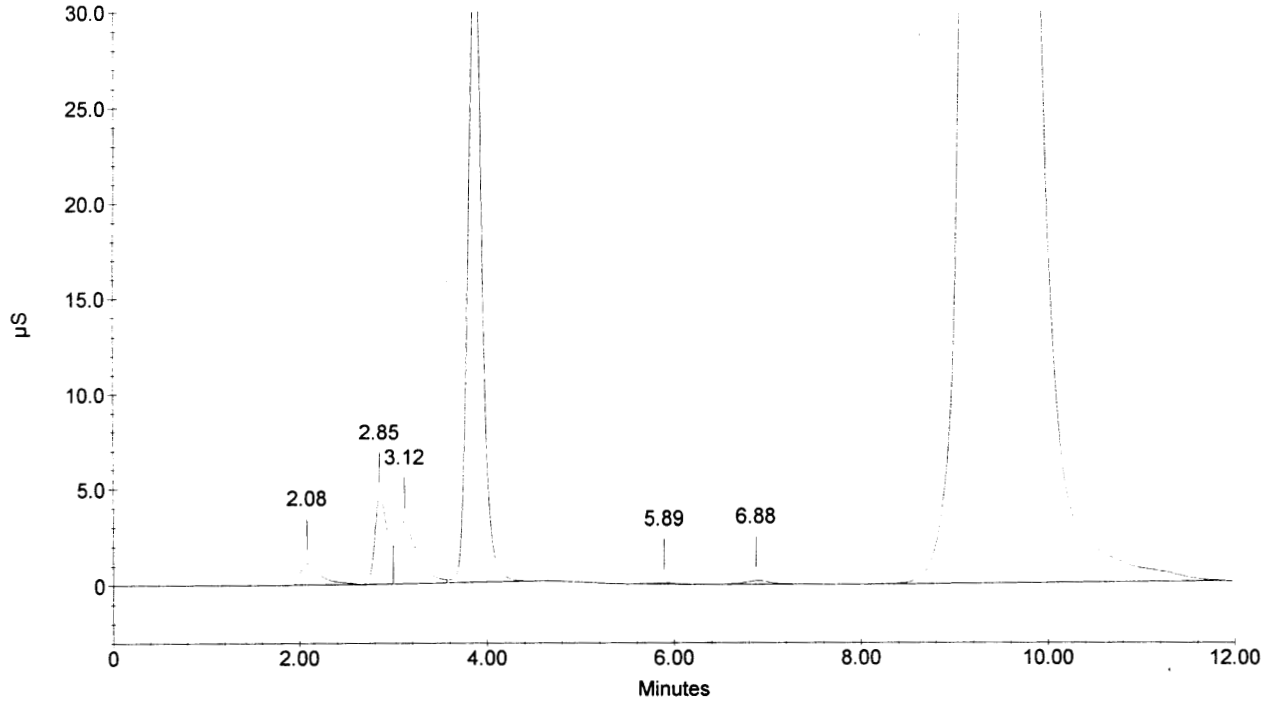
Date Time Collected : 7/31/03 12:36:35 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010034

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
2	2.85	FLUORIDE	2.084 ✓	45653	434675	2	-2.40
4	3.86	CHLORIDE	20.027	330281	3451670	2	-4.29
		NITRITE-N ✓					
5	5.89	BROMIDE	0.167 ✓	556	9185	1	0.00
6	6.88	NITRATE-N	0.141 ✓	2007	37110	1	2.79
7	9.30	PHOSPHATE-P	43151.556	2413469	75808024	1	7.06
		SULFATE					
	0.00		---total(s)--- 43173.975		79740663		

230256



Sample Name : 230256D
Dilution Factor : 1.00
Injection Number : 8
Data File Name : C:\PeakNet\data\030731\030730_008.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

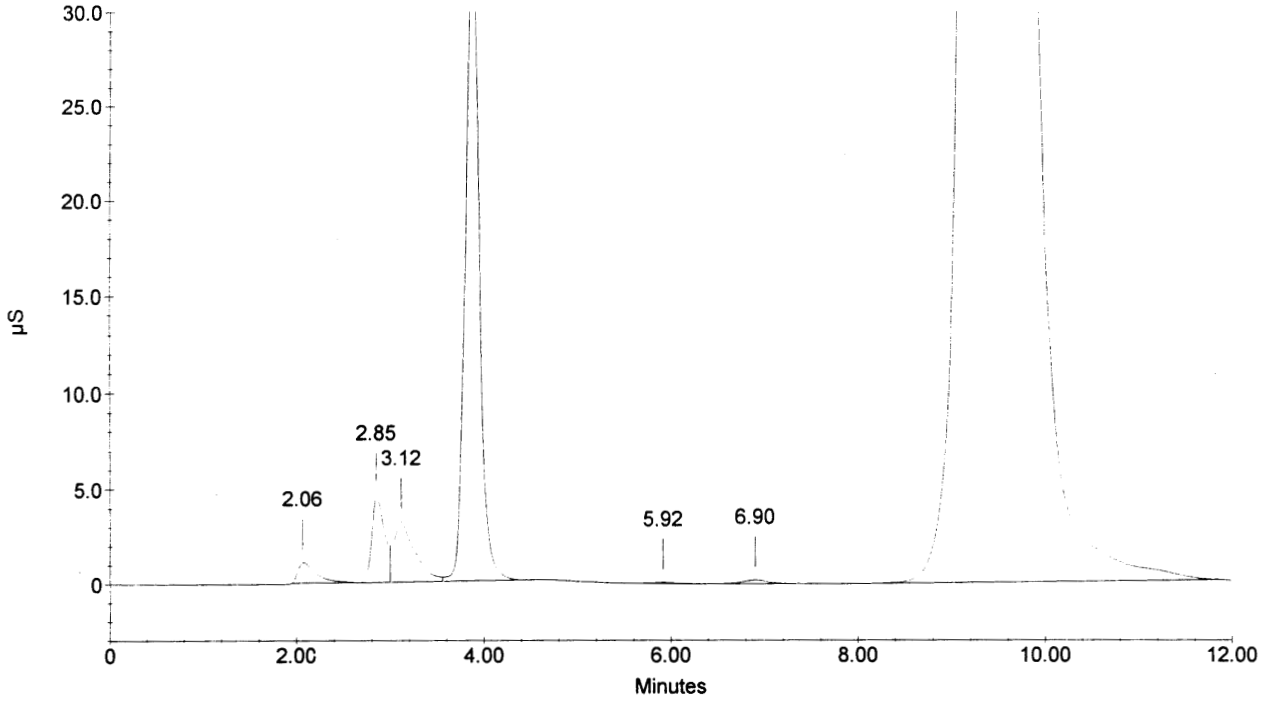
Date Time Collected : 7/31/03 12:51:23 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010035

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
2	2.85	FLUORIDE	2.056✓	44892	428445	2	-2.40
4	3.86	CHLORIDE	20.072	325774	3460455	2	-4.29
		NITRITE-N ✓					
5	5.92	BROMIDE	0.191✓	621	10782	1	0.45
6	6.90	NITRATE-N	0.135 ✓	1929	34987	1	3.19
7	9.30	PHOSPHATE-P	42116.644	2382046	75214874	1	7.06
		SULFATE					
	0.00		---total(s)--- 42139.097		79149543		

230256D



Sample Name : 230256S
Dilution Factor : 1.00
Injection Number : 9
Data File Name : ...\030730_009.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

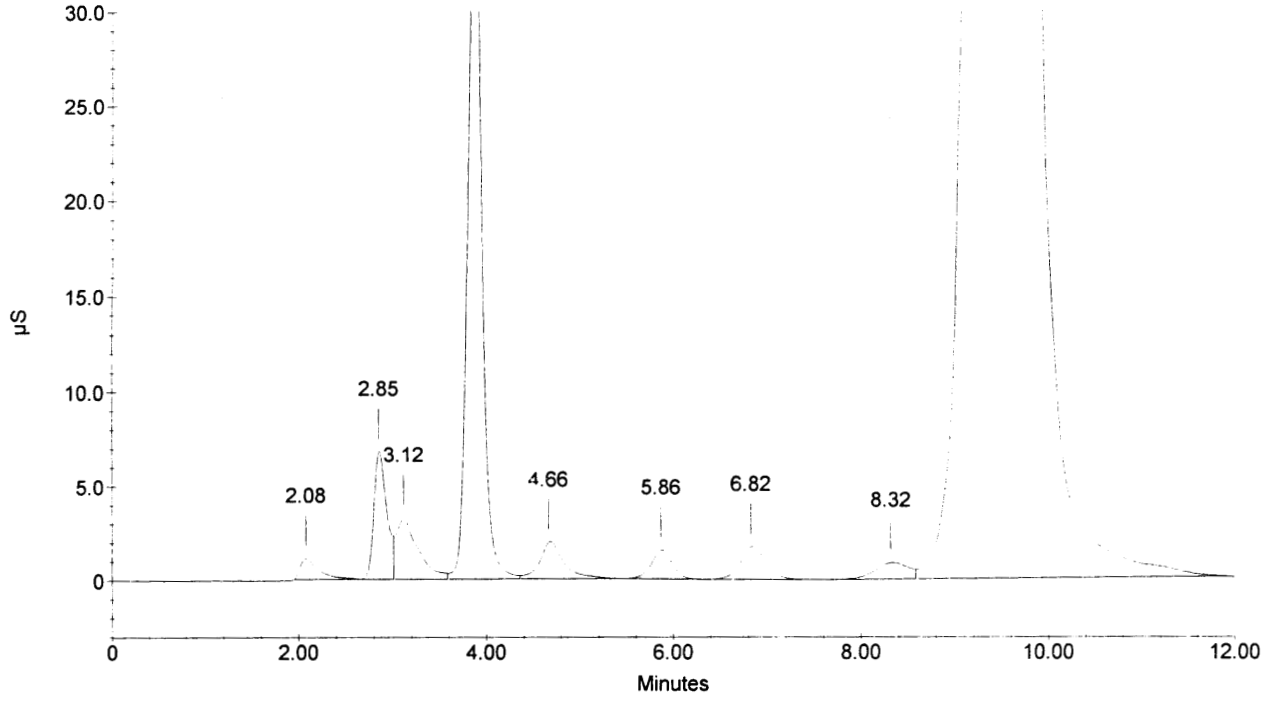
Date Time Collected : 7/31/03 1:06:12 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010036

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
2	2.85	FLUORIDE	3.027	87357	645037	2	-2.40
4	3.88	CHLORIDE	21.958	361600	3833670	2	-3.96
5	4.66	NITRITE-N	1.211	19354	353700	2	-2.24
6	5.86	BROMIDE	3.633	15305	238344	1	-0.45
7	6.82	NITRATE-N	0.928	17184	328999	1	1.99
8	8.32	PHOSPHATE-P	1.968	8623	215403	2	-4.30
		SULFATE					
	0.00	---total(s)---	32.726		5615152		

230256S



Sample Name : 230257
Dilution Factor : 1.00
Injection Number : 10
Data File Name : C:\PeakNet\data\030731\030730_010.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

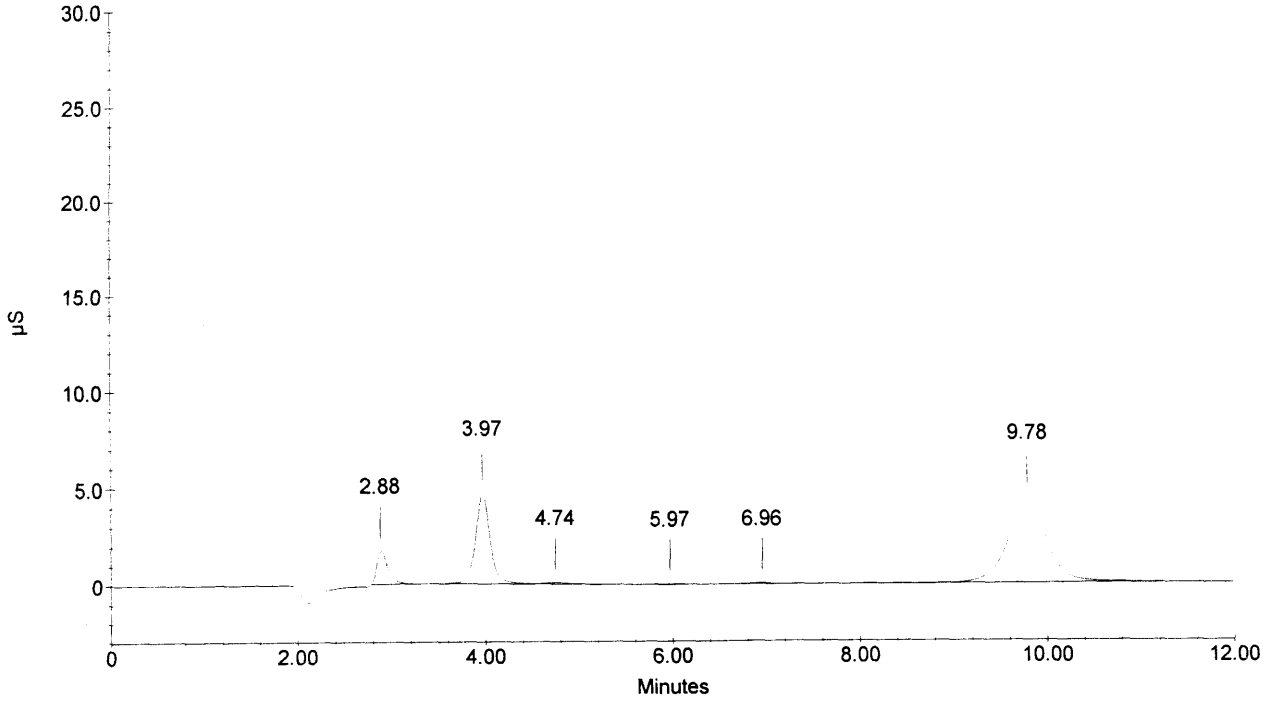
Date Time Collected : 7/31/03 1:21:00 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010037

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.88	FLUORIDE	0.742	16928	143111	1	-1.48
2	3.97	CHLORIDE	3.498	46455	512001	2	-1.65
3	4.74	NITRITE-N	0.097	850	17434	2	-0.56
4	5.97	BROMIDE	0.095	260	4429	1	1.36
5	6.96	NITRATE-N	0.060	505	7515	1	3.99
6	9.78	PHOSPHATE-P SULFATE	11.201	43694	1264719	1	-6.62
	0.00	---total(s)---	15.693		1949208		

230257



Sample Name : 230258
Dilution Factor : 1.00
Injection Number : 11
Data File Name : C:\PeakNet\data\030731\030730_011.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\30jul03.sch

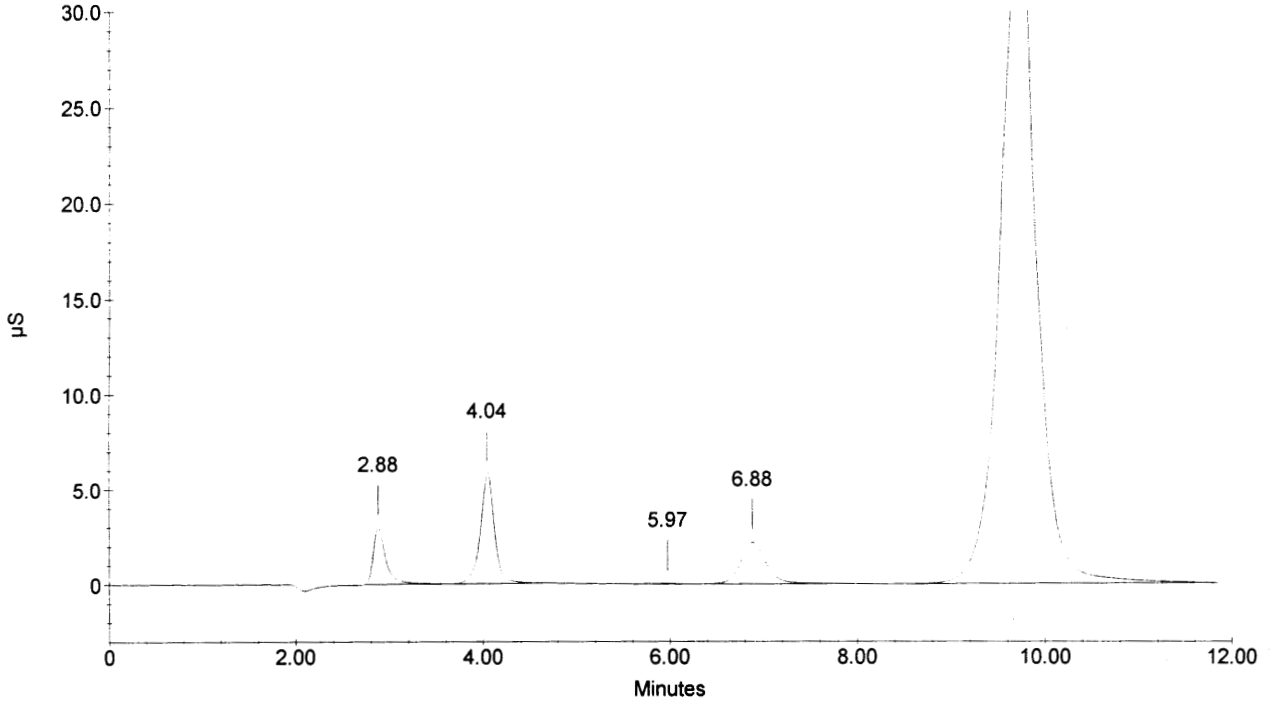
Date Time Collected : 7/31/03 1:47:43 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010038

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.88	FLUORIDE	1.365 ✓	29434	277266	1	-1.48
2	4.04	CHLORIDE NITRITE-N ✓	4.135 ✓	57318	609219	1	0.00
3	5.97	BROMIDE	0.087✓	271	3916	1	1.36
4	6.88	NITRATE-N PHOSPHATE-P	1.149✓	21790	411837	1	2.79
5	9.70	SULFATE	60.652	350605	9334678	1	-7.38
	0.00		---total(s)--- 67.387		10636915		

230258



Sample Name : CCV
Dilution Factor : 20.00
Injection Number : 12
Data File Name : c:\peaknet\data\030731\DATA_012.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

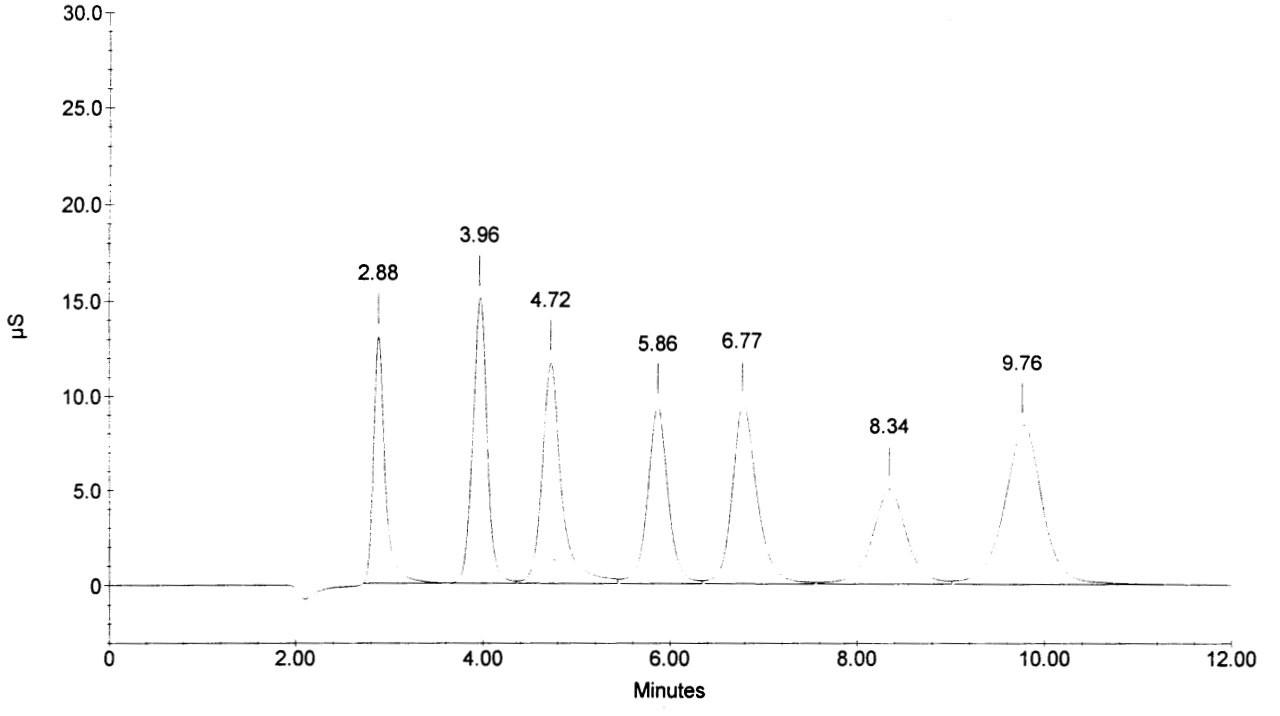
Date Time Collected : 7/31/03 1:50:42 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010039

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.88	FLUORIDE	101.808	129798	1121126	2	-1.48
2	3.96	CHLORIDE	204.249	149408	1606443	2	-1.98
3	4.72	NITRITE-N	107.439	115955	1685283	2	-1.12
4	5.86	BROMIDE	410.516	93230	1424756	2	-0.45
5	6.77	NITRATE-N	90.529	94808	1752124	2	1.20
6	8.34	PHOSPHATE-P	208.075	49942	1284361	2	-3.99
7	9.76	SULFATE	399.183	83414	2362940	2	-6.87
	0.00		---total(s)--- 1521.799		11237032		

CCV



Sample Name : CCB
Dilution Factor : 1.00
Injection Number : 13
Data File Name : c:\peaknet\data\030731\DATA_013.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

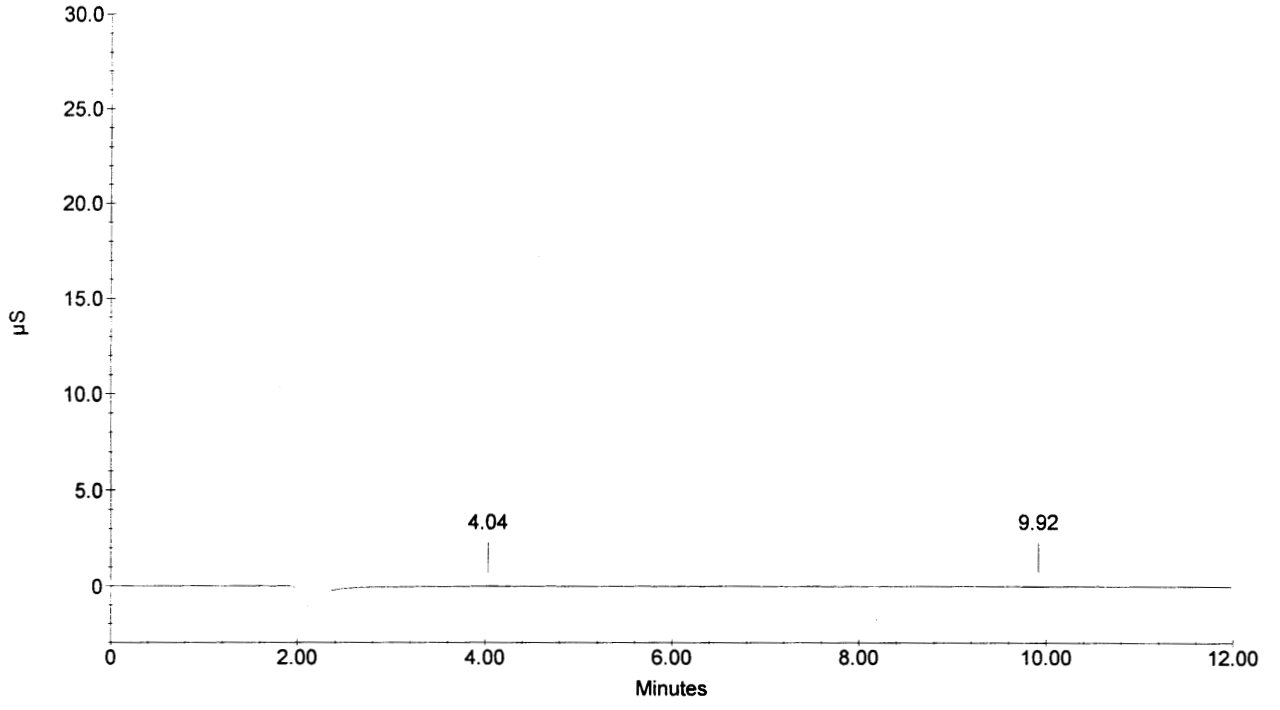
Date Time Collected : 7/31/03 2:05:34 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010040

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	4.04	CHLORIDE	0.004	134	1480	1	0.00
1	4.04	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	0.004	134	1480	1	0.00
2	9.92	SULFATE	0.032	141	1505	1	-5.35
	0.00	---total(s)---	0.039		4464		

CCB



Sample Name : 230256
Dilution Factor : 20.00
Injection Number : 14
Data File Name : c:\peaknet\data\030731\DATA_014.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

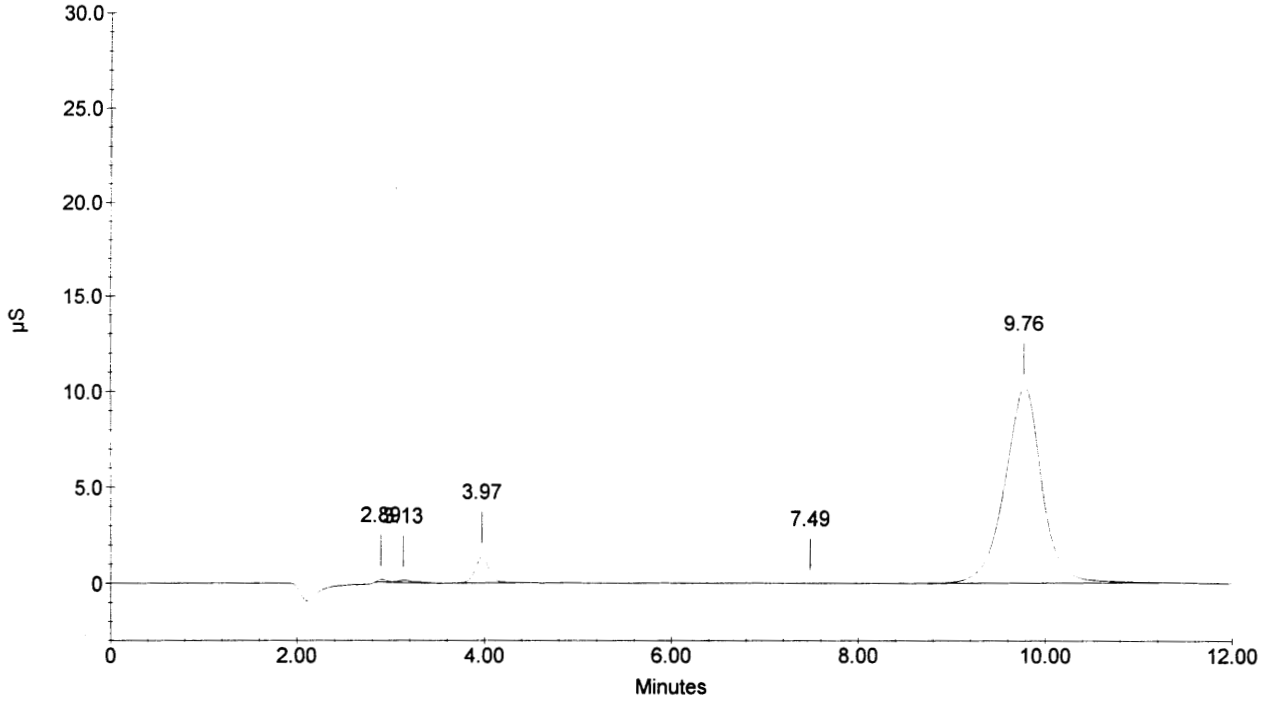
Date Time Collected : 7/31/03 2:20:21 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010041

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.89	FLUORIDE	2.202	1422	9031	2	-1.03
3	3.97	CHLORIDE	19.690	13751	140896	1	-1.65
		NITRITE-N					
		BROMIDE					
		NITRATE-N					
		PHOSPHATE-P					
5	9.76	SULFATE	465.945	101714	2810671	1	-6.87
	0.00	---total(s)---	487.837		2960599		

230256



Sample Name : 230256D
Dilution Factor : 20.00
Injection Number : 15
Data File Name : c:\peaknet\data\030731\DATA_015.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

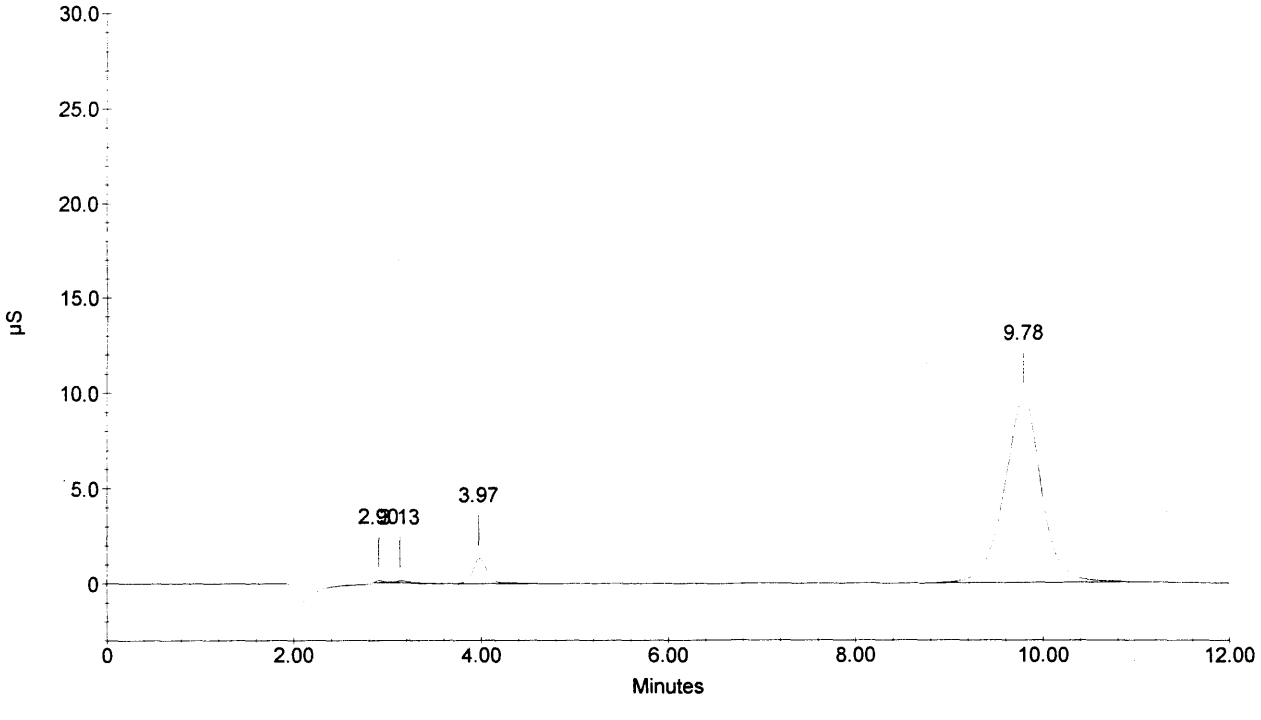
Date Time Collected : 7/31/03 2:35:10 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010042

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	1.931	1090	6179	2	-0.57
3	3.97	CHLORIDE	20.071	12992	143632	1	-1.65
		NITRITE-N					
		BROMIDE					
		NITRATE-N					
		PHOSPHATE-P					
4	9.78	SULFATE	445.037	97167	2668580	1	-6.62
	0.00	---total(s)---	467.038		2818391		

230256D



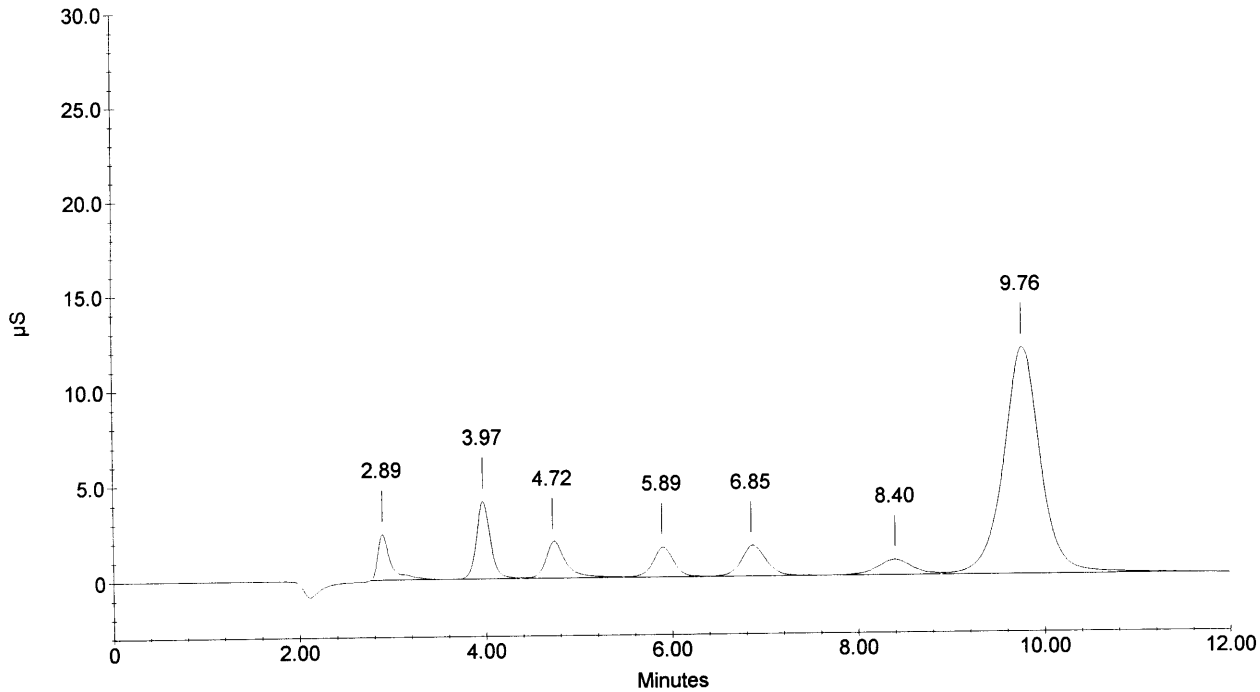
Sample Name : 230256S
Dilution Factor : 20.00
Injection Number : 16
Data File Name : C:\PEAKNET\DATA\030731\DATA_016.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

Date Time Collected : 7/31/03 2:49:57 PM
System Name : Dx-500
Detector Name : Conductivity Detector **010043**
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.89	FLUORIDE	23.028	23836	231076	1	-1.03
2	3.97	CHLORIDE	58.514	40433	425694	2	-1.65
3	4.72	NITRITE-N	20.384	18804	295218	2	-1.12
4	5.89	BROMIDE	74.987	15561	245988	2	0.00
5	6.85	NITRATE-N	17.165	15906	302717	2	2.39
6	8.40	PHOSPHATE-P	38.032	8000	207740	2	-3.38
7	9.76	SULFATE	533.350	118585	3280903	2	-6.87
	0.00		---total(s)--- 765.459		4989335		

230256S



Sample Name : 230257
Dilution Factor : 20.00
Injection Number : 17
Data File Name : c:\peaknet\data\030731\DATA_017.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

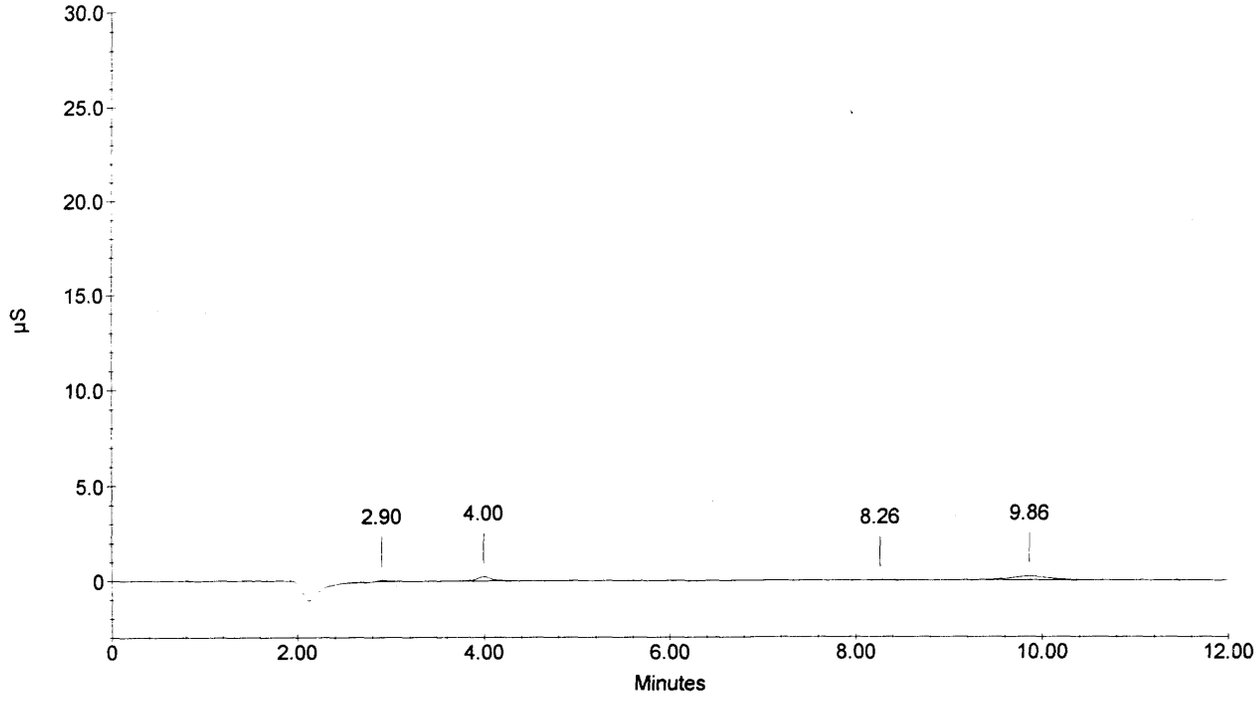
Date Time Collected : 7/31/03 3:04:47 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010044

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	1.721	616	3975	1	-0.57
2	4.00	CHLORIDE	3.327	2266	24403	1	-0.99
		NITRITE-N					
		BROMIDE					
		NITRATE-N					
3	8.26	PHOSPHATE-P	1.604	121	2190	1	-4.91
4	9.86	SULFATE	10.669	2037	55341	1	-5.85
			---total(s)---				
	0.00		17.322		85909		

230257



Sample Name : 230258
Dilution Factor : 20.00
Injection Number : 18
Data File Name : c:\peaknet\data\030731\DATA_018.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

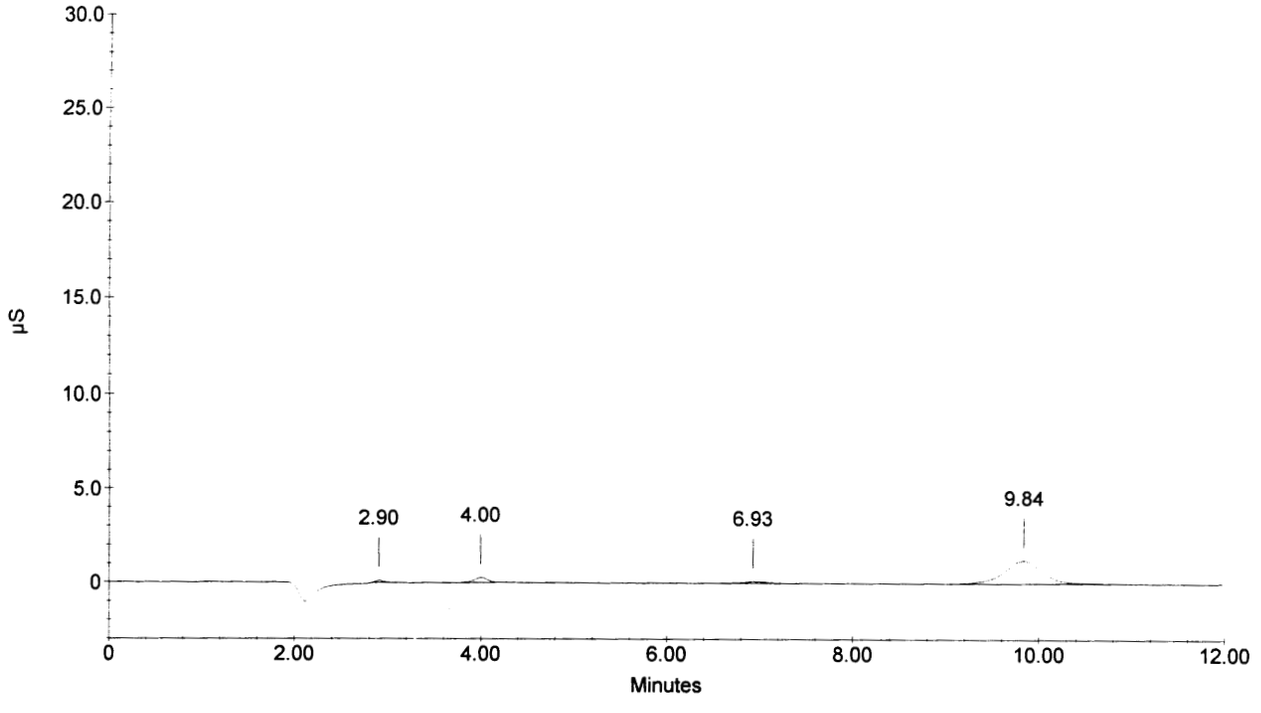
Date Time Collected : 7/31/03 3:19:36 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010045

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	2.014	1111	7053	1	-0.57
2	4.00	CHLORIDE NITRITE-N BROMIDE	3.629	2592	26534	1	-0.99
3	6.93	NITRATE-N PHOSPHATE-P	1.791	942	18359	1	3.59
4	9.84	SULFATE	66.015 ✓	12253	357031	1	-6.11
	0.00		---total(s)--- 73.449		408978		

230258



Sample Name : 230256
Dilution Factor : 400.00
Injection Number : 19
Data File Name : c:\peaknet\data\030731\DATA_019.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

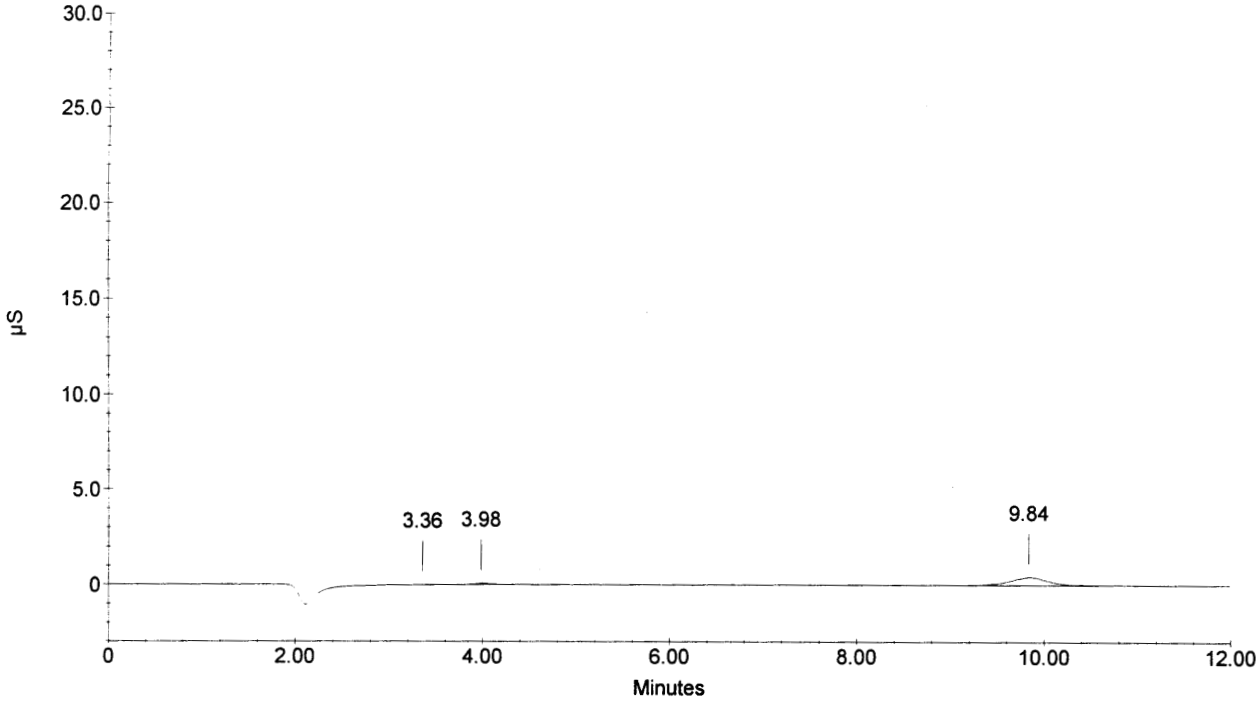
Date Time Collected : 7/31/03 3:34:23 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010046

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	3.36		0.000	53	85	1	
2	3.98	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	14.975	638	6231	1	-1.32
3	9.84	SULFATE	463.357	4258	122782	1	-6.11
	0.00		---total(s)--- 478.332		129098		

230256



Sample Name : 230256D
Dilution Factor : 400.00
Injection Number : 20
Data File Name : C:\PEAKNET\DATA\030731\DATA_020.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

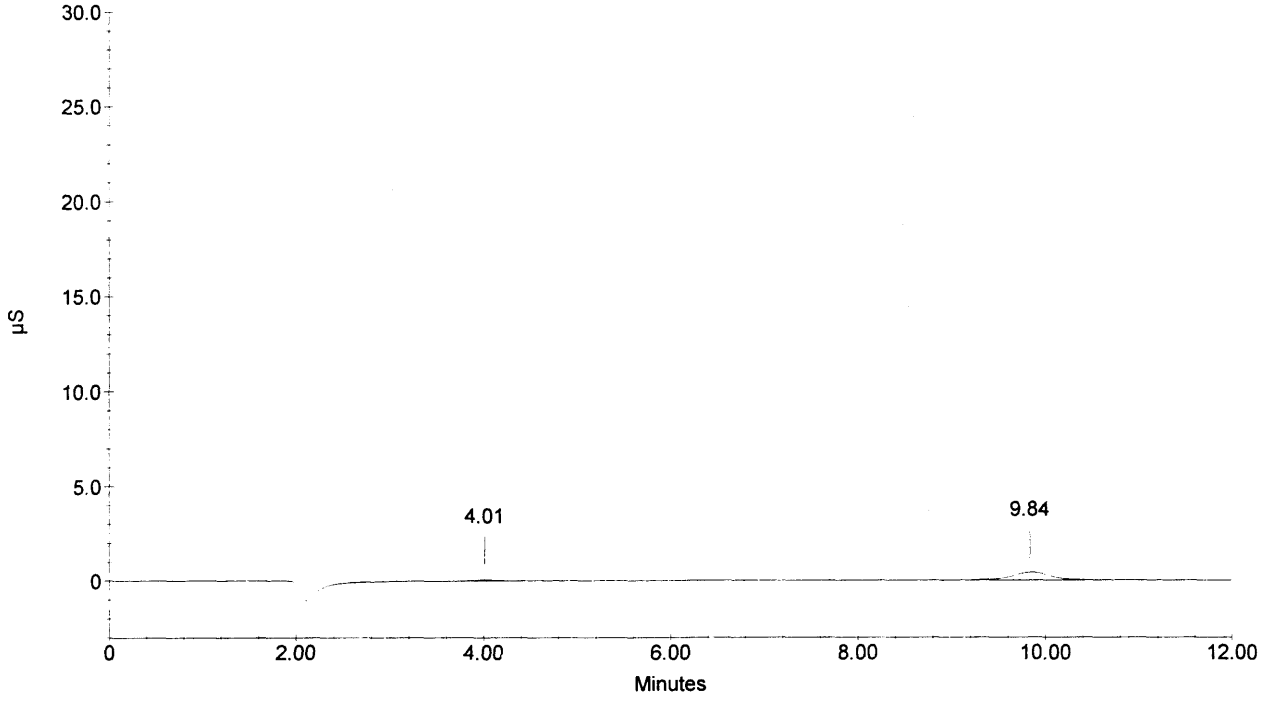
Date Time Collected : 7/31/03 3:49:06 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010047

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	4.01	CHLORIDE	16.914	652	6913	1	-0.66
1	4.01	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	16.914	652	6913	1	-0.66
2	9.84	SULFATE	445.574 ✓	4040	117971	1	-6.11
	0.00		---total(s)--- 479.401		131798		

230256D



Sample Name : 230256S
Dilution Factor : 400.00
Injection Number : 21
Data File Name : c:\peaknet\data\030731\DATA_021.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

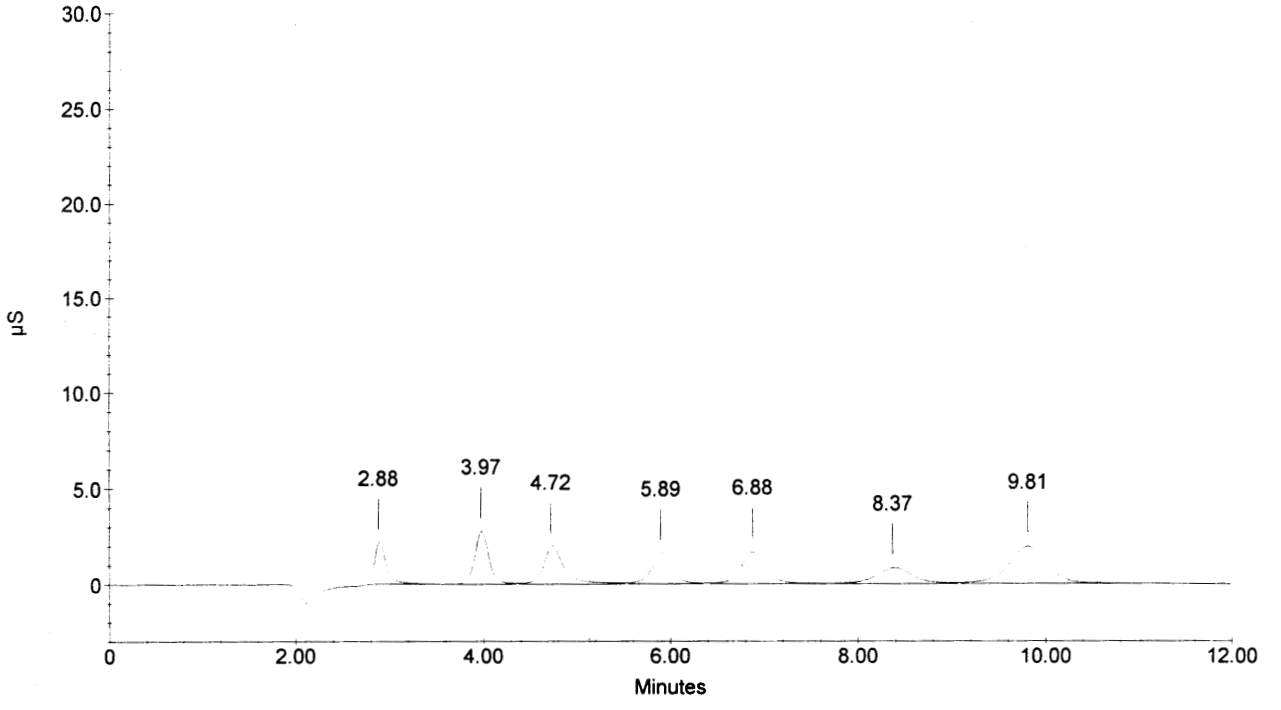
Date Time Collected : 7/31/03 4:03:50 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010048

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.88	FLUORIDE	391.916	21484	194102	1	-1.48
2	3.97	CHLORIDE	821.683	27488	296353	2	-1.65
3	4.72	NITRITE-N	435.757	19413	316607	2	-1.12
4	5.89	BROMIDE	1590.180	16014	260897	2	0.00
5	6.88	NITRATE-N	365.396	16663	323400	2	2.79
6	8.37	PHOSPHATE-P	845.246	8285	232160	2	-3.68
7	9.81	SULFATE	2044.320	19499	558747	2	-6.36
		---total(s)---					
	0.00		6494.498		2182264		

230256S



Sample Name : CCV
Dilution Factor : 20.00
Injection Number : 22
Data File Name : c:\peaknet\data\030731\DATA_022.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

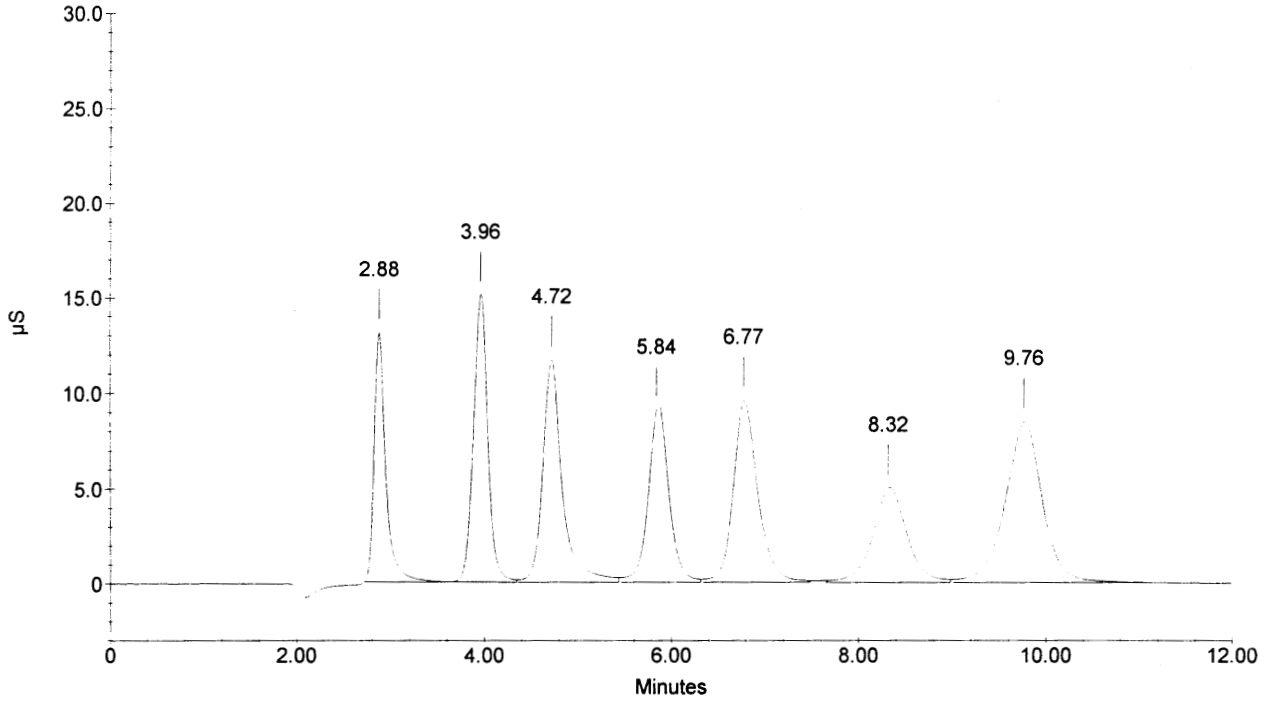
Date Time Collected : 7/31/03 4:18:34 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010049

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.88	FLUORIDE	102.079	130414	1124319	2	-1.48
2	3.96	CHLORIDE	204.016	150391	1604415	2	-1.98
3	4.72	NITRITE-N	107.913	116236	1693198	2	-1.12
4	5.84	BROMIDE	409.967	89923	1422541	2	-0.91
5	6.77	NITRATE-N	90.349	95076	1748356	2	1.20
6	8.32	PHOSPHATE-P	206.522	49430	1273642	2	-4.30
7	9.76	SULFATE	396.001	84304	2342026	2	-6.87
	0.00		---total(s)--- 1516.847		11208497		

CCV



Sample Name : CCB
Dilution Factor : 20.00
Injection Number : 23
Data File Name : c:\peaknet\data\030731\DATA_023.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\31jul03.sch

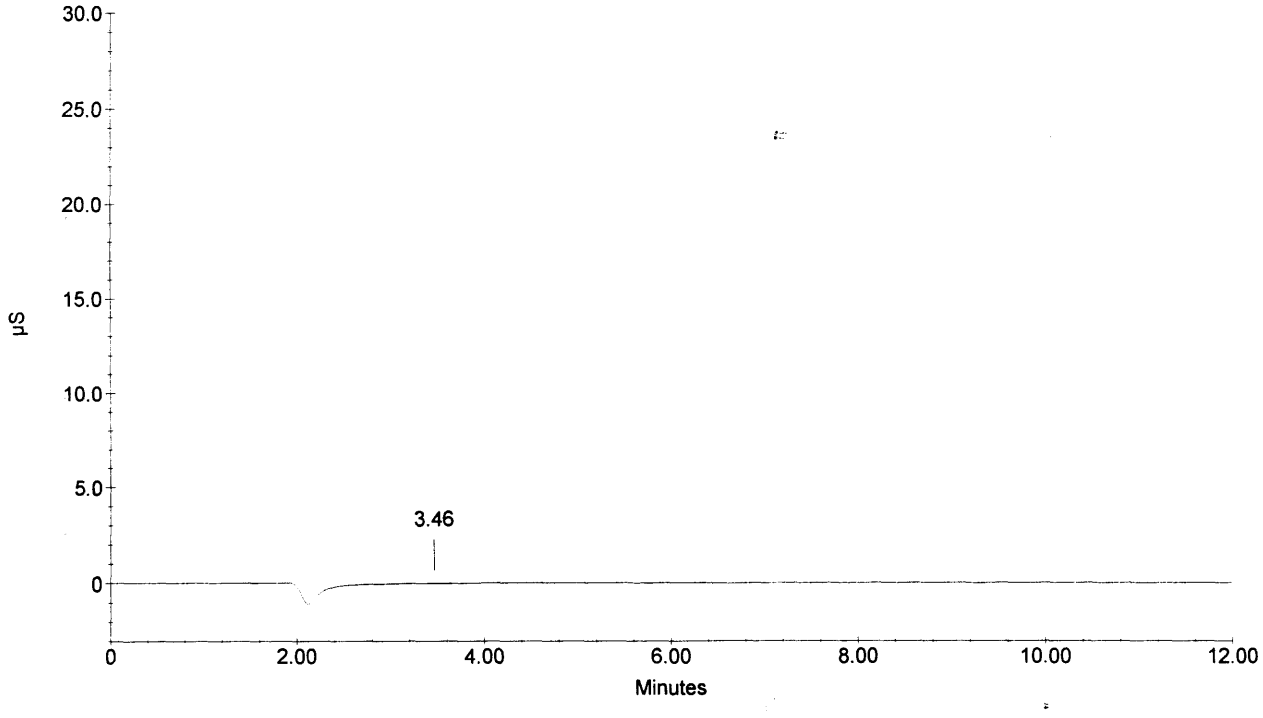
Date Time Collected : 7/31/03 4:33:19 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : RSS

010050

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	3.46		0.000	108	1396	1	
		CHLORIDE					
		NITRITE-N					
		BROMIDE					
		NITRATE-N					
		PHOSPHATE-P					
		SULFATE					
			---total(s)---				
	0.00		0.000		1396		

CCB



Schedule File: C:\PeakNet\schedule\030[illegible]ch

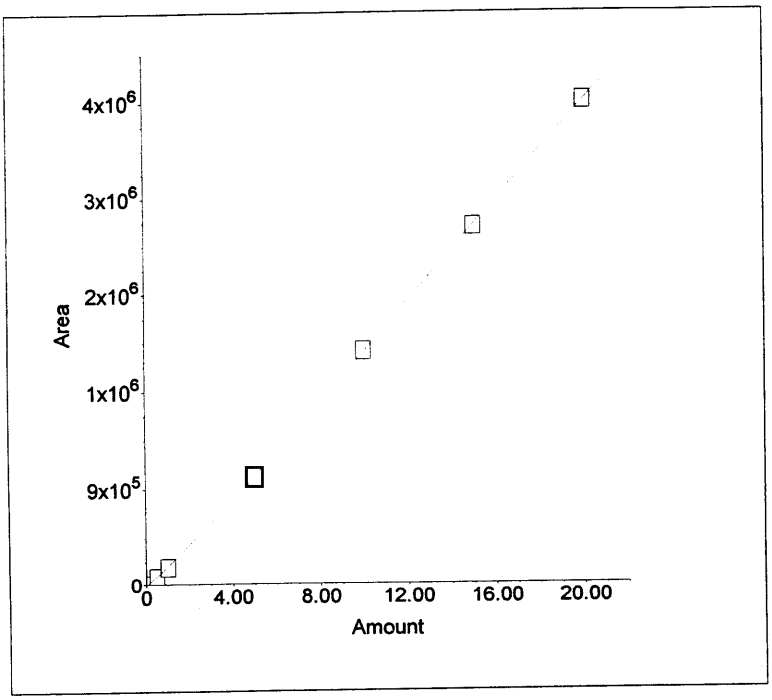
Line	Sample	Sample Type	Level	Method	Data File	Dilution
1	0 PPM 14-08-IC4	Calibration St	1	anions030624.met	030624_001.dxd	1
2	0.1 PPM 14-07-IC4	Calibration St	2	anions030624.met	030624_002.dxd	1
3	0.5 PPM 14-06-IC4	Calibration St	3	anions030624.met	030624_003.dxd	1
4	1.0 PPM 14-05-IC4	Calibration St	4	anions030624.met	030624_004.dxd	1
5	5.0 PPM 14-04-IC4	Calibration St	5	anions030624.met	030624_005.dxd	1
6	10 PPM 14-03-IC4	Calibration St	6	anions030624.met	030624_006.dxd	1
7	15 PPM 14-02-IC4	Calibration St	7	anions030624.met	030624_007.dxd	1
8	20 PPM 14-01-IC4	Calibration St	8	anions030624.met	030624_008.dxd	1
9	ICV	Sample		anions030624.met	030624_a009.dxd	20
10	ICB	Sample		anions030624.met	030624_010.dxd	1
11	ICB	Sample		astop.met	030624_001.dxd	1

010051

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: c:\peaknet\data\030624
Comment:

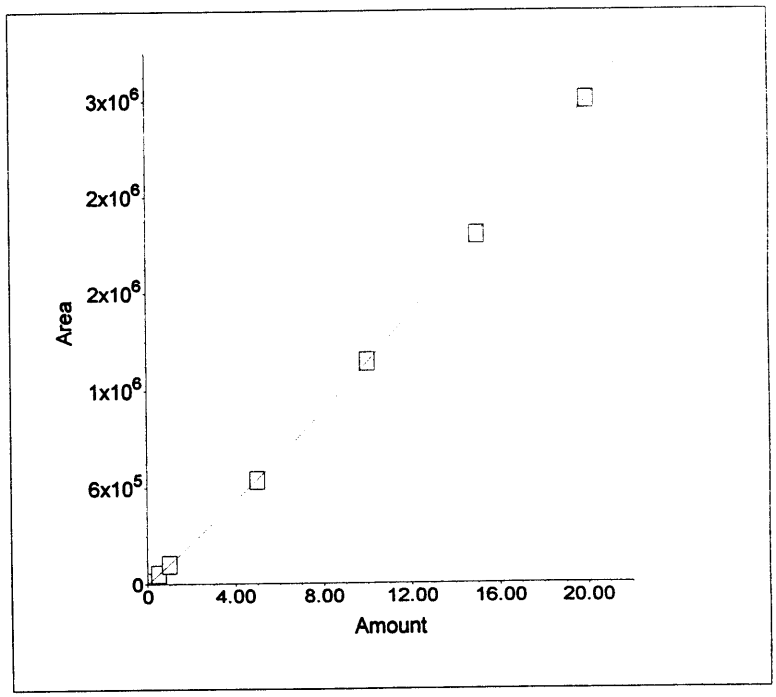
ams
6/24/03

1. Component:FLUORIDE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999961
Amt=2.886309e-020*Resp³+
-2.766160e-013*Resp²+
4.754364e-006*Resp+0.06717

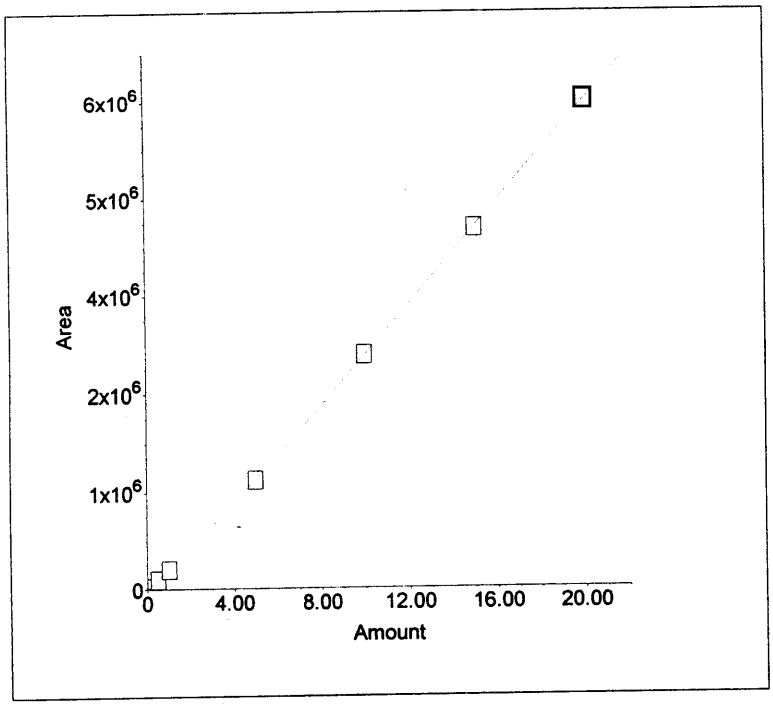


2. Component:CHLORIDE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999997
Amt=4.893602e-020*Resp³+
-5.505325e-013*Resp²+
7.122677e-006*Resp+-0.01098

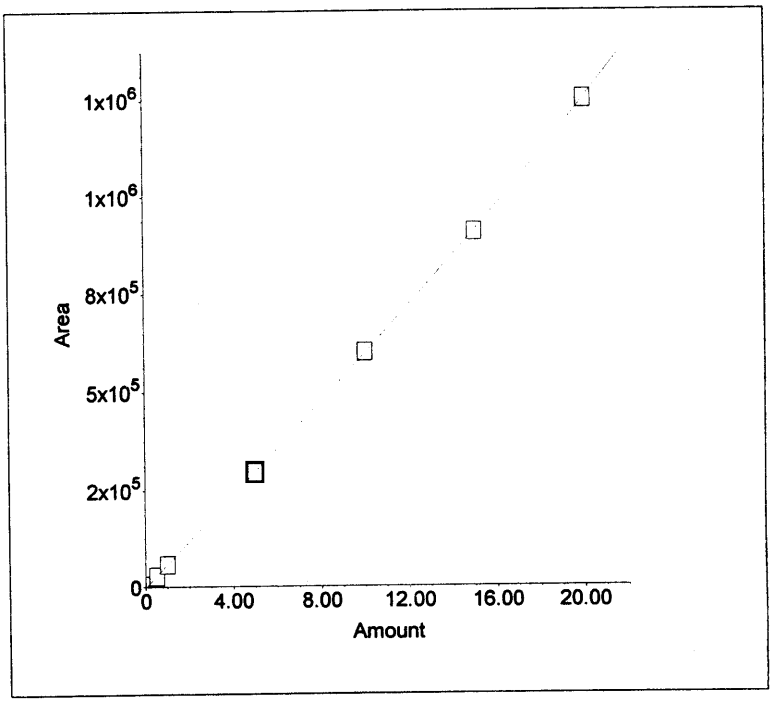
010052



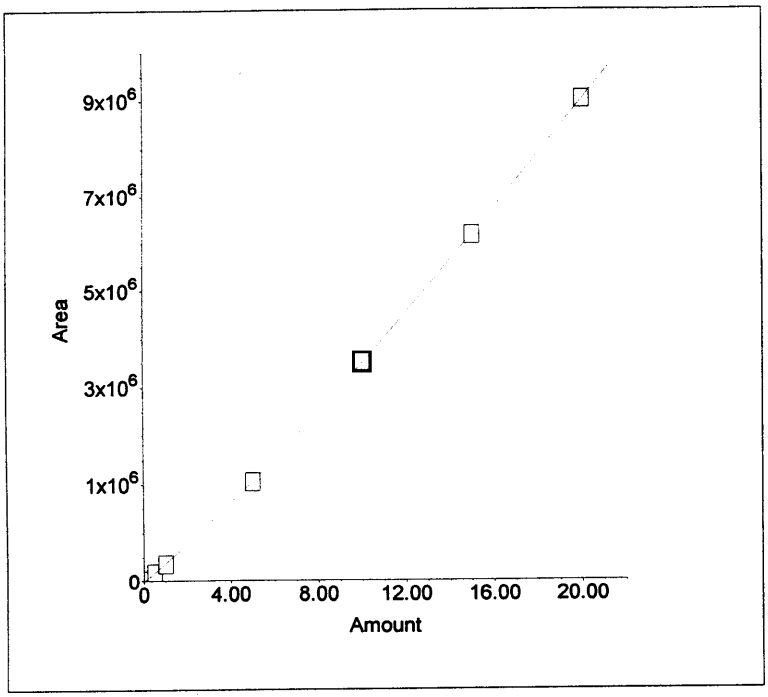
3. Component:NITRITE-N
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999982
Amt=9.007937e-021*Resp³+
-1.310152e-013*Resp²+
3.359965e-006*Resp+0.03845



4. Component:BROMIDE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999986
Amt=-6.678409e-019*Resp³+
4.878219e-013*Resp²+
1.504729e-005*Resp+0.02831

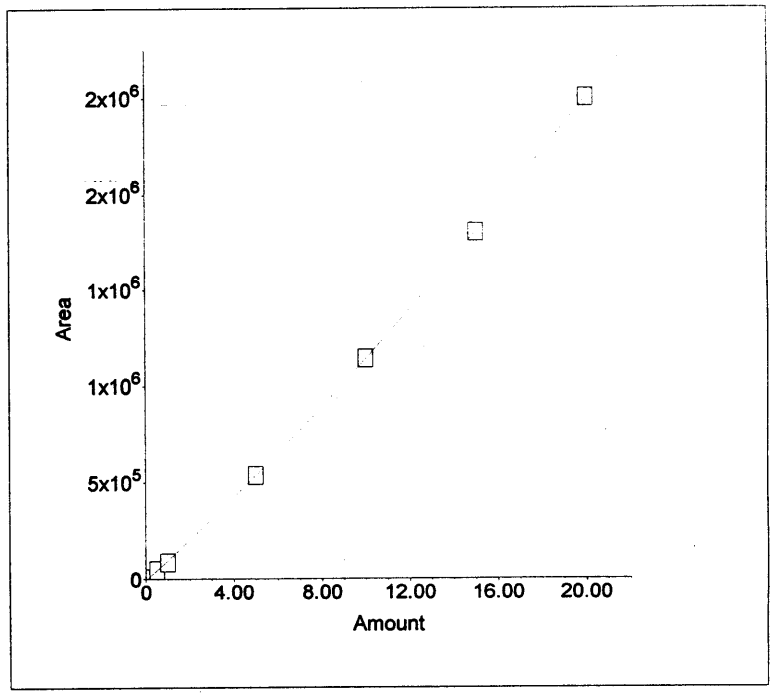


5. Component:NITRATE-N
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999971
Amt=4.523974e-021*Resp^3+
-1.088093e-013*Resp^2+
2.737724e-006*Resp+0.03934

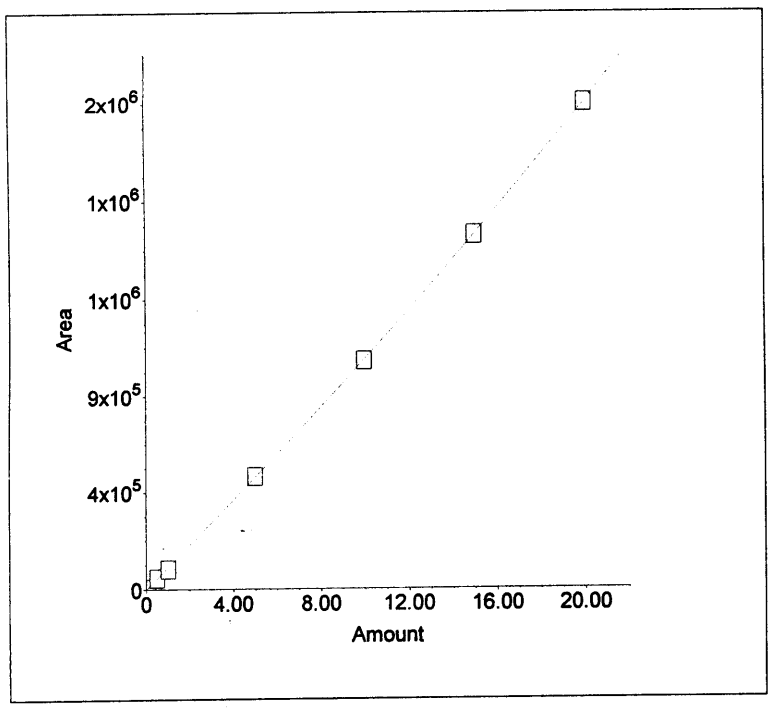


6. Component:PHOSPHATE-P
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999961
Amt=1.095516e-019*Resp^3+
-9.155379e-013*Resp^2+
9.048461e-006*Resp+0.0604

010053



7. Component:SULFATE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999967
Amt=1.363293e-020*Resp^3+
-4.177492e-013*Resp^2+
9.351856e-006*Resp+0.01408



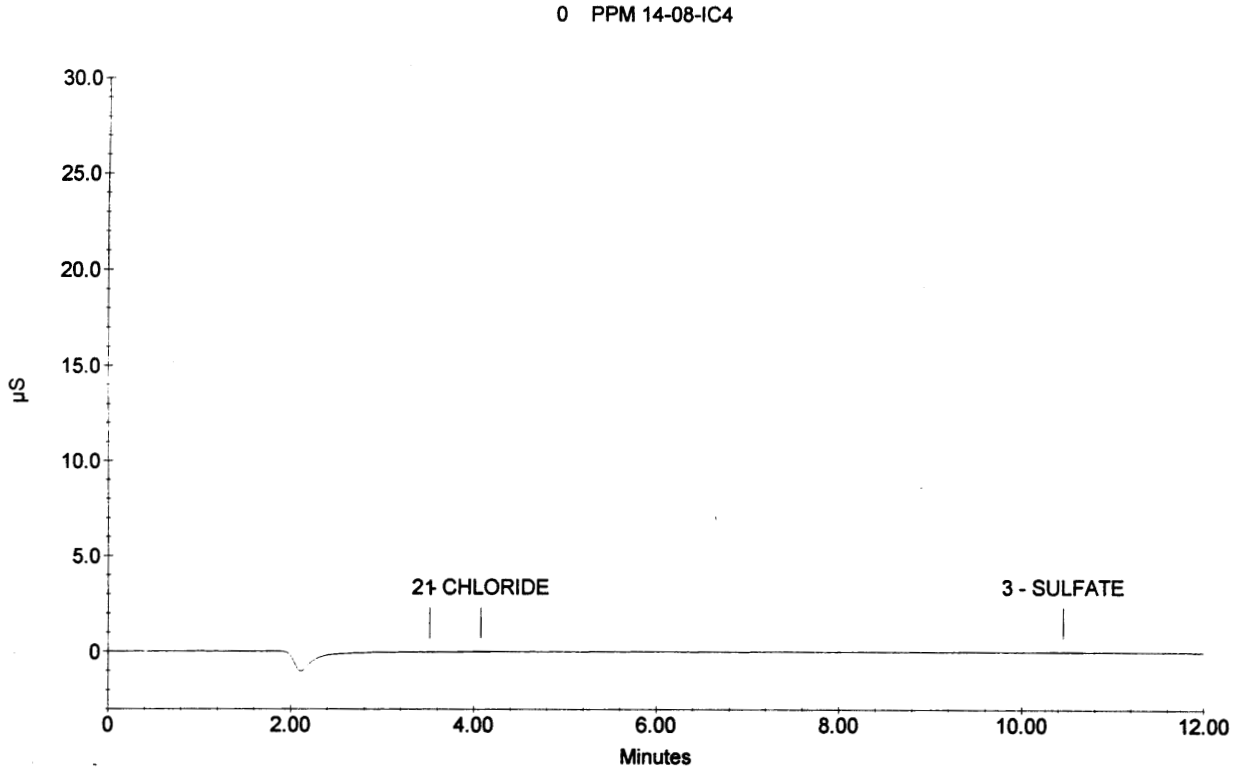
Sample Name : 0 PPM 14-08-IC4
Dilution Factor : 1.00
Injection Number : 1
Data File Name : c:\peaknet\data\030624\030624_001.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 10:55:28 AM
Date Time Updated : 6/24/03 1:35:25 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010054

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	3.52		0.00	1587	117
2	4.08	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	0.00	3065	214
3	10.45	SULFATE	0.00	3983	208



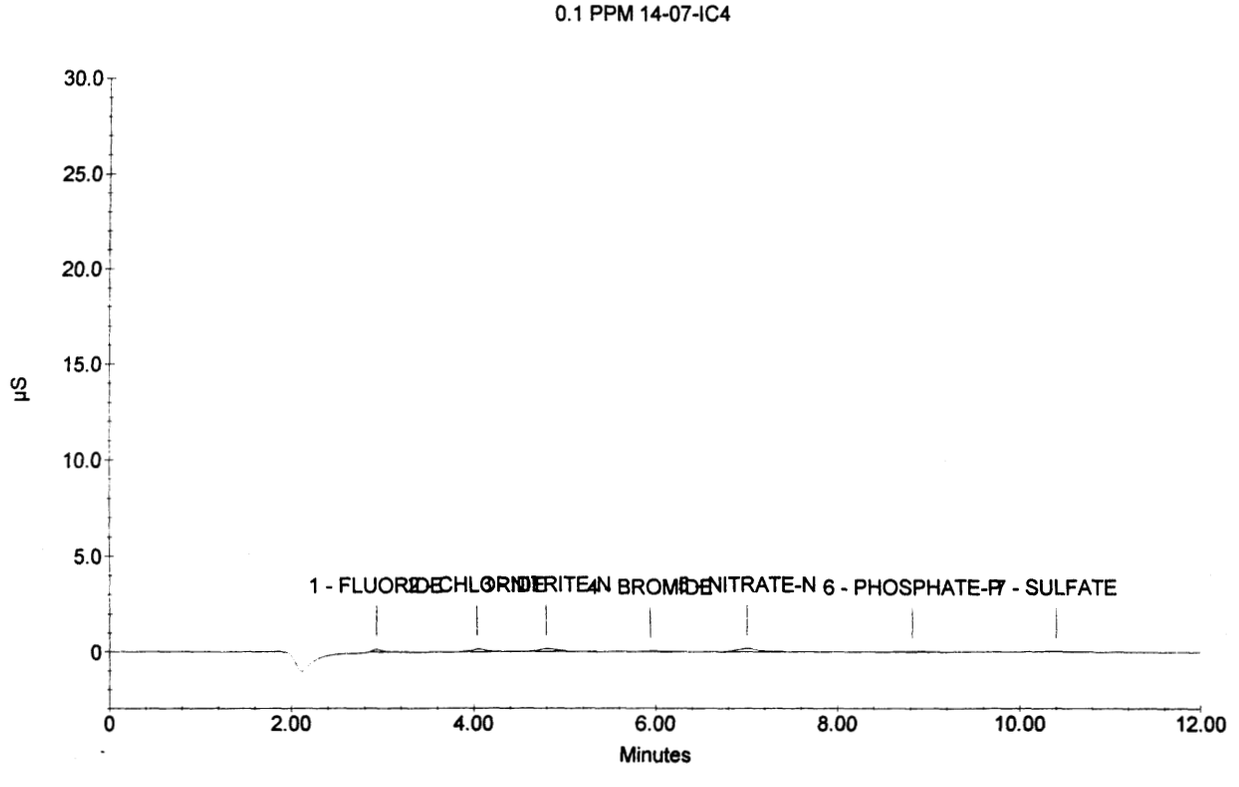
Sample Name : 0.1 PPM 14-07-IC4
Dilution Factor : 1.00
Injection Number : 2
Data File Name : c:\peaknet\data\030624\030624_002.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:10:15 AM
Date Time Updated : 6/24/03 1:35:38 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010055

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.93	FLUORIDE	0.10	10171	1386
2	4.04	CHLORIDE	0.10	16762	1535
3	4.80	NITRITE-N	0.10	23500	1583
4	5.94	BROMIDE	0.10	4942	307
5	7.01	NITRATE-N	0.10	29499	1640
6	8.82	PHOSPHATE-P	0.10	5993	340
7	10.40	SULFATE	0.10	5521	253



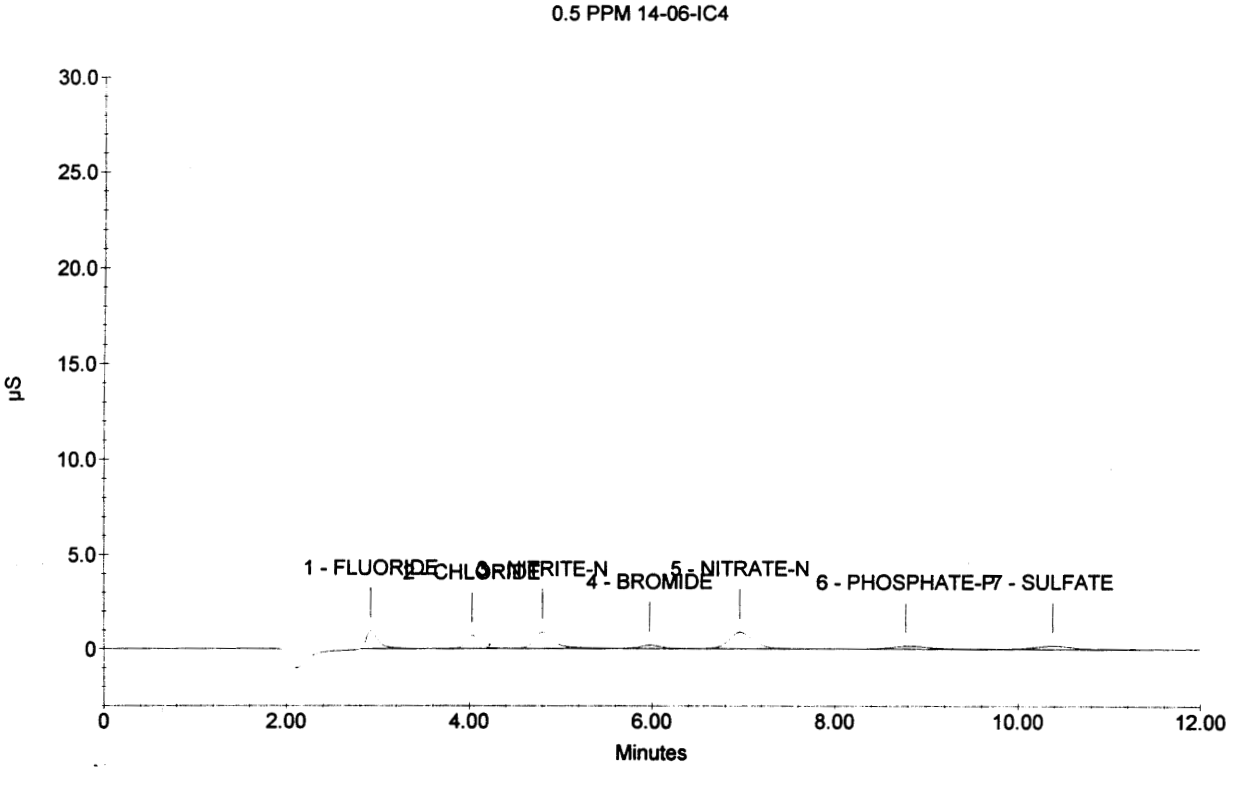
Sample Name : 0.5 PPM 14-06-IC4
Dilution Factor : 1.00
Injection Number : 3
Data File Name : c:\peaknet\data\030624\030624_003.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:24:58 AM
Date Time Updated : 6/24/03 1:35:46 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010056

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.92	FLUORIDE	0.50	86232	9462
2	4.02	CHLORIDE	0.50	73342	6984
3	4.80	NITRITE-N	0.50	131540	8611
4	5.97	BROMIDE	0.50	30141	1851
5	6.96	NITRATE-N	0.50	166820	8749
6	8.77	PHOSPHATE-P	0.50	50391	1663
7	10.37	SULFATE	0.50	55540	1851



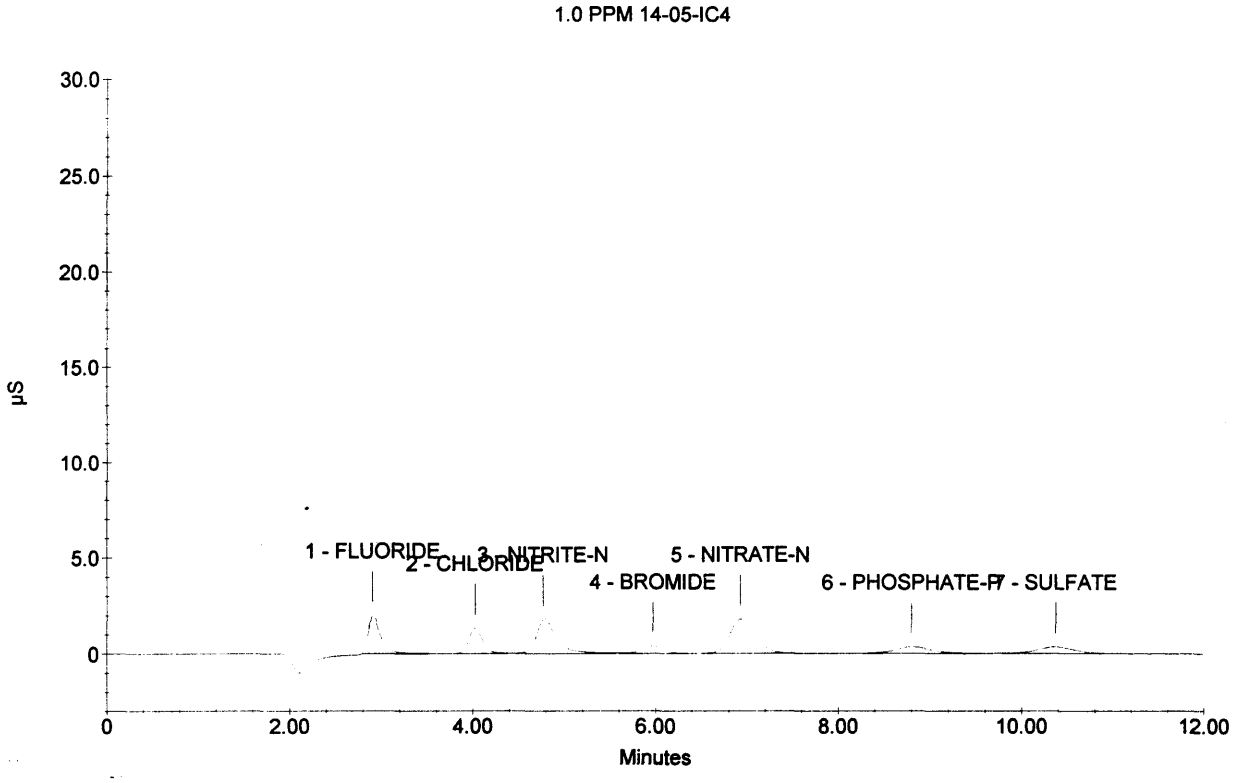
Sample Name : 1.0 PPM 14-05-IC4
Dilution Factor : 1.00
Injection Number : 4
Data File Name : c:\peaknet\data\030624\030624_004.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:39:44 AM
Date Time Updated : 6/24/03 1:35:52 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010057

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	1.00	185028	19840
2	4.02	CHLORIDE	1.00	141533	13288
3	4.77	NITRITE-N	1.00	278627	17806
4	5.97	BROMIDE	1.00	63872	3793
5	6.93	NITRATE-N	1.00	337754	17927
6	8.80	PHOSPHATE-P	1.00	92793	3387
7	10.37	SULFATE	1.00	96711	3426



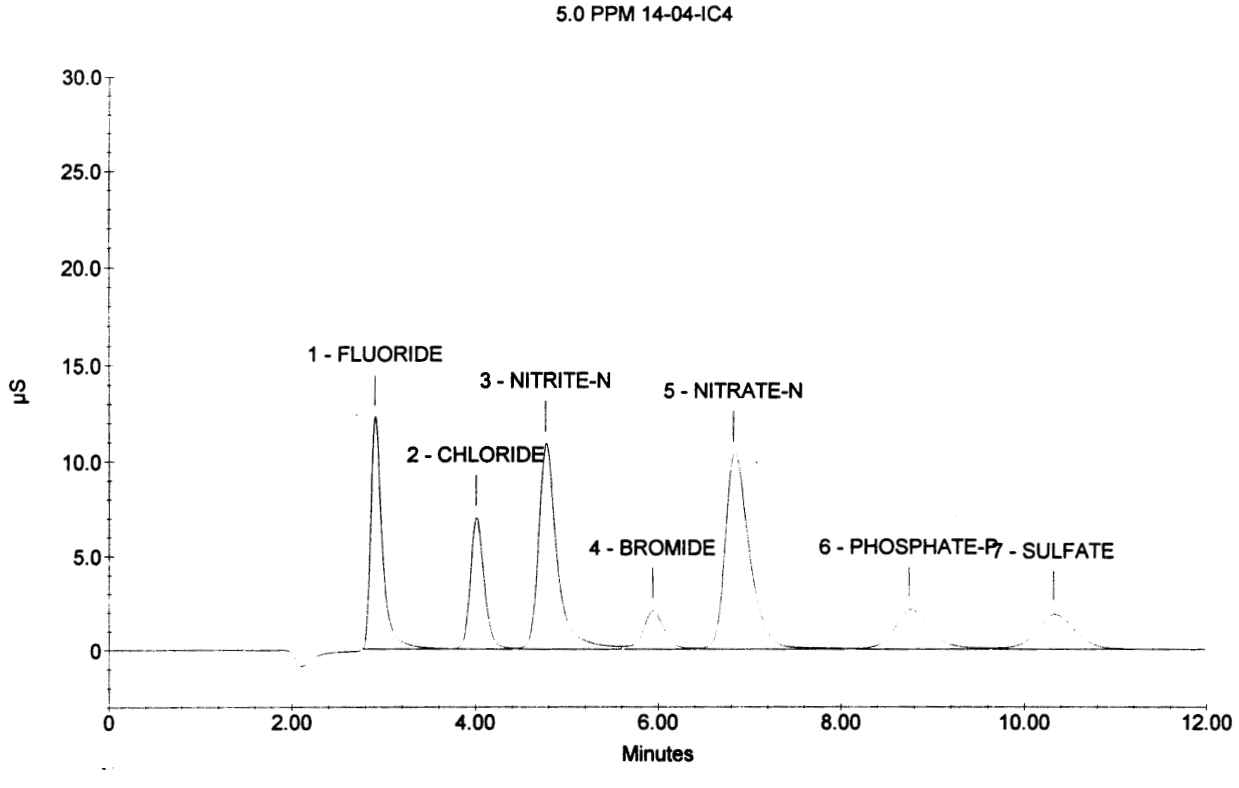
Sample Name : 5.0 PPM 14-04-IC4
Dilution Factor : 1.00
Injection Number : 5
Data File Name : c:\peaknet\data\030624\030624_005.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:54:28 AM
Date Time Updated : 6/24/03 1:35:58 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010058

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	5.00	1094072	121459
2	4.01	CHLORIDE	5.00	741154	69320
3	4.77	NITRITE-N	5.00	1554429	107926
4	5.94	BROMIDE	5.00	326514	20363
5	6.82	NITRATE-N	5.00	1934621	102655
6	8.74	PHOSPHATE-P	5.00	578937	20938
7	10.32	SULFATE	5.00	550728	18724



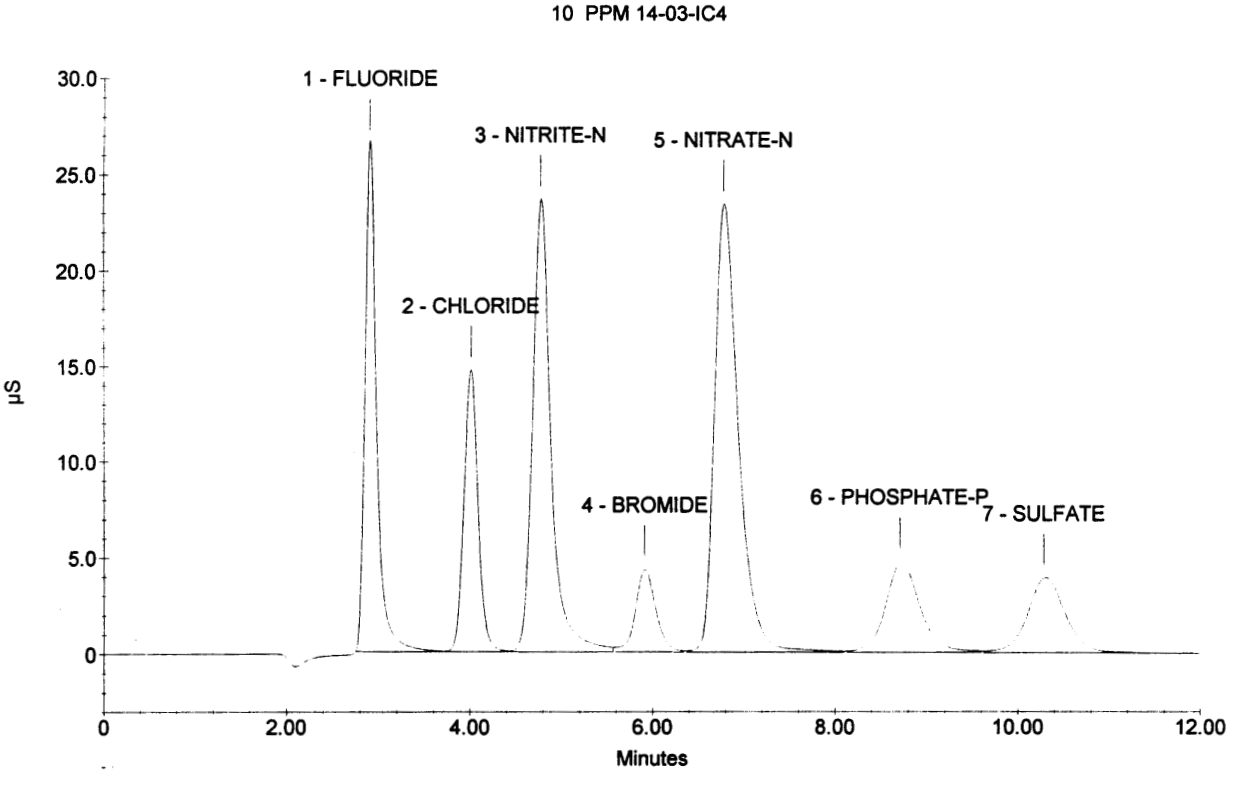
Sample Name : 10 PPM 14-03-IC4
Dilution Factor : 1.00
Injection Number : 6
Data File Name : c:\peaknet\data\030624\030624_006.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 12:09:12 PM
Date Time Updated : 6/24/03 1:36:03 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010059

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	10.00	2344015	264413
2	4.01	CHLORIDE	10.00	1573157	146596
3	4.77	NITRITE-N	10.00	3308927	235423
4	5.92	BROMIDE	10.00	664819	42710
5	6.77	NITRATE-N	10.00	4255043	233081
6	8.72	PHOSPHATE-P	10.00	1231136	46898
7	10.29	SULFATE	10.00	1118717	38600



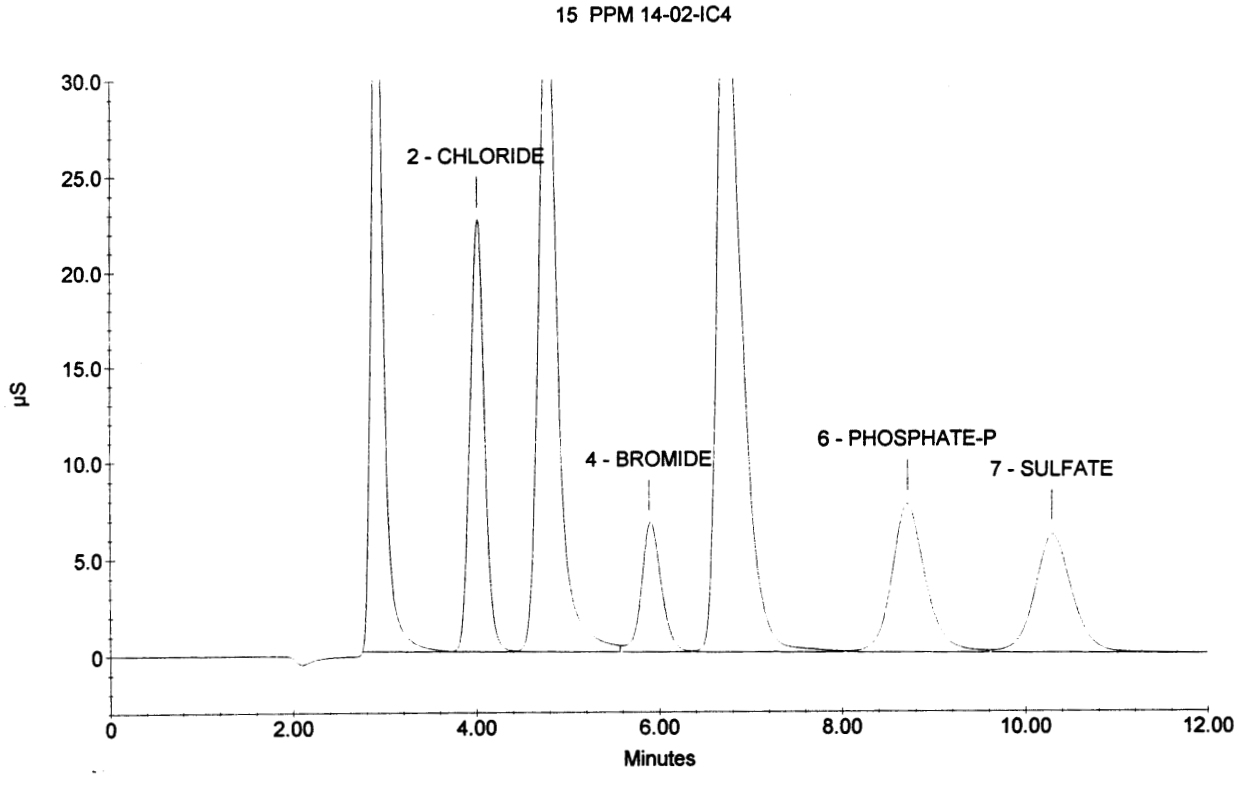
Sample Name : 15 PPM 14-02-IC4
Dilution Factor : 1.00
Injection Number : 7
Data File Name : c:\peaknet\data\030624\030624_007.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 12:23:56 PM
Date Time Updated : 6/24/03 1:36:10 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010060

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.92	FLUORIDE	15.00	3602431	399373
2	4.01	CHLORIDE	15.00	2474864	224610
3	4.77	NITRITE-N	15.00	5101685	356742
4	5.89	BROMIDE	15.00	1005042	65820
5	6.72	NITRATE-N	15.00	6752850	368134
6	8.72	PHOSPHATE-P	15.00	1942333	76592
7	10.29	SULFATE	15.00	1729846	61002



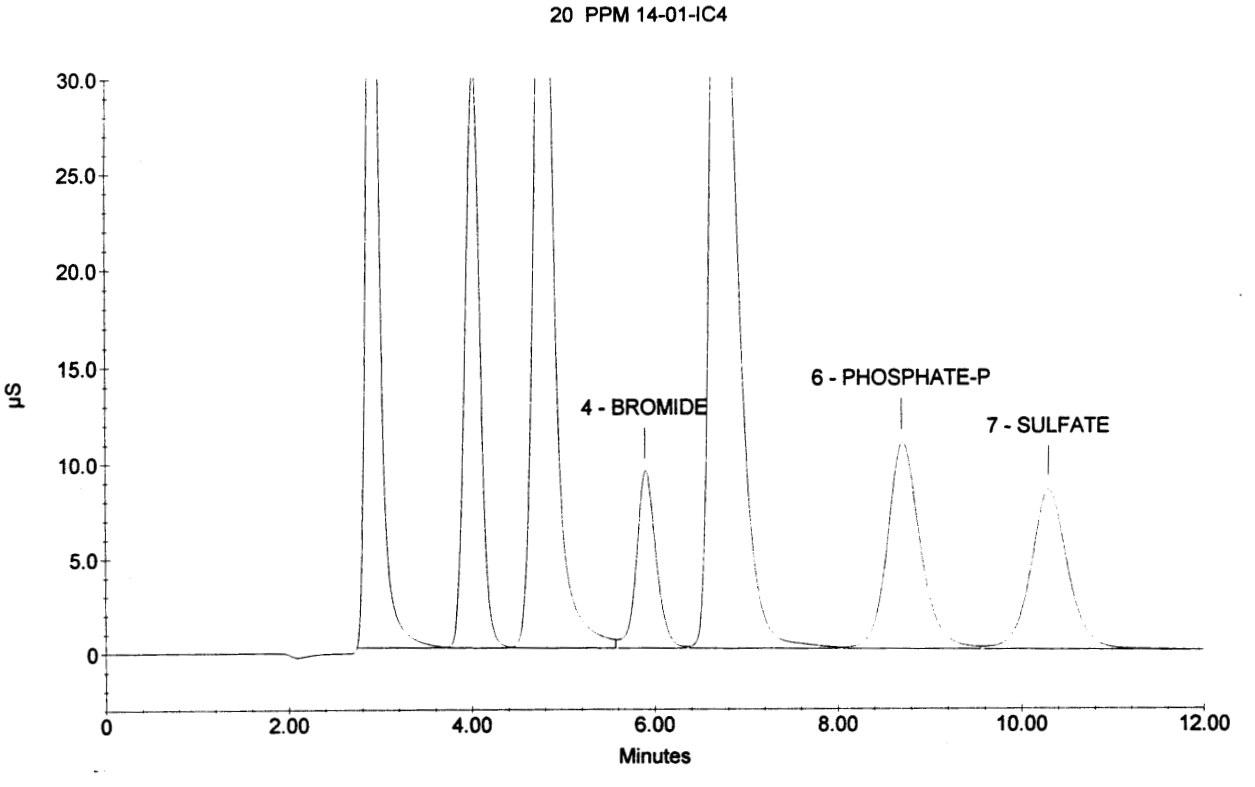
Sample Name : 20 PPM 14-01-IC4
Dilution Factor : 1.00
Injection Number : 8
Data File Name : c:\peaknet\data\030624\030624_008.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 12:38:42 PM
Date Time Updated : 6/24/03 1:36:16 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010061

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.92	FLUORIDE	20.00	4874284	520723
2	4.01	CHLORIDE	20.00	3446847	300741
3	4.77	NITRITE-N	20.00	6922817	463983
4	5.89	BROMIDE	20.00	1383197	93152
5	6.69	NITRATE-N	20.00	9448852	513142
6	8.69	PHOSPHATE-P	20.00	2704739	108684
7	10.29	SULFATE	20.00	2367997	84378



Sample Name : ICV
Dilution Factor : 20.00
Injection Number : 9
Data File Name : c:\peaknet\data\030624\030624_A009.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

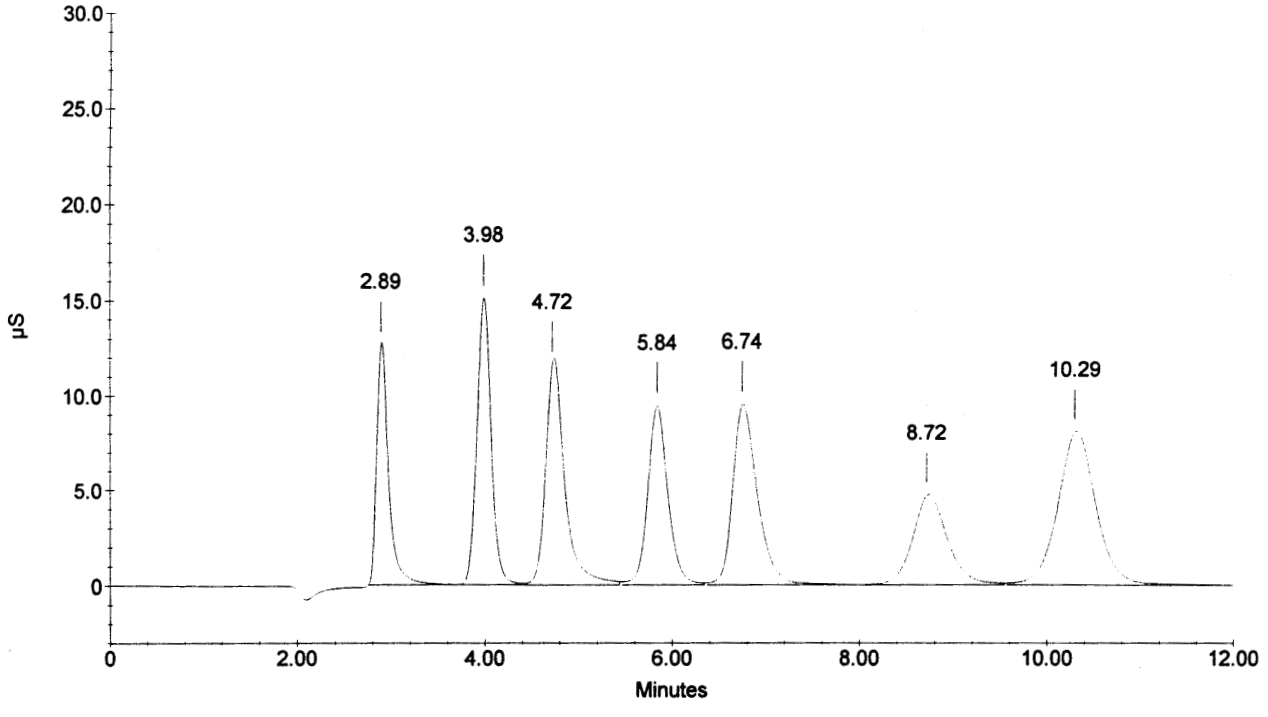
Date Time Collected : 6/24/03 1:25:40 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010062

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.89	FLUORIDE	101.960	125838	1122913	2	-1.03
2	3.98	CHLORIDE	202.880	150134	1594362	2	-0.67
3	4.72	NITRITE-N	107.297	115444	1682919	2	-1.12
4	5.84	BROMIDE	405.093	94012	1402931	2	-0.91
5	6.74	NITRATE-N	90.311	94714	1747576	2	0.80
6	8.72	PHOSPHATE-P	199.357	46742	1224394	2	0.31
7	10.29	SULFATE	388.155	80265	2290640	2	0.00
	0.00		—total(s)— 1495.054		11065733		

ICV



Sample Name : ICV
Dilution Factor : 20.00
Injection Number : 9
Data File Name : c:\peaknet\data\030624\030624_A009.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

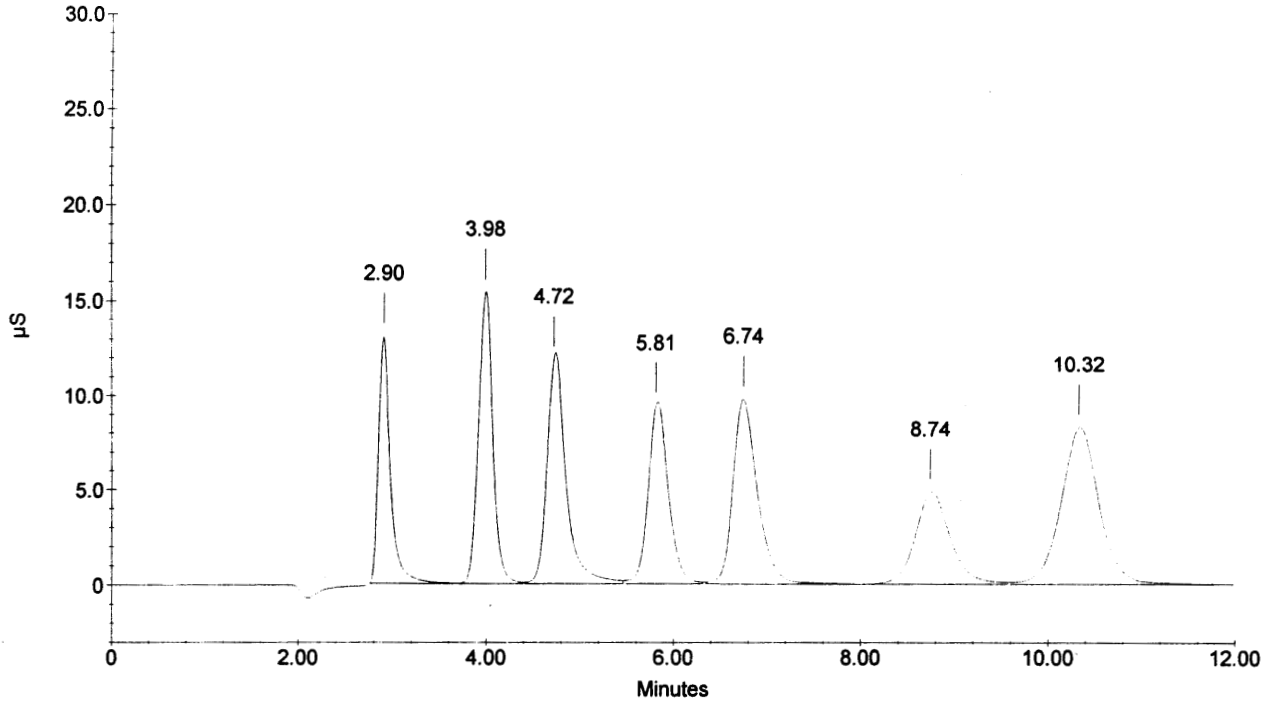
Date Time Collected : 6/24/03 2:00:47 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010063

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	103.667	129970	1143055	2	-0.57
2	3.98	CHLORIDE	207.125	152932	1631407	2	-0.67
3	4.72	NITRITE-N	108.939	117894	1710332	2	-1.12
4	5.81	BROMIDE	410.039	93680	1422832	2	-1.36
5	6.74	NITRATE-N	91.402	97170	1770324	2	0.80
6	8.74	PHOSPHATE-P	203.175	48190	1250593	2	0.61
7	10.32	SULFATE	394.719	82516	2333609	2	0.26
	0.00		---total(s)--- 1519.065		11262152		

ICV



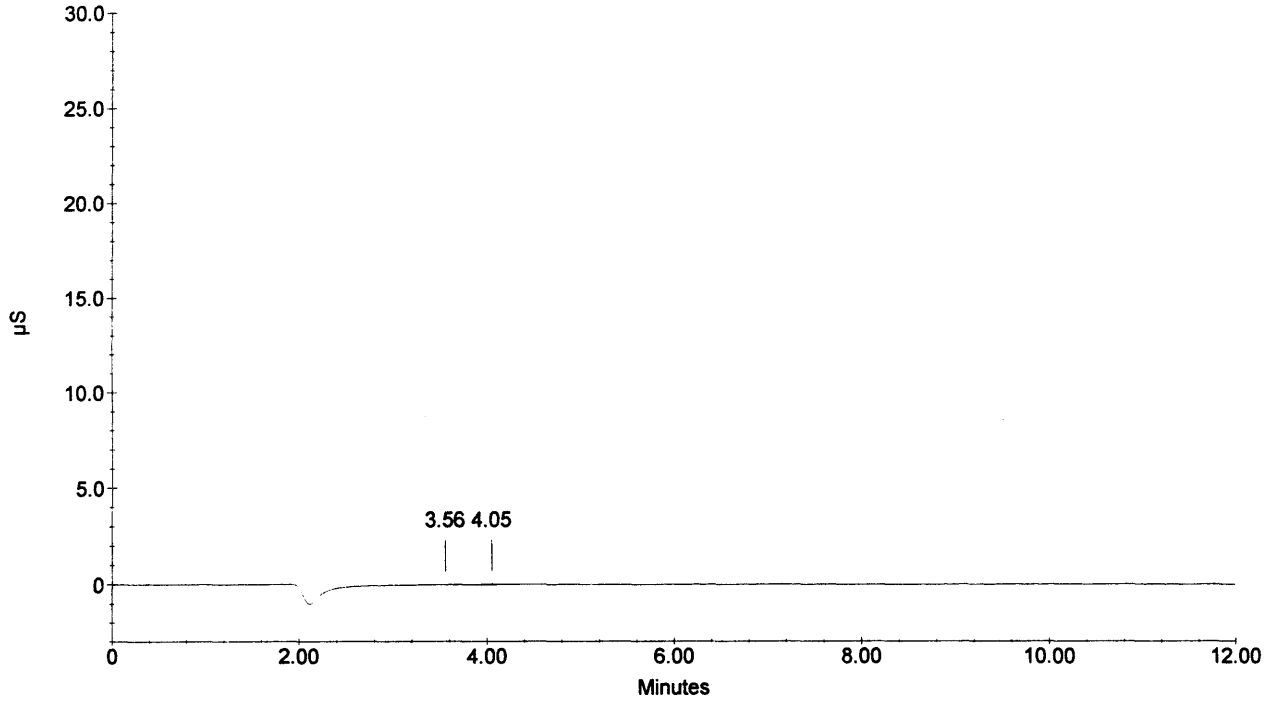
Sample Name : ICB
Dilution Factor : 1.00
Injection Number : 10
Data File Name : c:\peaknet\data\030624\030624_010.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 2:15:38 PM
System Name : Dx-500
Detector Name : Conductivity Detector **010064**
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	3.56		0.000	56	8	1	
2	4.05	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P SULFATE	0.004	200	2070	1	1.00
	0.00		---total(s)--- 0.004		2078		

ICB



Book/Page: 10 120

010065

Southwest Research Institute

RSpires 7/30/03

Schedule File: C:\PeakNet\schedule\31JUL03.sch

Line	Sample	Sample Type	Level	Method	Data File	Dilution
1	ICV	Sample		anions030624.met	030730_001.dxd	20
2	ICB	Sample		anions030624.met	030730_002.dxd	1
3	231141	Sample		anions030624.met	030730_003.dxd	200
4	231141D	Sample		anions030624.met	030730_004.dxd	200
5	231141S	Sample		anions030624.met	030730_005.dxd	200
6	231142	Sample		anions030624.met	030730_006.dxd	200
7	230256	Sample		anions030624.met	030730_007.dxd	1
8	230256D	Sample		anions030624.met	030730_008.dxd	1
9	230256S	Sample		anions030624.met	030730_009.dxd	1
10	230257	Sample		anions030624.met	030730_010.dxd	1
11	230258	Sample		anions030624.met	030730_011.dxd	1
12	CCV	Sample		anions030624.met	030730_012.dxd	20
13	CCB	Sample		anions030624.met	030730_013.dxd	1
14	230256	Sample		anions030624.met	030730_014.dxd	20
15	230256D	Sample		anions030624.met	030730_015.dxd	20
16	230256S	Sample		anions030624.met	030730_016.dxd	20
17	230257	Sample		anions030624.met	030730_017.dxd	20
18	230258	Sample		anions030624.met	030730_018.dxd	20
19	230256	Sample		anions030624.met	030730_019.dxd	400
20	230256D	Sample		anions030624.met	030730_020.dxd	400
21	230256S	Sample		anions030624.met	030730_021.dxd	400
22	CCV	Sample		anions030624.met	030730_022.dxd	20
23	CCB	Sample		anions030624.met	030730_023.dxd	20

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: c:\peaknet\data\030731
Comment:
DIV 20 TO#030714-6 06002.01.141
DIV 20 TO#030728-4 06002.01.081

Book/Page: 10 121

Southwest Research Institute

Dionex DX500 Ion Chromatography Daily Log

010066

Analyst: RSpier

Date: 7/31/03

Conductivity: 17.3

Client	Project #	TO #	Analytical Method
DIV 20	06002.01.141	030714-6	300M
	06002.01.081	030728-4	300M

Loop: 40ul

Column: AS14 : 13535

Method: Anions 030624

Calibration: 6/24/03

Comments:

ICV/CCV/MS:

1st Source: Spex (Inorg # 3989)

Lot #: 24-79AS

CCV Conc: 1:20

MS Conc: 1:100

2nd Source: NitriteN

Lot #: 190-01-IC3

CCV Conc: 1:20

MS Conc: 1:100

✓

1.0 mM Sodium Bicarbonate & 3.5 mM Sodium Carbonate — ELUENT SOLUTION PREP: FV = 2.0L DI H20

Weight: 0.168 $NaHCO_3$

Source: Aldrich

Lot: 15308FI

Weight: Na_2HCO_3

Source: Alfa Aesar

Lot: L06M34

____ Other Eluent:

50 mA-Autoregen (ASRS)

____ Other Regen:

Balance #34

Eppendorfs: 5000 L
1000 C
200 D

✓ AMB 8/6/03

Schedule File: C:\PeakNet\schedule\030624.sch

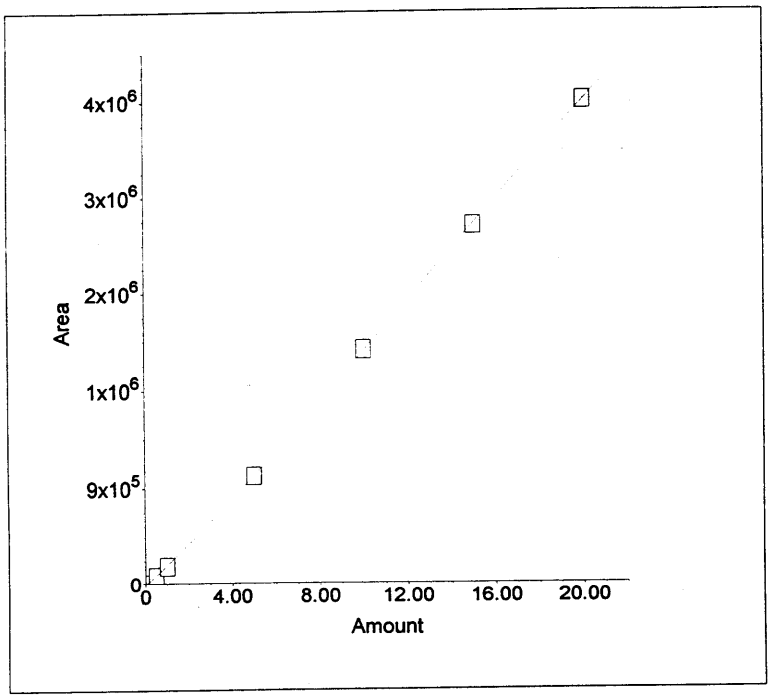
Line	Sample	Sample Type	Level	Method	Data File	Dilution
1	0 PPM 14-08-IC4	Calibration St	1	anions030624.met	030624_001.dxd	1
2	0.1 PPM 14-07-IC4	Calibration St	2	anions030624.met	030624_002.dxd	1
3	0.5 PPM 14-06-IC4	Calibration St	3	anions030624.met	030624_003.dxd	1
4	1.0 PPM 14-05-IC4	Calibration St	4	anions030624.met	030624_004.dxd	1
5	5.0 PPM 14-04-IC4	Calibration St	5	anions030624.met	030624_005.dxd	1
6	10 PPM 14-03-IC4	Calibration St	6	anions030624.met	030624_006.dxd	1
7	15 PPM 14-02-IC4	Calibration St	7	anions030624.met	030624_007.dxd	1
8	20 PPM 14-01-IC4	Calibration St	8	anions030624.met	030624_008.dxd	1
9	ICV	Sample		anions030624.met	030624_a009.dxd	20
10	ICB	Sample		anions030624.met	030624_010.dxd	1
11	ICB	Sample		astop.met	030624_001.dxd	1

010067

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: c:\peaknet\data\030624
Comment:

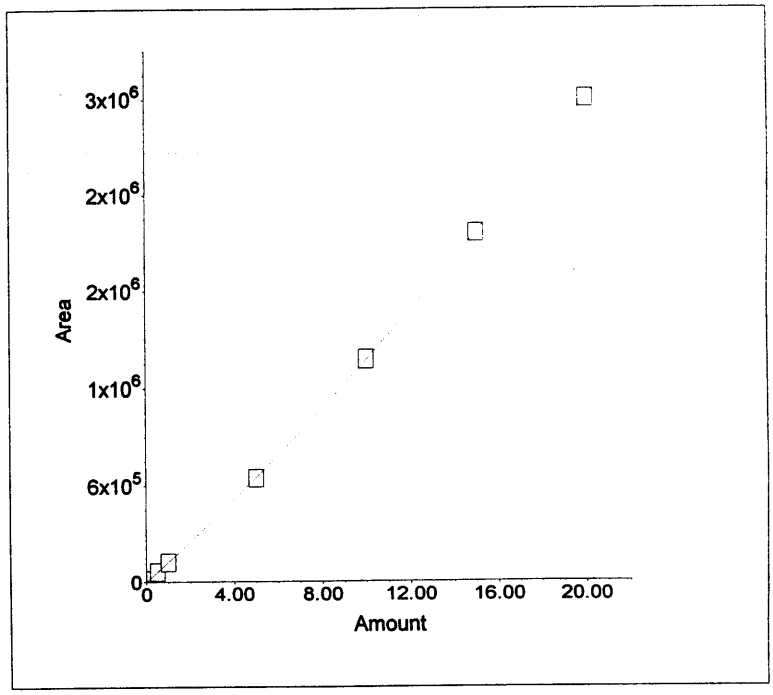
ams
6/24/03

1. Component:FLUORIDE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999961
Amt=2.886309e-020*Resp³+
-2.766160e-013*Resp²+
4.754364e-006*Resp+0.06717

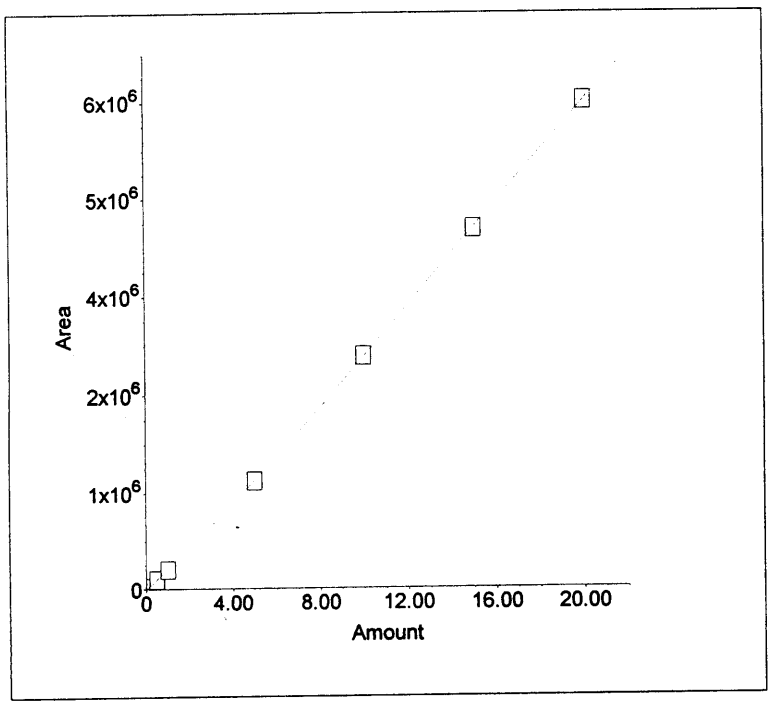


2. Component:CHLORIDE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999997
Amt=4.893602e-020*Resp³+
-5.505325e-013*Resp²+
7.122677e-006*Resp+-0.01098

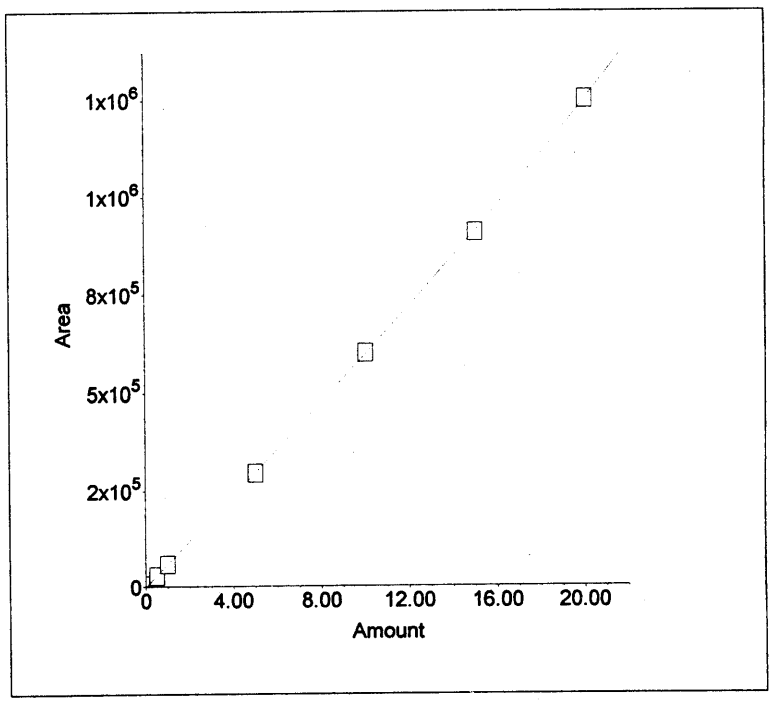
010068



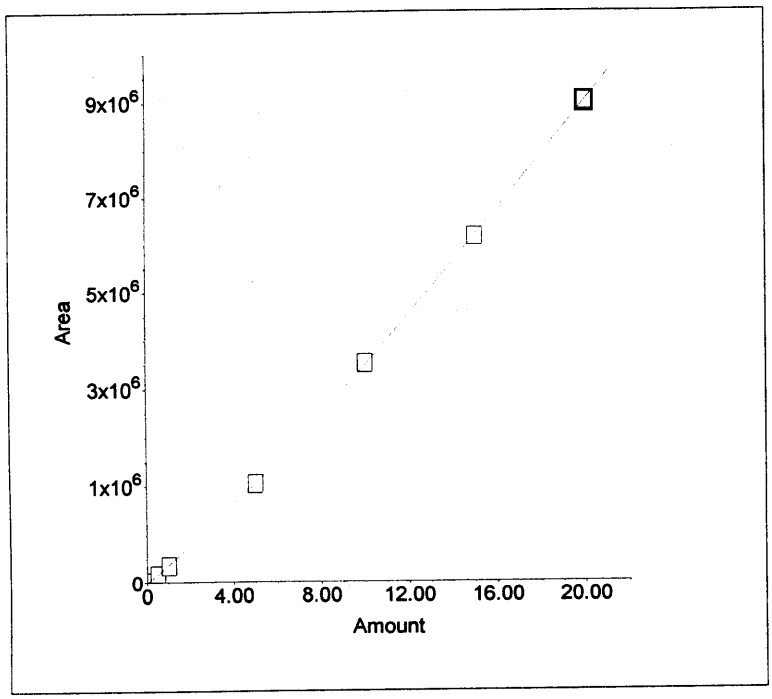
3. Component:NITRITE-N
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999982
Amt=9.007937e-021*Resp³+
-1.310152e-013*Resp²+
3.359965e-006*Resp+0.03845



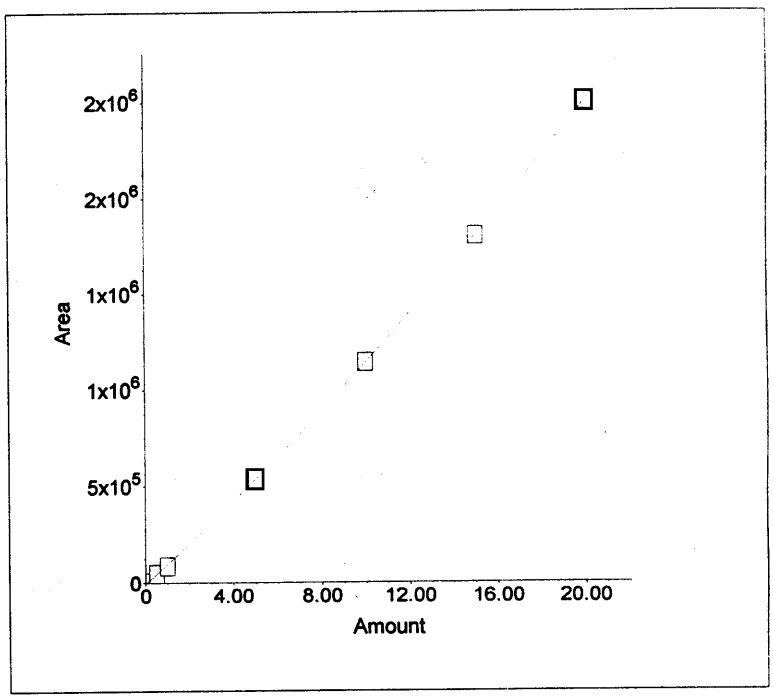
4. Component:BROMIDE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999986
Amt=-6.678409e-019*Resp³+
4.878219e-013*Resp²+
1.504729e-005*Resp+0.02831



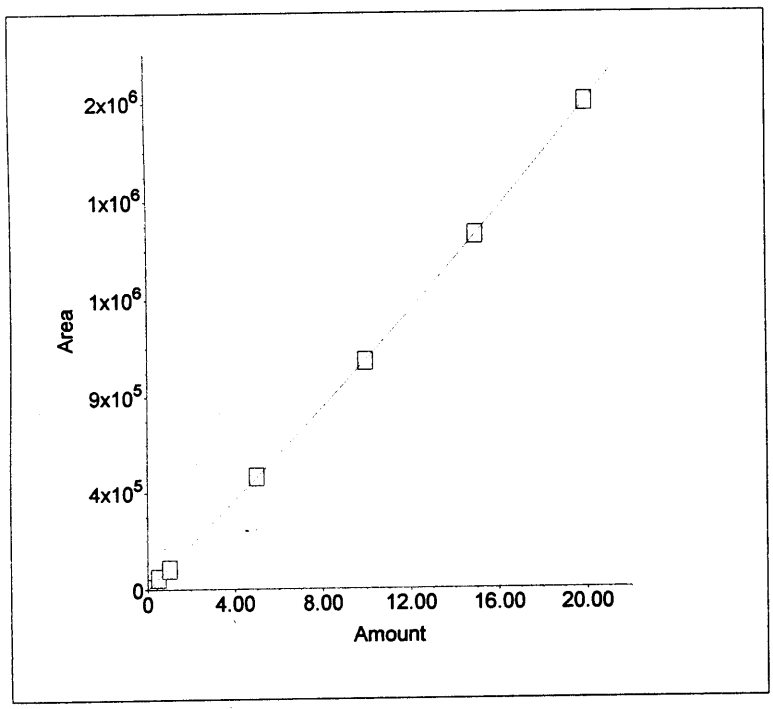
5. Component:NITRATE-N
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999971
Amt=4.523974e-021*Resp^3+
-1.088093e-013*Resp^2+
2.737724e-006*Resp+0.03934



6. Component:PHOSPHATE-P
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999961
Amt=1.095516e-019*Resp^3+ **010069**
-9.155379e-013*Resp^2+
9.048461e-006*Resp+0.0604



7. Component:SULFATE
Standard:External Fit Type:Cubic
Origin:Include Calibration:Area
r^2=0.999967
Amt=1.363293e-020*Resp^3+
-4.177492e-013*Resp^2+
9.351856e-006*Resp+0.01408



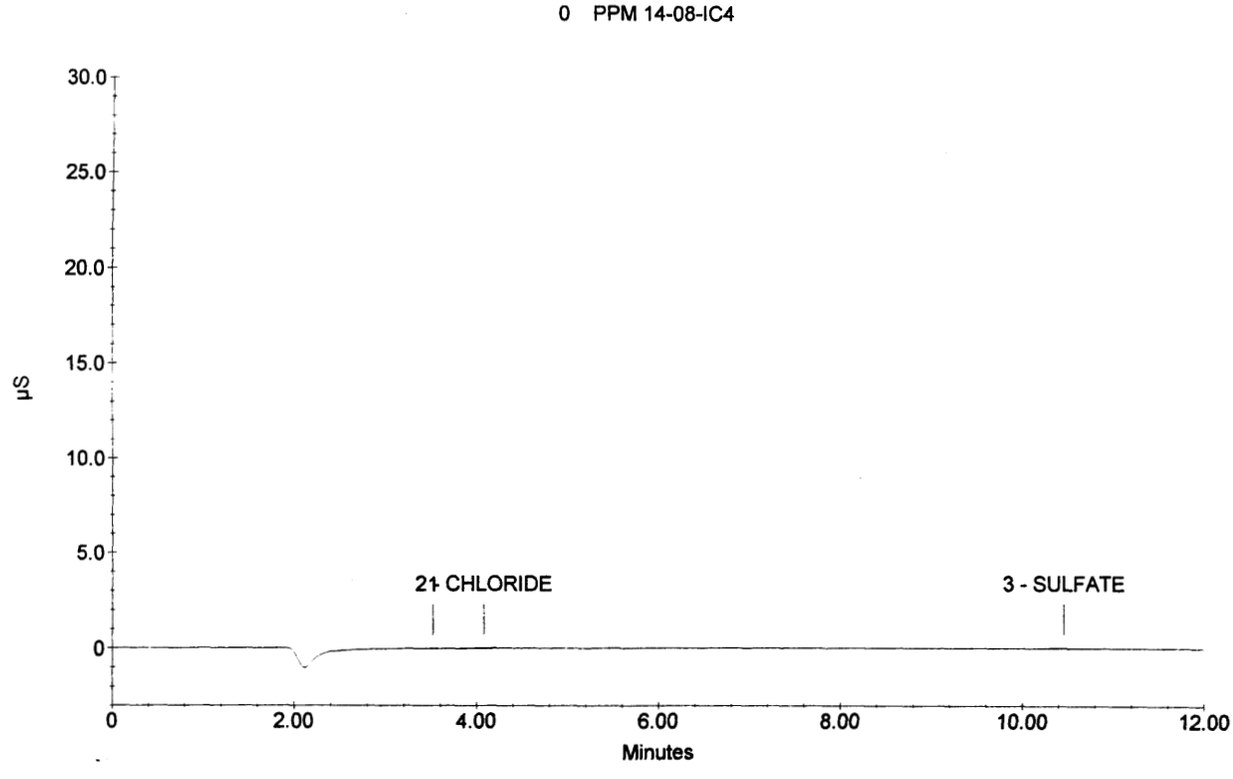
Sample Name : 0 PPM 14-08-IC4
Dilution Factor : 1.00
Injection Number : 1
Data File Name : c:\peaknet\data\030624\030624_001.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 10:55:28 AM
Date Time Updated : 6/24/03 1:35:25 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010070

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	3.52		0.00	1587	117
2	4.08	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P	0.00	3065	214
3	10.45	SULFATE	0.00	3983	208



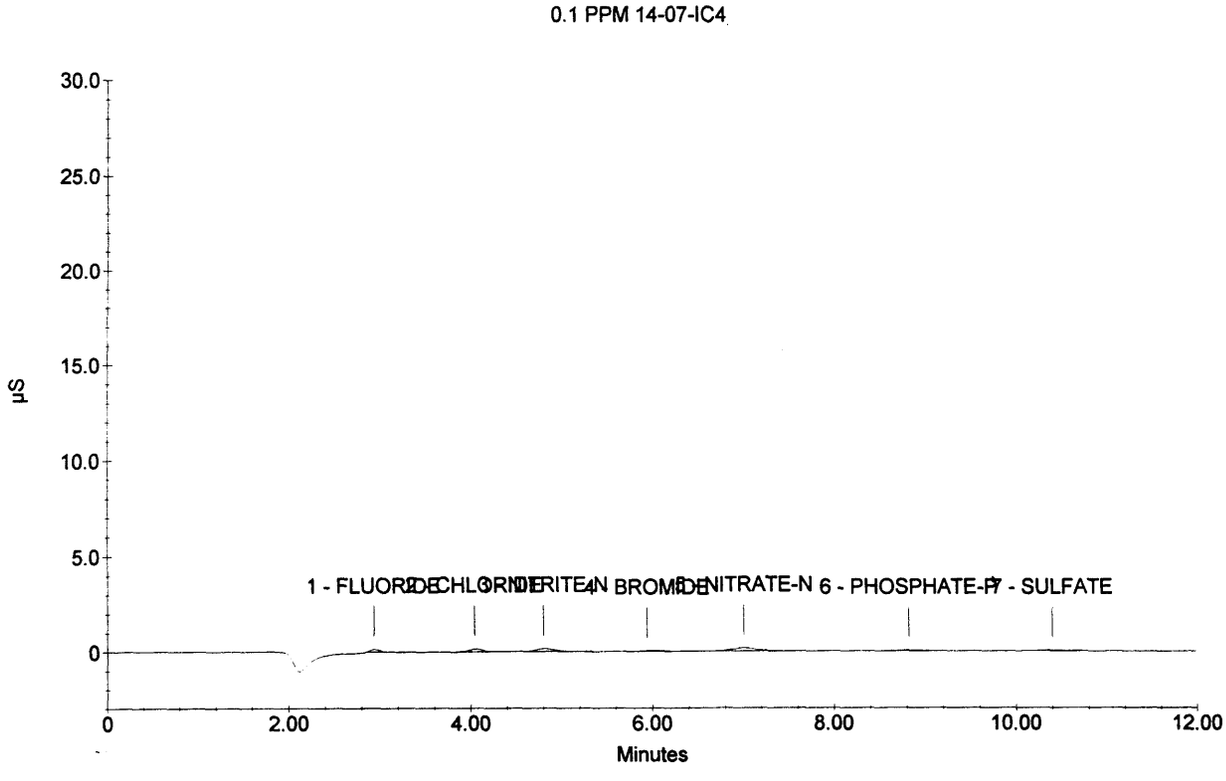
Sample Name : 0.1 PPM 14-07-IC4
Dilution Factor : 1.00
Injection Number : 2
Data File Name : c:\peaknet\data\030624\030624_002.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:10:15 AM
Date Time Updated : 6/24/03 1:35:38 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010071

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.93	FLUORIDE	0.10	10171	1386
2	4.04	CHLORIDE	0.10	16762	1535
3	4.80	NITRITE-N	0.10	23500	1583
4	5.94	BROMIDE	0.10	4942	307
5	7.01	NITRATE-N	0.10	29499	1640
6	8.82	PHOSPHATE-P	0.10	5993	340
7	10.40	SULFATE	0.10	5521	253



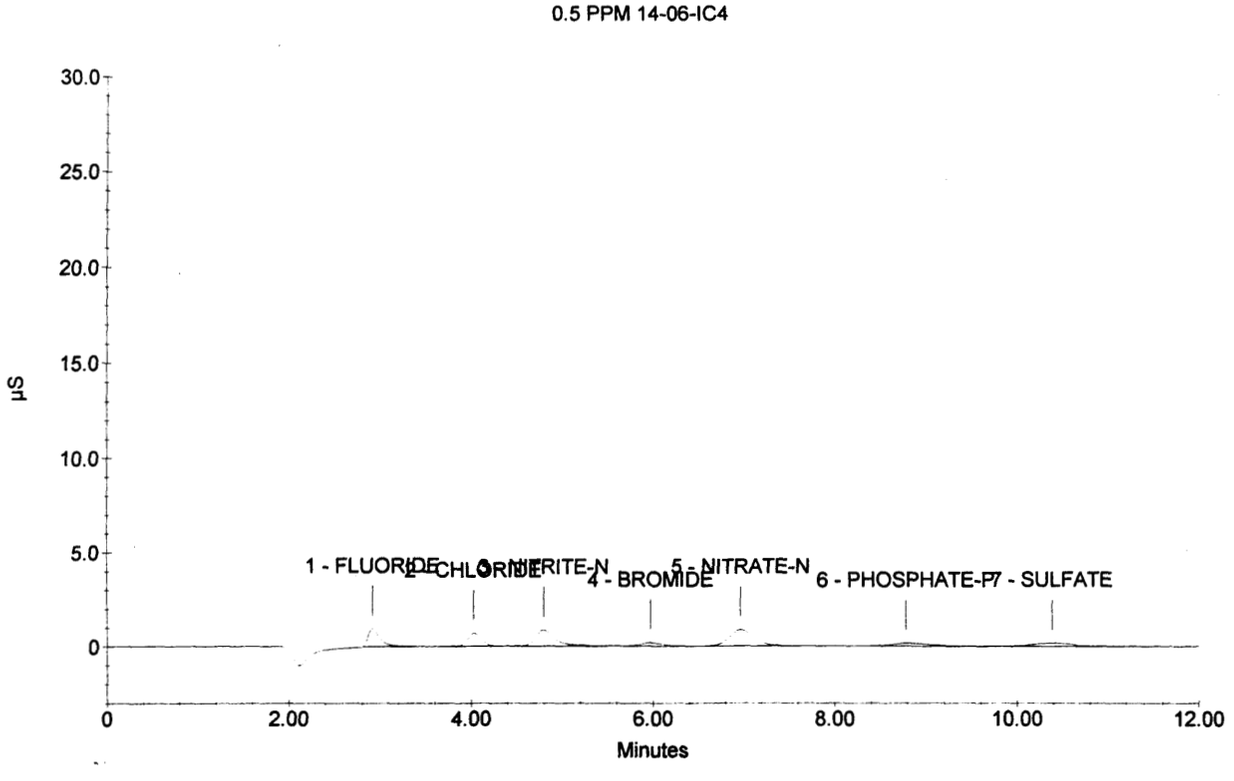
Sample Name : 0.5 PPM 14-06-IC4
Dilution Factor : 1.00
Injection Number : 3
Data File Name : c:\peaknet\data\030624\030624_003.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:24:58 AM
Date Time Updated : 6/24/03 1:35:46 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010072

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.92	FLUORIDE	0.50	86232	9462
2	4.02	CHLORIDE	0.50	73342	6984
3	4.80	NITRITE-N	0.50	131540	8611
4	5.97	BROMIDE	0.50	30141	1851
5	6.96	NITRATE-N	0.50	166820	8749
6	8.77	PHOSPHATE-P	0.50	50391	1663
7	10.37	SULFATE	0.50	55540	1851



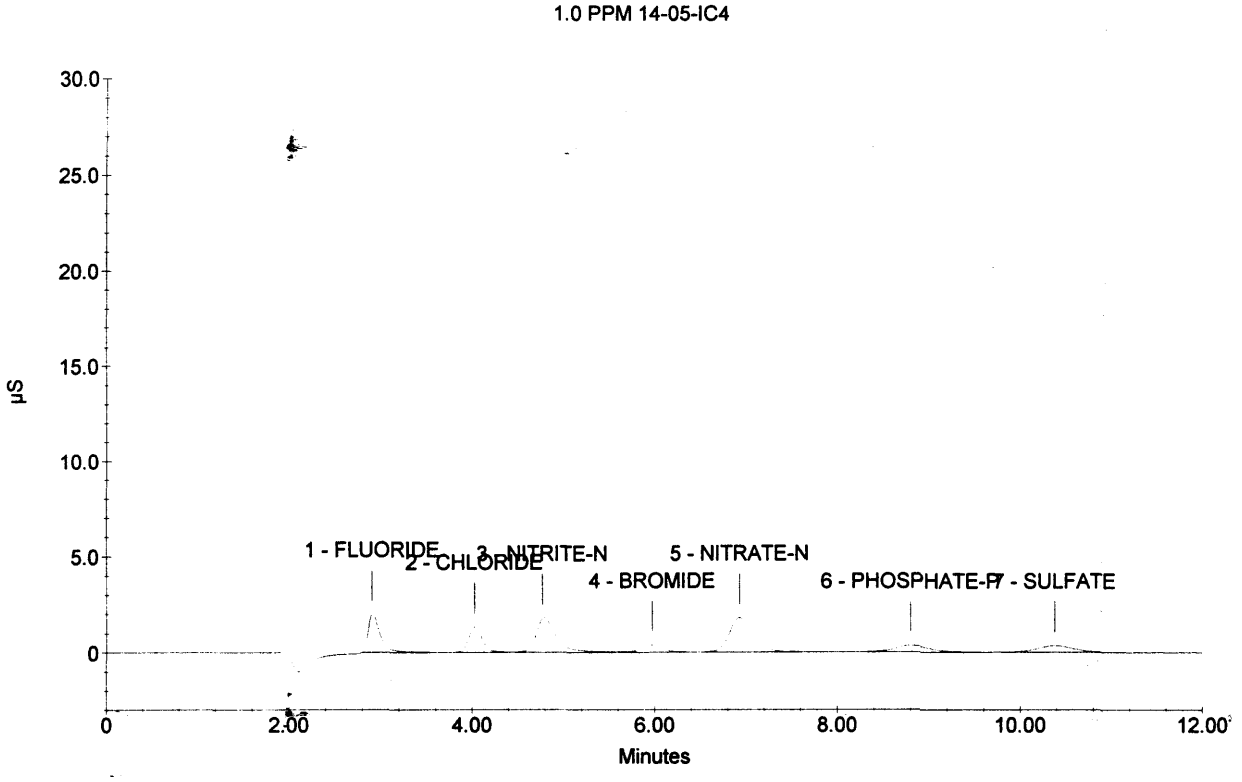
Sample Name : 1.0 PPM 14-05-IC4
Dilution Factor : 1.00
Injection Number : 4
Data File Name : c:\peaknet\data\030624\030624_004.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:39:44 AM
Date Time Updated : 6/24/03 1:35:52 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010073

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	1.00	185028	19840
2	4.02	CHLORIDE	1.00	141533	13288
3	4.77	NITRITE-N	1.00	278627	17806
4	5.97	BROMIDE	1.00	63872	3793
5	6.93	NITRATE-N	1.00	337754	17927
6	8.80	PHOSPHATE-P	1.00	92793	3387
7	10.37	SULFATE	1.00	96711	3426

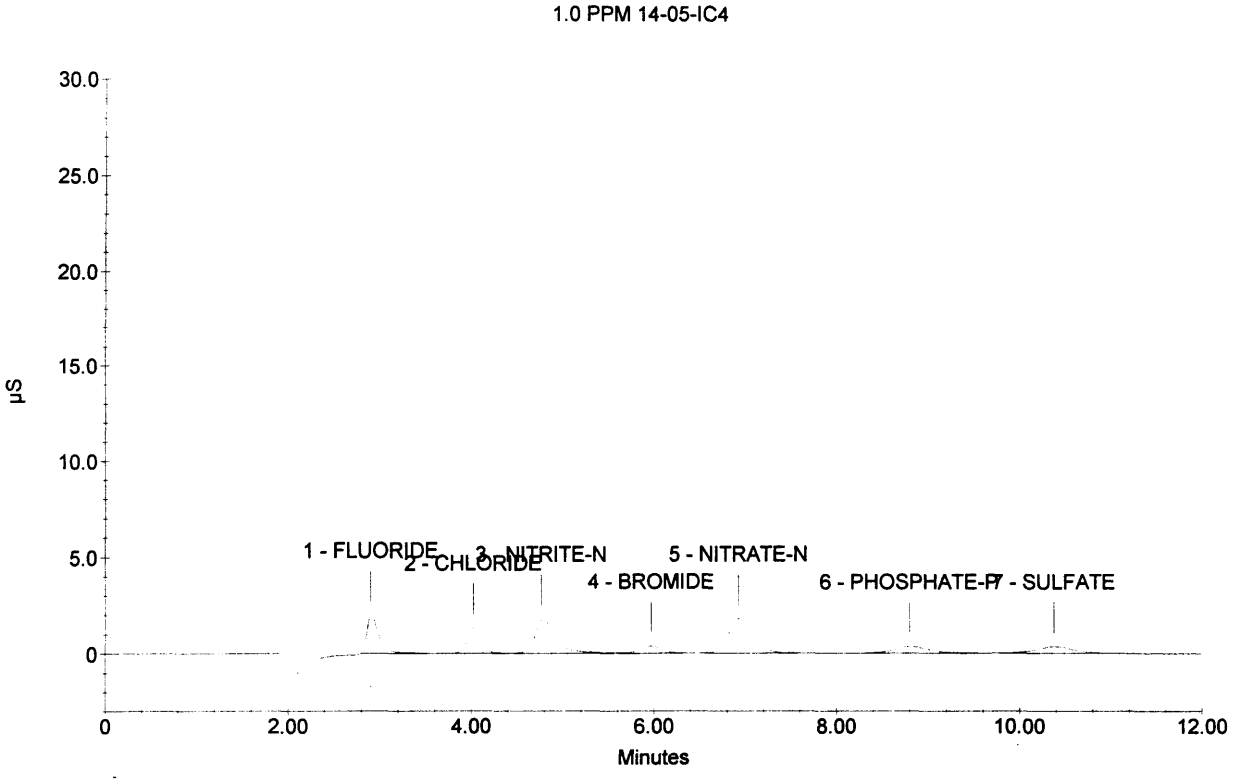


Sample Name : 1.0 PPM 14-05-IC4
Dilution Factor : 1.00
Injection Number : 4
Data File Name : c:\peaknet\data\030624\030624_004.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:39:44 AM
Date Time Updated : 6/24/03 1:35:52 PM **010074**
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	1.00	185028	19840
2	4.02	CHLORIDE	1.00	141533	13288
3	4.77	NITRITE-N	1.00	278627	17806
4	5.97	BROMIDE	1.00	63872	3793
5	6.93	NITRATE-N	1.00	337754	17927
6	8.80	PHOSPHATE-P	1.00	92793	3387
7	10.37	SULFATE	1.00	96711	3426



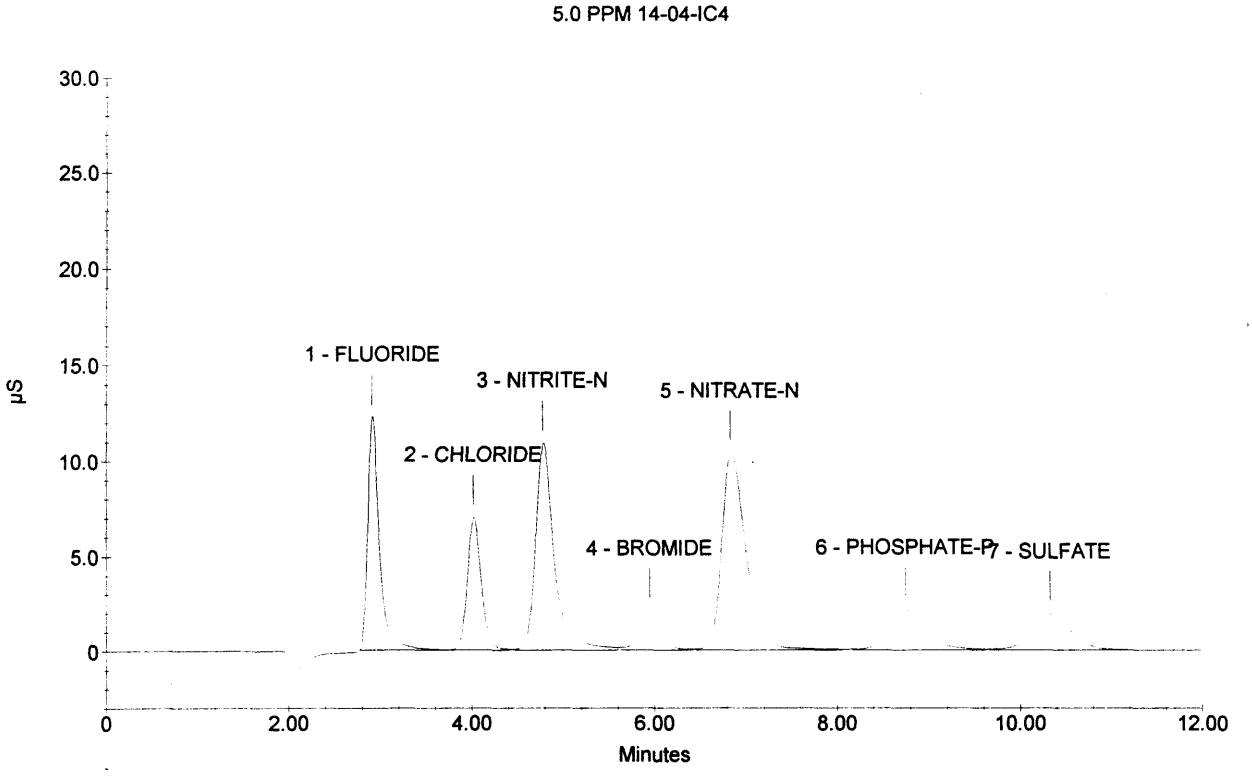
Sample Name : 5.0 PPM 14-04-IC4
Dilution Factor : 1.00
Injection Number : 5
Data File Name : c:\peaknet\data\030624\030624_005.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 11:54:28 AM
Date Time Updated : 6/24/03 1:35:58 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010075

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	5.00	1094072	121459
2	4.01	CHLORIDE	5.00	741154	69320
3	4.77	NITRITE-N	5.00	1554429	107926
4	5.94	BROMIDE	5.00	326514	20363
5	6.82	NITRATE-N	5.00	1934621	102655
6	8.74	PHOSPHATE-P	5.00	578937	20938
7	10.32	SULFATE	5.00	550728	18724



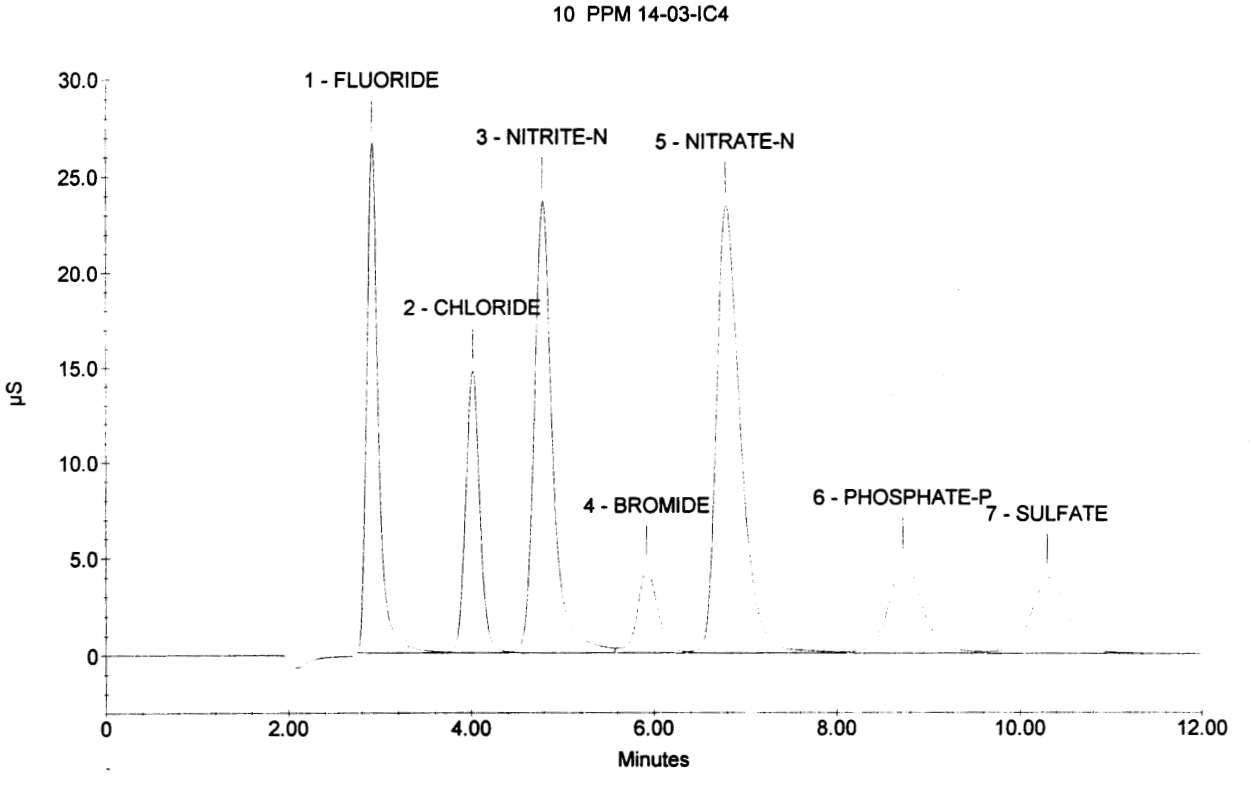
Sample Name : 10 PPM 14-03-IC4
Dilution Factor : 1.00
Injection Number : 6
Data File Name : c:\peaknet\data\030624\030624_006.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 12:09:12 PM
Date Time Updated : 6/24/03 1:36:03 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010076

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.90	FLUORIDE	10.00	2344015	264413
2	4.01	CHLORIDE	10.00	1573157	146596
3	4.77	NITRITE-N	10.00	3308927	235423
4	5.92	BROMIDE	10.00	664819	42710
5	6.77	NITRATE-N	10.00	4255043	233081
6	8.72	PHOSPHATE-P	10.00	1231136	46898
7	10.29	SULFATE	10.00	1118717	38600



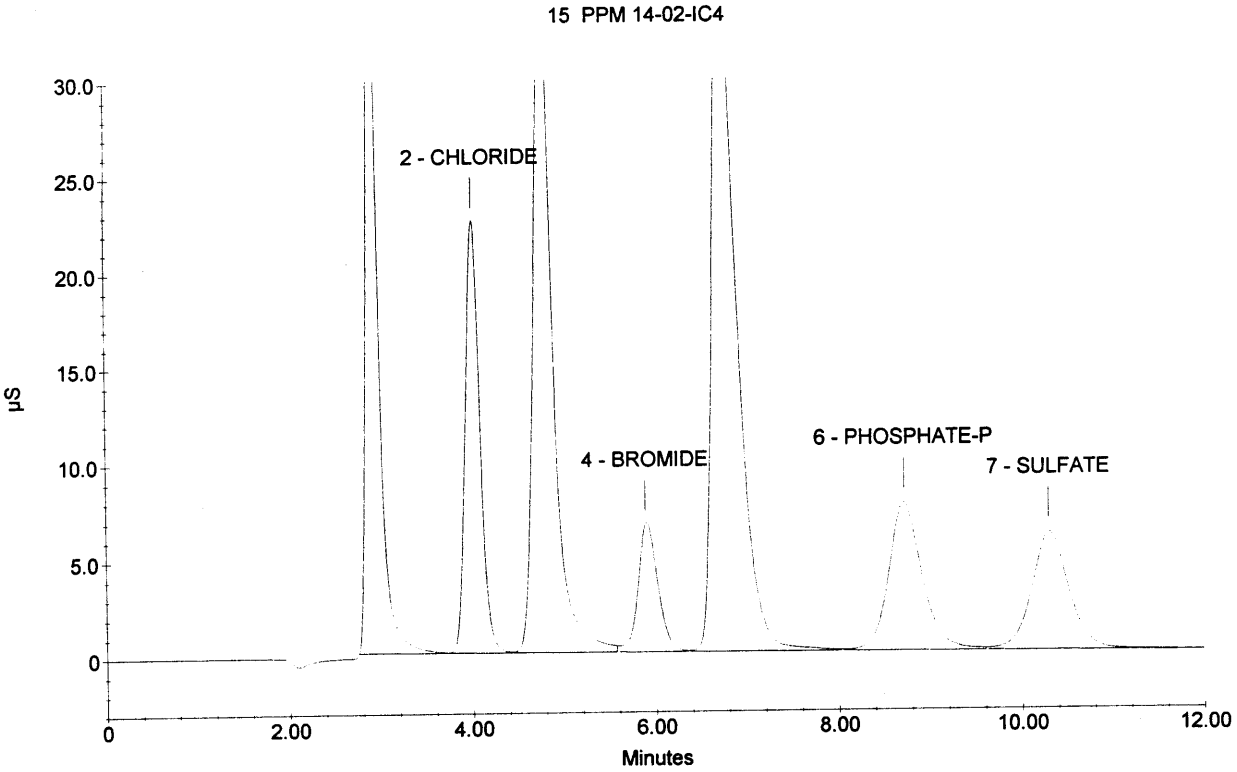
Sample Name : 15 PPM 14-02-IC4
Dilution Factor : 1.00
Injection Number : 7
Data File Name : c:\peaknet\data\030624\030624_007.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 12:23:56 PM
Date Time Updated : 6/24/03 1:36:10 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010077

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.92	FLUORIDE	15.00	3602431	399373
2	4.01	CHLORIDE	15.00	2474864	224610
3	4.77	NITRITE-N	15.00	5101685	356742
4	5.89	BROMIDE	15.00	1005042	65820
5	6.72	NITRATE-N	15.00	6752850	368134
6	8.72	PHOSPHATE-P	15.00	1942333	76592
7	10.29	SULFATE	15.00	1729846	61002



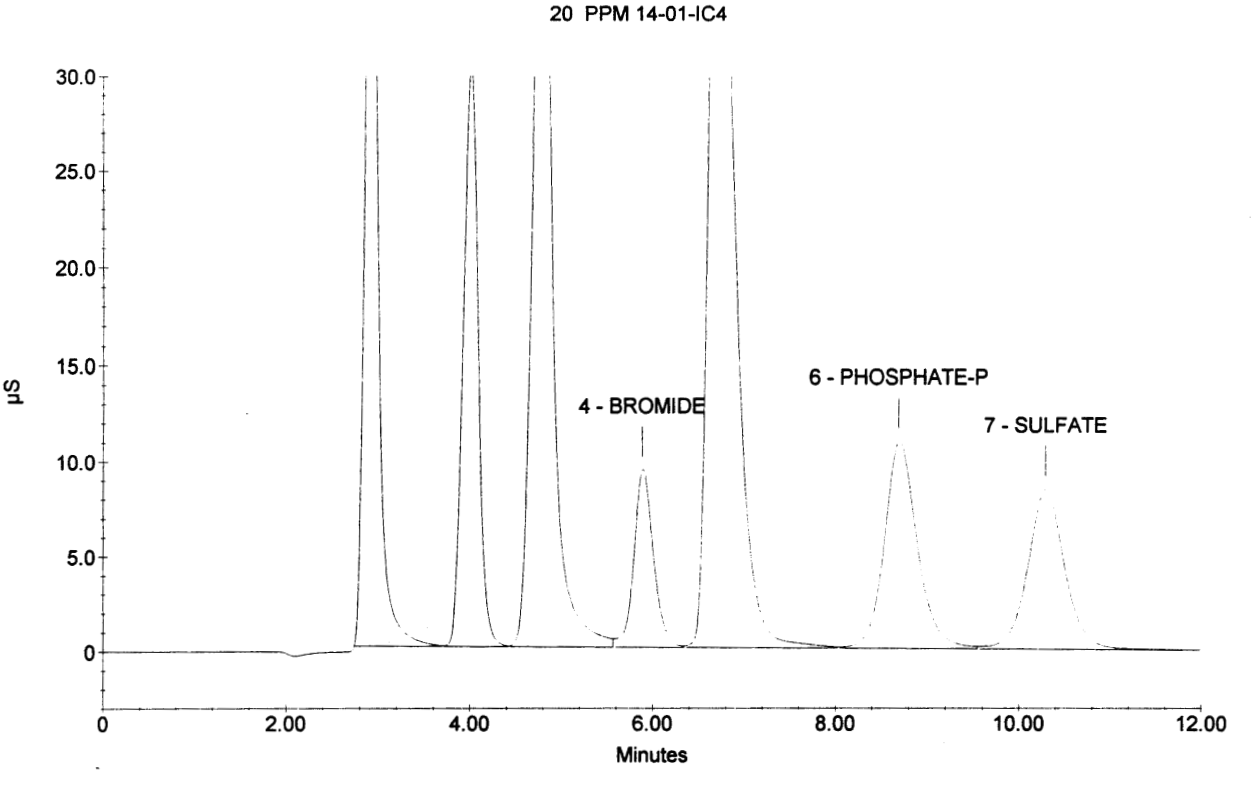
Sample Name : 20 PPM 14-01-IC4
Dilution Factor : 1.00
Injection Number : 8
Data File Name : c:\peaknet\data\030624\030624_008.DXD
Method File Name : ...\ANIONS030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 12:38:42 PM
Date Time Updated : 6/24/03 1:36:16 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010078

Peak Information : All Components

Peak Number	Peak Retention Time	Component Name	Concentration, ppm (ppm)	Peak Area	Peak Height
1	2.92	FLUORIDE	20.00	4874284	520723
2	4.01	CHLORIDE	20.00	3446847	300741
3	4.77	NITRITE-N	20.00	6922817	463983
4	5.89	BROMIDE	20.00	1383197	93152
5	6.69	NITRATE-N	20.00	9448852	513142
6	8.69	PHOSPHATE-P	20.00	2704739	108684
7	10.29	SULFATE	20.00	2367997	84378



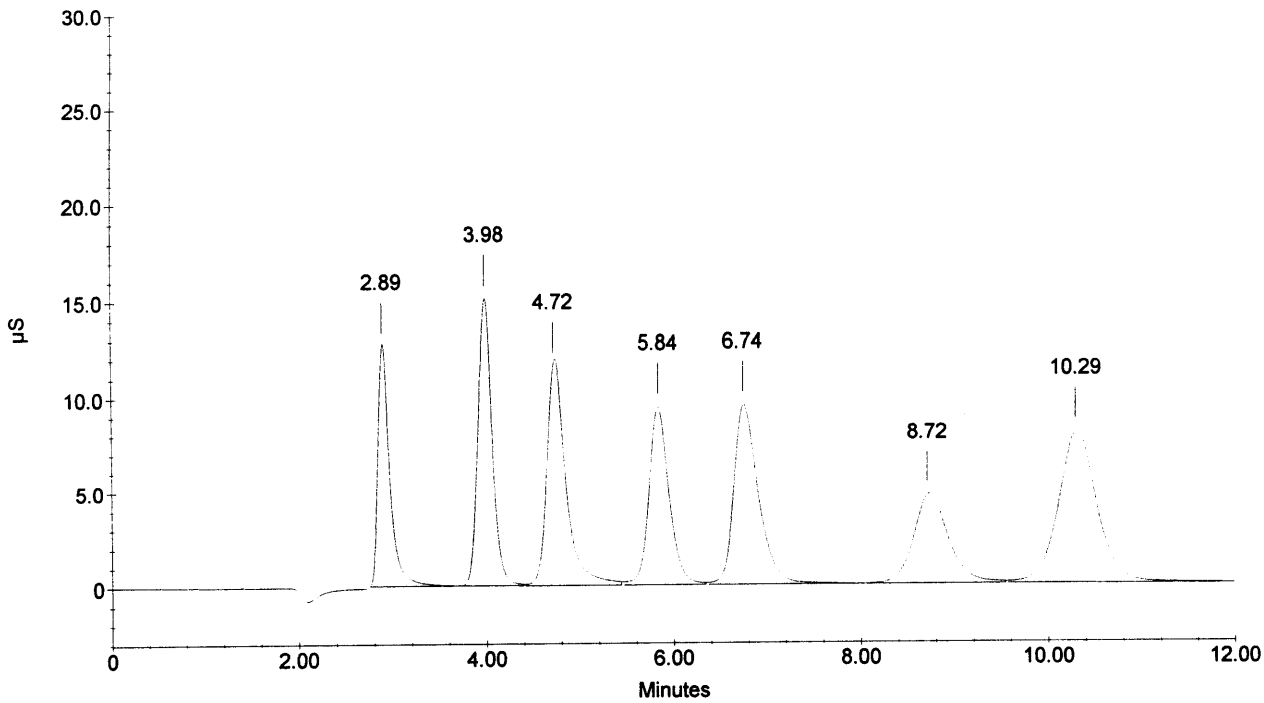
Sample Name : ICV
Dilution Factor : 20.00
Injection Number : 9
Data File Name : c:\peaknet\data\030624\030624_A009.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

Date Time Collected : 6/24/03 1:25:40 PM
System Name : Dx-500
Detector Name : Conductivity Detector **010079**
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.89	FLUORIDE	101.960	125838	1122913	2	-1.03
2	3.98	CHLORIDE	202.880	150134	1594362	2	-0.67
3	4.72	NITRITE-N	107.297	115444	1682919	2	-1.12
4	5.84	BROMIDE	405.093	94012	1402931	2	-0.91
5	6.74	NITRATE-N	90.311	94714	1747576	2	0.80
6	8.72	PHOSPHATE-P	199.357	46742	1224394	2	0.31
7	10.29	SULFATE	388.155	80265	2290640	2	0.00
	0.00		---total(s)--- 1495.054		11065733		

ICV



Sample Name : ICV
Dilution Factor : 20.00
Injection Number : 9
Data File Name : c:\peaknet\data\030624\030624_A009.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

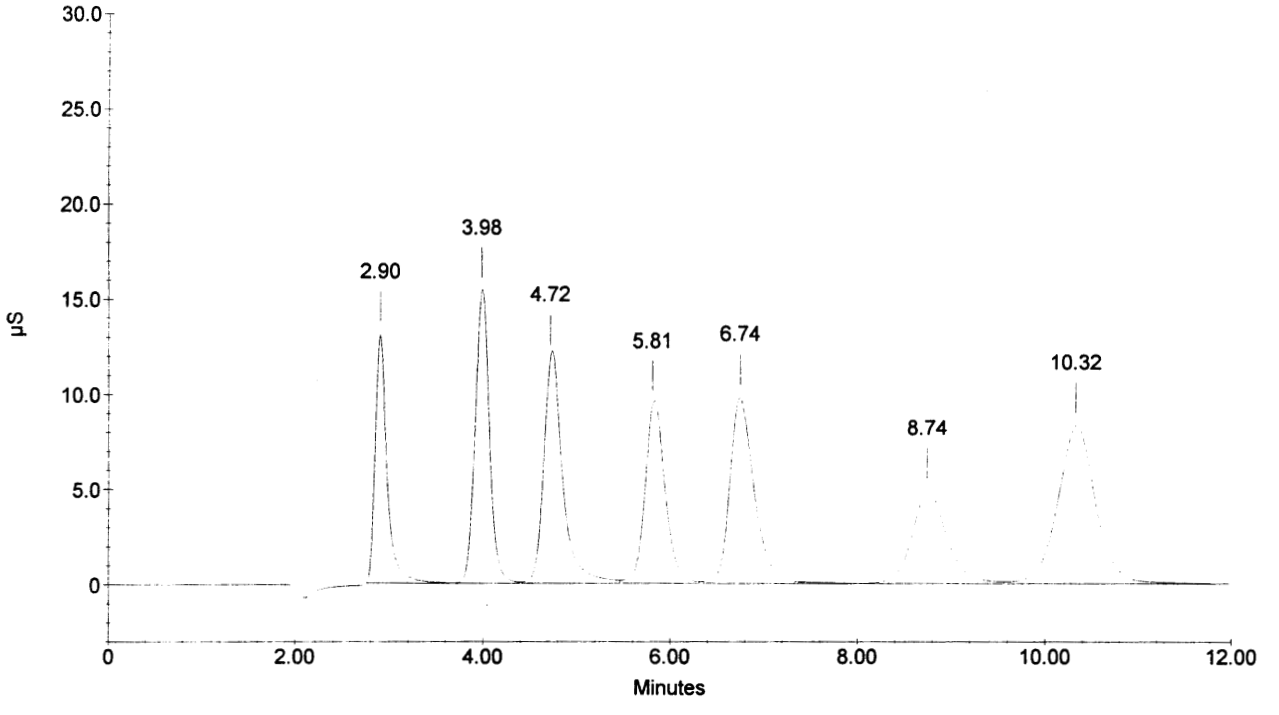
Date Time Collected : 6/24/03 2:00:47 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010080

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	2.90	FLUORIDE	103.667	129970	1143055	2	-0.57
2	3.98	CHLORIDE	207.125	152932	1631407	2	-0.67
3	4.72	NITRITE-N	108.939	117894	1710332	2	-1.12
4	5.81	BROMIDE	410.039	93680	1422832	2	-1.36
5	6.74	NITRATE-N	91.402	97170	1770324	2	0.80
6	8.74	PHOSPHATE-P	203.175	48190	1250593	2	0.61
7	10.32	SULFATE	394.719	82516	2333609	2	0.26
	0.00		---total(s)--- 1519.065		11262152		

ICV



Sample Name : ICB
Dilution Factor : 1.00
Injection Number : 10
Data File Name : c:\peaknet\data\030624\030624_010.DXD
Method File Name : c:\peaknet\method\anions030624.met
Schedule File Name : c:\peaknet\schedule\030624.sch

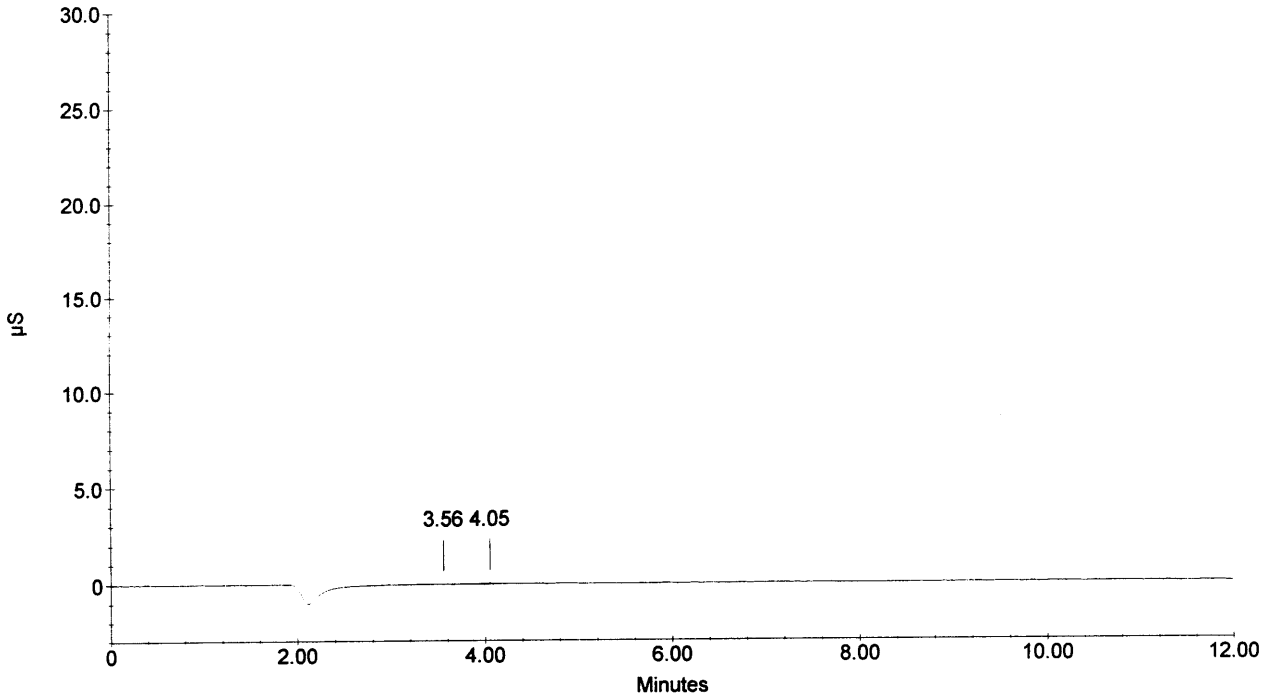
Date Time Collected : 6/24/03 2:15:38 PM
System Name : Dx-500
Detector Name : Conductivity Detector
Column Type : AS14-#13535 AG14-#15177
System Operator : AMS

010081

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Concentration (ppm)	Height	Area	Bl. Code	%Delta
1	3.56		0.000	56	8	1	
2	4.05	CHLORIDE NITRITE-N BROMIDE NITRATE-N PHOSPHATE-P SULFATE	0.004	200	2070	1	1.00
	0.00		---total(s)--- 0.004		2078		

ICB



Book/Page: 10 092

Southwest Research Institute

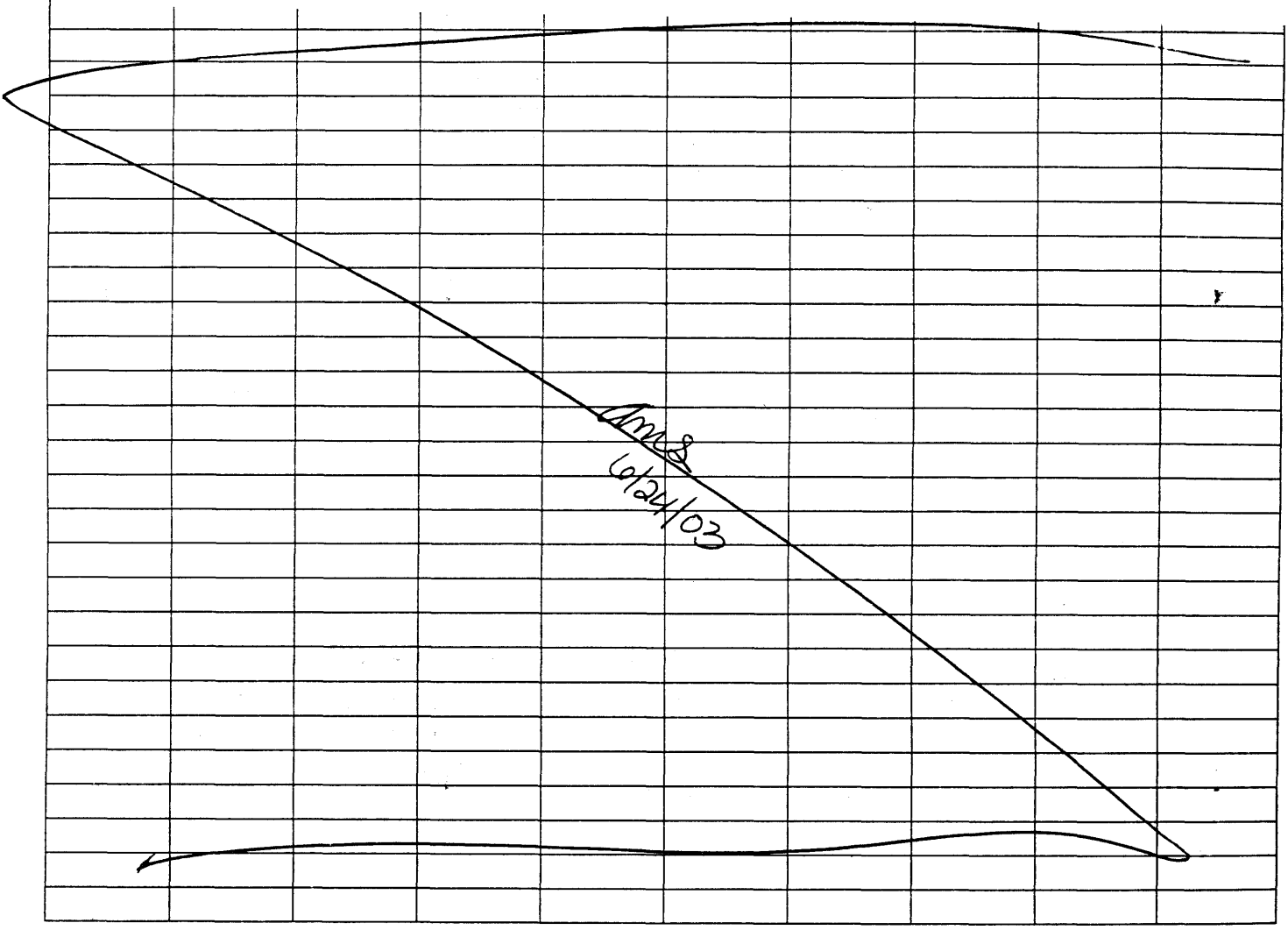
010082

AMS 6/24/03

Schedule File: C:\PeakNet\schedule\030624.sch

Line	Sample	Sample Type	Level	Method	Data File	Dilution
1	0 PPM 14-08-IC4	Calibration St	1	anions030624.met	030624_001.dxd	1
2	0.1 PPM 14-07-IC4	Calibration St	2	anions030624.met	030624_002.dxd	1
3	0.5 PPM 14-06-IC4	Calibration St	3	anions030624.met	030624_003.dxd	1
4	1.0 PPM 14-05-IC4	Calibration St	4	anions030624.met	030624_004.dxd	1
5	5.0 PPM 14-04-IC4	Calibration St	5	anions030624.met	030624_005.dxd	1
6	10 PPM 14-03-IC4	Calibration St	6	anions030624.met	030624_006.dxd	1
7	15 PPM 14-02-IC4	Calibration St	7	anions030624.met	030624_007.dxd	1
8	20 PPM 14-01-IC4	Calibration St	8	anions030624.met	030624_008.dxd	1
9	ICV	Sample		anions030624.met	030624_a009.dxd	20
10	ICB	Sample		anions030624.met	030624_010.dxd	1
11	ICB	Sample		astop.met	030624_001.dxd	1

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: c:\peaknet\data\030624
Comment:



Book/Page: 10 093

Southwest Research Institute

Dionex DX500 Ion Chromatography Daily Log

010083

Analyst: AMS

Date: 6/24/03

Conductivity: 17.0

Client	Project #	TO #	Analytical Method
Dir 01 - Curve	OHD01.113	NA	300

Loop: 40uL

Column: AS14; 13535

Method: anions 030624

Calibration: 6/24/03

Comments:

ICV/CCV/MS:

1st Source: Spex (Inorg# 3989

Lot #: 24-79AS

CCV Conc: 1:20

MS Conc: —

2nd Source: Nitrite-N

Lot #: 190-01-IC3

CCV Conc: 1:20

MS Conc: —

✓ ELUENT SOLUTION PREP:

FV = 2.0L DI H20

1.0 mM Sodium Bicarbonate & 3.5 mM Sodium Carbonate

Weight: 0.1608 $NaHCO_3$

Source: Aldrich

Lot: 15308EI

Weight: 0.7419 Na_2HCO_3

Source: Alfa Aesar

Lot: L06M34

____ Other Eluent:

50 mA-Autoregen (ASRS)

____ Other Regen:

Balance : 34

Eppendorfs : 5000 L
1000 C
200 D

8/4/03

14 PROJECT NO. ——— **TITLE** Anions Standards 010084

BOOK NO. IC4

Work continued from Page

SwRI®

14-01-IC4 20 ppm Anions Std

anions	Std Vol	Std conc	Std Lot#	Spex Source	Exp D Date
Fluoride	1.0	1000	3895	23-109AS	01/15/2004
Chloride	1.0	1000	3860	23-38AS	12/15/2003
Nitrite-N	3.3	304	4107	23-23AS	05/30/2004
Bromide	1.0	1000	4106	23-52AS	05/30/2004
Nitrate-N	1.0	1000	3960	23-82AS	2/15/2004
Phosphate-P	~~1.0~~ 3.07	326	3880	24-63AS	12/15/2003
Sulfate	3.07 ~~1.0~~	1000	3489	7-149VY	05/30/2004

ams 6/24/03

FV = 50 ml

14-02-IC4 15 ppm Std
3 ml 14-01-IC4 + 1 ml DI H_2O

14-03-IC4 10 ppm Std
2 ml 14-01-IC4 + 2 ml DI H_2O

14-04-IC4 5 ppm Std
1 ml 14-01-IC4 + 3 ml DI H_2O

14-05-IC4 1 ppm Std
1 ml 14-04-IC4 + 4 ml DI H_2O

14-06-IC4 0.5 ppm Std
2 ml 14-05-IC4 + 2 ml DI H_2O

14-07-IC4 0.1 ppm Std
1 ml 14-06-IC4 + 4 ml DI H_2O

Balance: 34
Eppendorfs: 5000 L
: 1000 C

14-08-IC4 0 ppm
DI H_2O

Work continued to Page

SIGNATURE ams DATE 6/24/03

DISCLOSED TO AND UNDERSTOOD BY [signature] DATE 8/4/03 WITNESS DATE

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

Certificates of Analysis

Certificate of Analysis

THE RIGHT CHEMICALS
THE RIGHT CHEMISTRY®

010085
INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/27/03
DATE EXPIRED: 02/27/2013
DATE OPENED: 04/10/03
INORG: 4033 PO: 330176E

Sodium carbonate, ACS primary standard, 99.95-100.05% (dried basis)

Stock Number: 33377
Lot Number: L06M34

Analysis

Test	Limits	Results
Assay (dried basis)	99.95 – 100.05 %	100.0 %
Insoluble	0.01 % max	< 0.01 %
Loss on heating (285°C)	1.0 % max	< 0.05 %
Chloride	0.001 % max	< 0.001 %
Nitrogen compounds	0.001 % max	< 0.001 %
Phosphate	0.001 % max	< 0.001 %
Silica	0.005 % max	< 0.005 %
Sulfur compounds	0.003 % max	< 0.003 %
NH_4OH precipitate	0.01 % max	< 0.01 %
Potassium	0.005 % max	< 0.001 %
Calcium	0.02 % max	< 0.01 %
Magnesium	0.004 % max	< 0.004 %
Heavy metals (as Pb)	0.0005 % max	< 0.0005 %
Iron	0.0005 % max	< 0.0005 %

Traceable to NIST? Yes

Certified by:

Quality Control:

Alfa Aesar®
A Johnson Matthey Company

TÜV CERT ISO 9002

30 Bond Street • Ward Hill, MA 01835-8099 USA • Telephone: (978) 521-6300 • Fax: (978) 521-6350
Toll-free Catalog Sales: (800) 343-0660 • Technical Services: (800) 343-7276 • Specialty/Bulk Sales: (888) 343-8025
www.alfa.com • email: info@alfa.com

ALDRICH®

1001 West Saint Paul
Milwaukee WI 53233 USA
Tel 800 558 9160 • 414 273
Fax 800 962 9591 • 414 27
e-mail aldrich@sial.com

Certificate of Analysis

SOUTHWEST RESEARCH INST
DARRY RAMIREZ
6220 CULEBRA RD
SAN ANTONIO TX 78238

PO NBR: 1306866

010086

1/9/2001
1/9/2002 DK
1/9/2001
2636 1306866

PRODUCT NUMBER: 236527-500G

LOT NUMBER: 15308EI

PRODUCT NAME: SODIUM HYDROGENCARBONATE, 99.7+%, A.C.S. REAGENT

FORMULA: NAHCO3

FORMULA WEIGHT: 84.01

APPEARANCE	WHITE POWDER
TITRATION	100.3 % (WITH HCL)
ICP ASSAY	CONFIRMS SODIUM COMPONENT
INSOLUBLE MATTER	0.001% *
CALCIUM	0.0050%
CHLORIDE	0.0014% *
IRON	< 0.0001% *
HEAVY METALS	<5PPM (AS PB) *
POTASSIUM	<0.0020 % *
MAGNESIUM	0.00025%
AMMONIUM	<5PPM *
PHOSPHATE	<0.001% *
CALCIUM, MAGNESIUM & R2O3 PRECIPITATE	0.016% *

CONTINUED ON NEXT PAGE

ALDRICH CHEMICAL COMPANY
DAVID SWESSEL
JANUARY 5, 2001

010087

SPEXertificate™

Certificate of Reference Material

INORGANIC LABS/RADIOCHEM LABS
DATE RECEIVED: 3/19/03
DATE EXPIRED: 3/15/2004 OK
DATE OPENED: 3/19/03
INDEX: 3989 PO: P59153

Catalog Number: ICMIX2-100 **Lot No.:** 24-79AS
Description: **IC Instrument Check Standard 2**
Matrix: H_2O

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

The CRM is prepared from high purity single ion concentrates of individual elements using Class A laboratory ware to give precise concentration.
Refer to side 2 for details of measurement uncertainties.

Instrumental Analysis by ION Chromatography:

Analyte	Labeled (mg/L)	Measured (mg/L)	NIST SRM
F^-	100	98.7	3183
Cl^-	200	200	3182
Br^-	400	401	3184
NO_3^-	400	399	3185
HPO_4^{-2}	600	600	3186
SO_4^{-2}	400	399	3181

Spex Reference Multi: Lot #IC6-103VY

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% on the average of all the certified concentrations with no single component exceeding +/- 2%. This guarantee is valid for a period of one year from the date of certification only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: MAR '03 Certifying Officer: N. Kocherlakota

190 TITLE

SwRI

PROJECT NO. 010088

BOOK NO. IC3

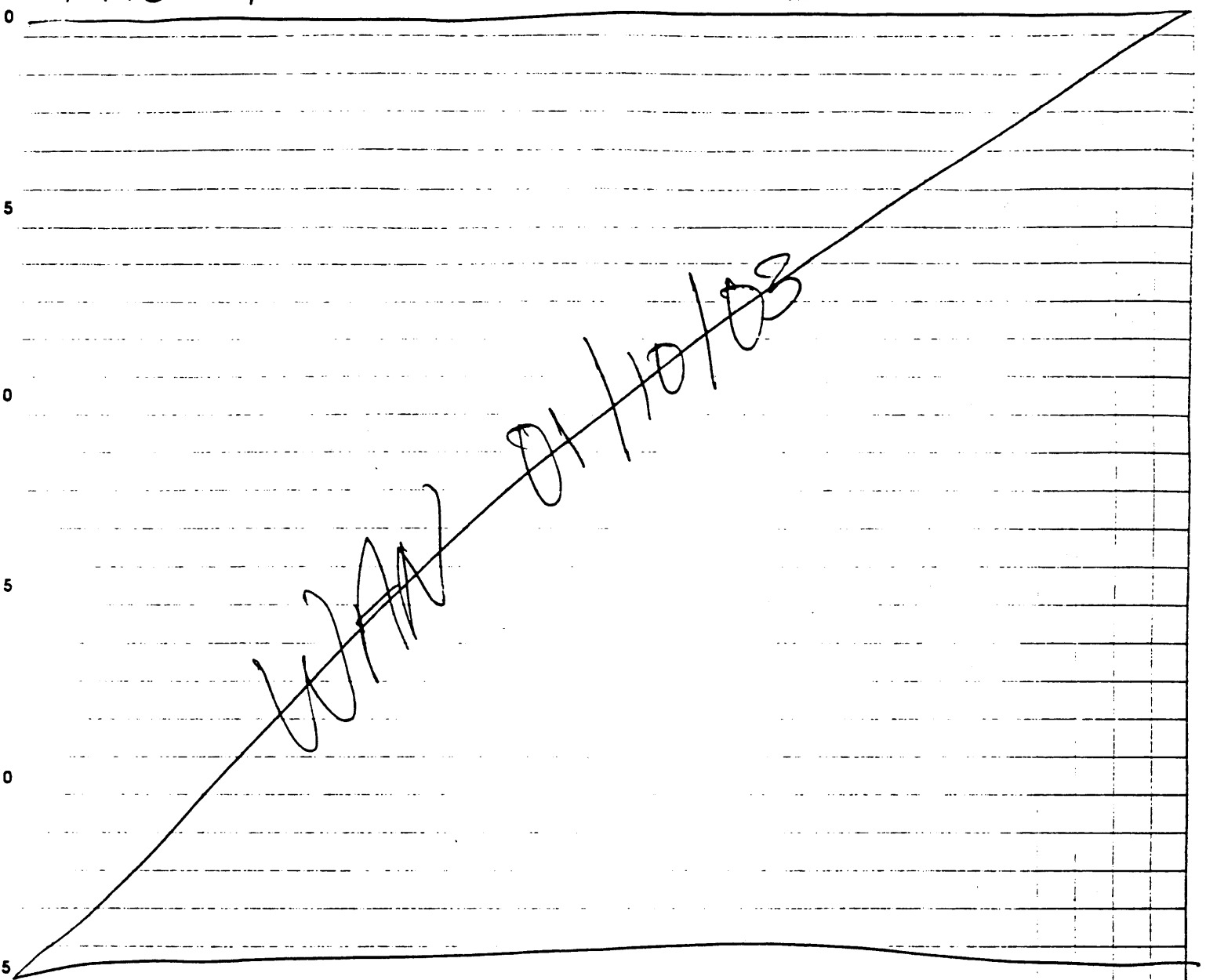
Work continued from Page

190-01-IC3 Nitrite-N (100 ppm)

Diluted 0.0492 Sodium Nitrite in 100mL DI H_2O

(Fisher, Lot# 934669B, Inorg# 037A)

Balance #34



Work continued to Page

SIGNATURE C Wasson A. Naegeli DATE 01/10/03

DISCLOSED TO AND UNDERSTOOD BY ams DATE 1/20/03 WITNESS DATE

FISHER SCIENTIFIC CHEMICAL DIVISION
One Reagent Lane, Fair Lawn, NJ 07410

010089

ANALYTICAL CONTROL LABORATORY ANALYSIS

Name & Grade:
SODIUM NITRITE, A.C.S.
Catalog Number: S347
Lot Number: 934669
P.O./ Other Customer ID:

Date of Testing/Mfg: 08/17/93

This is to certify that units of the above mentioned lot number were tested and found to comply with the specifications of the grade listed. The following are the actual analytical results obtained:

Test	Unit	Result
APPEARANCE	PASS/FAIL	PASS-YELLOW WHITE CRYSTALS
ASSAY	%	99.8000
CALCIUM IN %	%	0.0020
CHLORIDE	%	0.0010
HEAVY METALS	%	0.0002
IDENTIFICATION		PASS
INSOLUBLE MATTER	%	0.0020
IRON	%	0.00020
POTASSIUM	%	0.00100
SULFATE (SO4)	%	0.0020

Approved by: Frederick H. Turk, FL Analytical QA Supv. or Edgar E. Hess, BPF Analytical QA Supv.

Date: 08/25/93 (Signed and dated original is on file)

NOTE: The data listed is valid for all package sizes of this lot of product, expressed as a extension of the catalog number listed above. If there are any questions with this certificate, please call Steven P. Davis, Analytical QA Manager, at (201) 703-3149.

Ref. No. S347..934669.B1.

Location: FL

010090

SPEXertificate™

Certificate of Reference Material

Catalog Number: AS-F9-2X/2Y **Lot No.:** 23-109AS
Description: 1000 mg/L of Fluoride
Matrix: H_2O

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

Certified Value: Fluoride (F^-): 999.5 mg/L ± 3 mg/L
Traceable to: NIST SRM 3183

The CRM is prepared gravimetrically using high purity Sodium Fluoride (NaF) Lot#M44142. The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 999 mg/L
Method: Potentiometric analysis using Fluoride combination Electrode.

Instrumental Analysis by Ion Chromatography: 1,000 mg/L

Trace Anion Impurities in the Actual Solution via IC Analysis:

Element	mg/L
Cl^-	<10.00
NO_2^-	<0.20
Br^-	<0.20
NO_3^-	<0.20
PO_4^{-3}	<1.00
SO_4^{-2}	<0.50

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified concentration value for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: JAN -- '03 Certifying Officer: N. Kocherlakota

SPEXertificate™ 010091

Certificate of Reference Material

Catalog Number: AS-CL9-2X/2Y **Lot No.** 23-38AS
Description: 1000 mg/L Chloride
Matrix: H2O

This **ASSURANCE** ®certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for Ion Chromatography instrumentation. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 997.5 mg/L
Traceable to: NIST SRM 3182

The CRM is prepared gravimetrically using high purity Sodium Chloride Lot# 004723 . The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography. analysis.
Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1000 mg/L

Method: Precipitate using AgNO3, filter, dry and weigh as AgCL.

Instrumentation Analysis By Ion Chromatography: 995 mg/L

Uncertified Properties:

Trace Ionic Impurities in the Actual Solution via IC Analysis:

Element	mg/L	Element	mg/L
Br	<0.1	NO3	<0.1
F	<0.05	PO4	<0.05
NO2	<0.2	SO4	<0.05

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32857 and others. This CRM is guaranteed stable to +/-0.5% of the certified concentration inclusive of uncertainty of measurements and other effects, such as transpiration losses, for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: DEC -- 02 Certifying Officer: N. Kocherlakota

SPEXertificate™ 010092

Certificate of Reference Material

Catalog Number: AS-$NO_2$9-2X/2Y **Lot No.:** 23-23AS
Description: 1000 mg/L of Nitrite
Matrix: H_2O

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

Certified Value: Nitrite (NO_2^-): 1000.5 mg/L ± 3 mg/L
Traceable to: SPEX CRM 0601NO_2

The CRM is prepared gravimetrically using high purity Sodium Nitrite ($NaNO_2$) Lot#0791R. The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1000 mg/L
Method: Titrimetric analysis using $KMnO_4$. KMnO4 standardized with As_2O_3 NIST SRM #83d.

Instrumental Analysis by Ion Chromatography: 1001 mg/L

Trace Anion Impurities in the Actual Solution via IC Analysis:

Element	mg/L
F^-	<0.2
SO_4^{-2}	<0.2
Cl^-	<0.5
PO_4^{-3}	<0.5
Br^-	<10.0
NO_3^-	<10.0

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified concentration value for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: MAY - - '03 Certifying Officer: N. Kocherlakota

SPEXertificate™ 010093

Certificate of Reference Material

Catalog Number: AS-BR9-2X/2Y **Lot No.:** 23-52AS
Description: 1000 mg/L of Bromide
Matrix: H_2O

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

Certified Value: Bromide (Br^-): 999 mg/L ± 3 mg/L
Traceable to: SPEX CRM 19-45AS

The CRM is prepared gravimetrically using high purity Sodium Bromide (NaBr) Lot#017400
The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1,002 mg/L
Method: Gravimetric analysis by precipitation using Silver Nitrate, filtering, drying and weighing as AgBr.

Instrumental Analysis by Ion Chromatography: 996 mg/L

Trace Anion Impurities in the Actual Solution via IC Analysis:

Element	mg/L
F^-	<0.02
BrO_3	<0.02
NO_2^-	<0.05
NO_3^-	<0.05
PO_4^{-3}	<0.20
Cl^-	<1.50
SO_4^{-2}	<0.05

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable and accurate to +/- 0.5% of the certified concentration value for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: MAY - - '03 Certifying Officer: N. Kocherlakota

010094

SPEXertificate™

Certificate of Reference Material

Catalog Number: AS-NO_3N9-2X/2Y **Lot No.:** 23-82AS
Description: 1000 mg/L of Nitrate-N
Matrix: H_2O

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

Certified Value: Nitrate-N (NO_3^--N): 1002.5 mg/L ± 3 mg/L
Traceable to: NIST SRM 3185

The CRM is prepared gravimetrically using high purity Sodium Nitrate ($NaNO_3$) Lot#M14156. The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1003 mg/L
Method: Gravimetric analysis by precipitation using Nitron Acetate, filtering, drying and weighing as Nitron Nitrate ($C_{20}H_{17}N_4.NO_3$).

Instrumental Analysis by Ion Chromatography: 1002 mg/L

Trace Anion Impurities in the Actual Solution via IC Analysis:

Element	mg/L
F^-	<0.25
Cl^-	<0.5
NO_2^-	<0.5
Br^-	<1.0
SO_4^-	<1.0
PO_4^{3-}	<2.5

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable to +/- 0.5% of the certified concentration inclusive of uncertainty of measurements and other effects, such as transpiration losses, for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: _____ Certifying Officer: N. Kocherlakota

SPEXertificate™ 010095

Certificate of Reference Material

Catalog Number: AS-$PO_4$9-2X/2Y **Lot No.:** 24-63AS
Description: 1000 mg/L of Phosphate
Matrix: H2O

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

Certified Value: Phosphate (PO_4^{-3}): 998.5 mg/L
Uncertainty Associated with Measurement: +/- 3 mg/L
Certified Value is Traceable to: NIST SRM 3186

The CRM is prepared gravimetrically using high purity Potassium Dihydrogen Phosphate (KH_2PO_4) Lot#08001F. The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 999 mg/L
Method: Gravimetric analysis by precipitation using Magnesia Mixture, filtering, igniting and weighing as $Mg_2P_2O_7$.

Instrumental Analysis by Ion Chromatography: 998 mg/L

Trace Anion Impurities in the Actual Solution via IC Analysis:

Component	mg/L	Component	mg/L
F^-	<0.01	NO_3^-	<0.2
Br^-	<0.2	NO_2^-	<0.2
SO_4^{2-}	<0.2	Cl^-	<0.6

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable to +/- 0.5% of the certified concentration inclusive of uncertainty of measurements and other effects, such as transpiration losses, for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: DEC -- '02 Certifying Officer: N. Kocherlakota

SPEXertificate™

Certificate of Reference Material

010096

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 05/28/03
DATE EXPIRED: 05/30/2004
DATE OPENED: 05/28/03
INORG: 4108 PO: F52354

Catalog Number: AS-SO49-2X/2Y **Lot No.** 7-149VY
Description: 1000 mg/L Sulfate
Matrix: H2O

This **ASSURANCE**® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for Ion Chromatography instrumentation. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 997 mg/L

Uncertainty Associated with Measurement: +/- 3.0 mg/
Certified Value is Traceable to: NIST SRM 3181

The CRM is prepared gravimetrically using high purity Potassium Sulfate Lot# X34146 . The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 998 mg/L

Method: Precipitated using Barium Chloride, filtered, ignited and weighed as BaSO4

Instrumentation Analysis By Ion Chromatography: 996 mg/L

Uncertified Properties:

Trace Ionic Impurities in the Actual Solution via IC Analysis:

Element	mg/L	Element	mg/L
Br	<0.01	NO3	<0.01
Cl	<0.01	PO4	<0.10
F	<0.005		
NO2	<0.01		

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32857 and others
This CRM is guaranteed stable to +/-0.5% of the certified concentration inclusive of uncertainty of measurements and other effects, such as transpiration losses, for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: MAY - - '03 Certifying Officer: N. Kocherlakota

SPEXertificate™

010097

Certificate of Reference Material

Catalog Number: AS-$PO_4$9-2X/2Y **Lot No.:** 24-63AS
Description: 1000 mg/L of Phosphate
Matrix: H2O

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

Certified Value: Phosphate (PO_4^{-3}): 998.5 mg/L
Uncertainty Associated with Measurement: +/- 3 mg/L
Certified Value is Traceable to: NIST SRM 3186

The CRM is prepared gravimetrically using high purity Potassium Dihydrogen Phosphate (KH_2PO_4) Lot#08001F. The certified value listed is the average of values obtained by classical wet assay and Ion Chromatography analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 999 mg/L
Method: Gravimetric analysis by precipitation using Magnesia Mixture, filtering, igniting and weighing as $Mg_2P_2O_7$.

Instrumental Analysis by Ion Chromatography: 998 mg/L

Trace Anion Impurities in the Actual Solution via IC Analysis:

Component	mg/L	Component	mg/L
F^-	<0.01	NO_3^-	<0.2
Br^-	<0.2	NO_2^-	<0.2
SO_4^{2-}	<0.2	Cl^-	<0.6

Balances are calibrated regularly with weight sets traceable to NIST#s 32856, 32867 and others. This CRM is guaranteed stable to +/- 0.5% of the certified concentration inclusive of uncertainty of measurements and other effects, such as transpiration losses, for a period of one year from the date of certification. This guarantee is valid only when the material is kept tightly capped and transported and stored under laboratory conditions.

Date of Certification: DEC -- '02 Certifying Officer: N. Kocherlakota

ENVIRONMENTAL
RESOURCE ASSOCIATES®
The Industry Standard™

Quality Control Standards

DataPacK™

Certification

WasteWatR™

010098

Catalog No. WW-11

Lot No. 99114

Parameter	Certified Value	Performance Acceptance Limits™
DEMAND WasteWatR™ (Catalog No. 503)	**mg/l**	**mg/l**
BOD	42.2	29.1 - 51.0
CBOD	36.6	25.2 - 44.3
COD	70.4	59.9 - 81.0
TOC	27.6	23.5 - 31.8
total kjeldahl nitrogen	3.14	2.39 - 3.92
total phosphorus as P	1.50	1.29 - 1.71
NUTRIENTS WasteWatR™ (Catalog No. 505)	**mg/l**	**mg/l**
ammonia as N	13.4	11.3 - 15.5
$NO_3 + NO_2$ as N	15.6	13.2 - 17.6
PO_4 as P	2.31	1.96 - 2.66
CYANIDE & PHENOL WasteWatR™ (Catalog No. 502)	**mg/l**	**mg/l**
cyanide, total	0.777	0.567 - 0.987
phenol	0.470	0.357 - 0.583
RESIDUAL CHLORINE WasteWatR™ (Catalog No. 501)	**mg/l**	**mg/l**
total residual chlorine	2.40	1.80 - 3.00

The **Certified Values** are equal to 100% of the parameters in the indicated standard.

The **Performance Acceptance Limits (PALs™)** are listed as guidelines for acceptable analytical results given the limitations of the USEPA methodologies commonly used to determine these parameters and closely approximate the 95% confidence interval. The PALs™ are based on data generated by your peer laboratories in ERA's InterLaB™ program using the same samples you are analyzing and data from USEPA methods, WP, WS and CLP interlaboratory studies. If your result falls outside of the PALs™, ERA recommends that you investigate potential sources of error in your preparation and/or analytical procedures. For further technical assistance, call ERA at 1-800-372-0122.

5540 Marshall Street, Arvada, Colorado 80002 303-431-8454 fax 303-421-0159 info@eraqc.com

FROM: Fisher Scientific TO: Extension PAGES: 5

Fisher Scientific Company

Chemical Manufacturing Division

Certificate of Analysis

Fisher Scientific's Quality System Is Certified to ISO9002 (1994) standard by DNV Cert. # 96-HOU-AQ-8052

010099

1 Reagent Lane
Fairlawn, NJ 07410
Phone: (201) 796-7100 Fax: (201) 796-1329

Catalog Number	A300	**Report Date**	6/2/03	**Mfg. Date**	1/8/03
Lot Number	027753	**Sample ID**	A300..027753.B1.		
Description	SULFURIC ACID, CERTIFIED ACS				

This is to certify that units of the above mentioned lot number were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Unless otherwise stated, these products are not intended for dialysis, parenteral or injectable use without further processing. The following are the actual analytical results obtained:

Result Name	Specifications	Units	Test Value
ALUMINUM (Al)	0.2 Maximum	PPM	<0.001
AMMONIUM (NH4)	1 Maximum	PPM	1.000
APPEARANCE	Colorless and free from suspended or insoluble matter	REPORT	CLEAR COLORLESS LIQUID
ARSENIC (As)	0.004 Maximum	PPM	<0.001
ASSAY	95.0 to 98.0	%	95.9000
BORON (B)	0.01 Maximum	PPM	<0.0010
CALCIUM (Ca)	0.3 Maximum	PPM	0.003
CHLORIDE	0.1 Maximum	PPM	<0.100
CHROMIUM (Cr)	0.2 Maximum	PPM	0.002
COLOR	10 Maximum	APHA	5
COPPER (Cu)	0.1 Maximum	PPM	<0.001
GOLD (Au)	0.3 Maximum	PPM	<0.001
HEAVY METALS(AS Pb)	0.8 Maximum	PPM	0.16
IDENTIFICATION	Pass test	PASS/FAIL	PASS
IRON (Fe)	0.2 Maximum	PPM	0.001
SUBS. REDUCING KMNO4	2 Maximum	PPM(AS SO2)	<2
LEAD (Pb)	0.3 Maximum	PPM	<0.001
MAGNESIUM (Mg)	0.3 Maximum	PPM	<0.001

CERTIFIED BY

Edgar E. Hess
Lab Manager Fair Lawn

Joel Boland
Lab Manager BPF

Note: The data listed is valid for all package sizes of this lot of product, expressed as a extension of the catalog number listed above. If there are any questions with this certificate, please call Chemical Services at (800) 227-6701

INORGANIC LABS/RADCHEM LABS Pg 1 of 2
DATE RECEIVED: 07/10/03
DATE EXPIRED: 07/10/2013
DATE OPENED: 07/10/03
INORG: 4170 PO: Stockroom

Fisher Scientific Company
Chemical Manufacturing Division

1 Reagent Lane
Fairlawn, NJ 07410
Phone: (201) 796-7100 Fax: (201) 796-1329

Certificate of Analysis

Fisher Scientific's Quality System Is Certified to ISO9002 (1994) standard by DNV Cert. # 96-HOU-AQ-8052

010100

Catalog Number	A300	**Report Date**	6/2/03	**Mfg. Date**	1/8/03
Lot Number	027753	**Sample ID**	A300..027753.B1.		
Description	SULFURIC ACID, CERTIFIED ACS				

This is to certify that units of the above mentioned lot number were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Unless otherwise stated, these products are not intended for dialysis, parenteral or injectable use without further processing. The following are the actual analytical results obtained:

Result Name	Specifications	Units	Test Value
MANGANESE (Mn)	0.2 Maximum	PPM	<0.001
MERCURY (Hg)	5 Maximum	PPB	<1.000
NICKEL (Ni)	0.1 Maximum	PPM	<0.001
NITRATE (NO3)	0.2 Maximum	PPM	0.050
PHOSPHATE (PO4)	0.5 Maximum	PPM	0.100
POTASSIUM (K)	0.3 Maximum	PPM	0.004
RESIDUE AFTER IGNIT.	3 Maximum	PPM	<0.10
SODIUM (Na)	0.3 Maximum	PPM	0.001
TIN (Sn)	0.2 Maximum	PPM	<0.001
TITANIUM (Ti)	0.3 Maximum	PPM	<0.001
ZINC (Zn)	0.2 Maximum	PPM	<0.001

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 07/10/03
DATE EXPIRED: 07/10/2013
DATE OPENED: 07/10/03
INORG: 4170 PO: Stockroom

CERTIFIED BY

Edgar E. Hess
Lab Manager Fair Lawn

Joel Boland
Lab Manager BPF

Note: The data listed is valid for all package sizes of this lot of product, expressed as a extension of the catalog number listed above. If there are any questions with this certificate, please call Chemical Services at (800) 227-6701

FROM: Fisher Scientific TO: Extension PAGES: 5

Fisher Scientific Company

Chemical Manufacturing Division

1 Reagent Lane
Fairlawn, NJ 07410
Phone: (201) 796-7100 Fax: (201) 796-1329

Certificate of Analysis

Fisher Scientific's Quality System is Certified to ISO9002 (1994) standard by DNV Cert. # 96-HOU-AQ-8052

010101

Catalog Number	A61	**Report Date**	6/2/03	**Mfg. Date**	3/7/03
Lot Number	033636	**Sample ID**	A61...033636.SVL		
Description	L-ASCORBIC ACID, A.C.S.				

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Result Name	Specifications	Units	Test Value
APPEARANCE	White crystalline powder	REPORT	WHITE CRYST POWDER
ASSAY	99.0 Minimum	%	100.0000
HEAVY METALS(AS Pb)	0.002 Maximum	%	0.0003
IDENTIFICATION	Pass test	PASS/FAIL	PASS
IGNITION RESIDUE	0.1 Maximum	%	0.02000
IRON	0.001 Maximum	%	0.00030
SPECIFIC ROTATION	+20.5 - +21.5	DEGREES (+ OR -)	21.000

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 06/30/03
DATE EXPIRED: 06/30/2013
DATE OPENED: 06/30/03
INORG: 4162 PO: F52372

CERTIFIED BY

Edgar E. Hess
Lab Manager Fair Lawn

Joel Boland
Lab Manager BPF

Note: The data listed is valid for all package sizes of this lot of product, expressed as a extension of the catalog number listed above. If there are any questions with this certificate, please call Chemical Services at (800) 227-6701

Fisher Scientific Company

Chemical Manufacturing Division

Certificate of Analysis

010102

1 Reagent Lane
Fair Lawn, NJ 07410
Phone: (201) 796-7100 Fax: (201) 796-1329

Catalog Number	A674	**Report Date**	7/21/97	**Mfg. Date**	7/14/97
Lot Number	975140	**Sample ID**	A674..975140.B1.		
Description	AMMONIUM MOLYBDATE, A.C.S.				

This is to certify that units of the above mentioned lot number were tested and found to comply with the specifications of the grade listed. The following are the actual analytical results obtained:

Result Name	Units	Test Value
APPEARANCE	PASS/FAIL	PASS WHITE CRYSTALS
ARS/PHOS/SILICATE %	%	0.0010
ASSAY	%	82.0000
CHLORIDE	%	0.0007
HEAVY METALS	%	0.0003
IDENTIFICATION		PASS
INSOLUBLE MATTER	%	0.0020
MAGNESIUM &CATIONS-%	%	0.016
NITRATE	PASS/FAIL	PASS
PHOSPHATE (PO4)	PPM	2.500
SULFATE (SO4)	%	0.0070

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 08/29/97
DATE EXPIRED: 08/01/2050
DATE OPENED: 08/29/97
INORG: 1044 PO: 31739

CERTIFIED BY

Robert Dowd
Lab Manager Fair Lawn

Edgar E. Hess
Lab Manager BPF

Note: The data listed is valid for all package sizes of this lot of product, expressed as a extension of the catalog number listed above. If there are any questions with this certificate, please call Chemical Services at (800) 227-6701

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

Pipette Calibrations

Book/page: 03 033

010103

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	20	0.0204	0.0201	0.0202	0.020	101.17
ADJ200-A	100	0.0988	0.1000	0.0998	0.100	99.53
	200	0.2004	0.2042	0.1993	0.201	100.65
	20	0.0204	0.0204	0.0203	0.020	101.83
ADJ200-C	100	0.0991	0.0996	0.1000	0.100	99.57
	200	0.2003	0.2000	0.1999	0.200	100.03
	20	0.0201	0.0203	0.0202	0.020	~~101.00~~ 101.50
ADJ200-D	100	0.0993	0.0996	0.0998	0.100	99.57
	200	0.1985	0.1985	0.1988	0.199	99.30
	20	0.0204	0.0203	0.0204	0.020	101.83
ADJ200-E	100	0.0997	0.0996	0.0993	0.099	99.30
	200	0.1990	0.1990	0.1995	0.199	99.58
	20	0.0204	0.0200	0.0202	0.020	101.00
ADJ200-G	100	0.0999	0.0999	0.0996	0.100	99.80
	200	0.1986	0.1998	0.1987	0.199	99.52
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					

FRM-247a (Rev 2/Mar 03)

Book/page: 03 034

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010104

Balance #: 16 Thermometer #: G011 diH20 Temperature (° C) 21

20 µL – 200 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	20	.0204	.0201	.0202
ADJ200-A	100	.0988	.1000	.0998
	200	.2004	.2042	.1993
	20	.0204	.0204	.0203
ADJ200-C	100	.0991	.0996	.1000
	200	.2003	.2000	.1999
	20	.0204	.0203	.0202
ADJ200-D	100	.0993	.0996	.0998
	200	.1985	.1985	.1988
	20	.0204	.0203	.0204
ADJ200-E	100	.0997	.0996	.0993
	200	.1990	.1996	.1995
	20	.0204	.0200	.0202
ADJ200-G	100	.0999	.0999	.0996
	200	.1986	.1998	.1987
	20			
ADJ200	100			
	200			
	20			
ADJ200	100			
	200			
	20			
ADJ200	100			
	200			
	20			
ADJ200	100			
	200			

7-29-03 JW

Pipette verification performed 7-25-03, entry 7-29-03 JW ~~calibration~~ 7-29-03 JW

Analyst: John Wilder Date: 7-29-03

Reviewed by: [illegible] Date: 8/1/03

Book/page: 03 137

010105

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	500	0.5053	0.5052	0.5042	0.505	100.98
ADJ5000-C	2500	2.5092	2.5067	2.5013	2.506	100.23
	5000	4.9842	5.0042	4.9970	4.995	99.90
	500	0.4960	0.4999	0.5007	0.499	99.77
ADJ5000-G	2500	2.4989	2.4930	2.4940	2.495	99.81
	5000	5.0314	4.9997	5.0132	5.015	100.30
	500	0.5070	0.5064	0.5063	0.507	101.31
ADJ5000-H	2500	2.4932	2.4943	2.5015	2.496	99.85
	5000	5.0022	5.0071	5.0011	5.003	100.07
	500	0.5090	0.5087	0.5093	0.509	101.80
ADJ5000-I	2500	2.5112	2.5163	2.5164	2.515	100.59
	5000	5.0193	5.0139	5.0118	5.015	100.30
	500	0.5041	0.5059	0.5061	0.505	101.07
ADJ5000-J	2500	2.5018	2.5063	2.4980	2.502	100.08
	5000	5.0408	5.0016	5.0029	5.015	100.30
	500	0.5035	0.5029	0.5026	0.503	100.60
ADJ5000-K	2500	2.5161	2.5118	2.5200	2.516	100.64
	5000	5.0365	5.0307	5.0330	5.033	100.67
	500	0.5000	0.4972	0.4954	0.498	99.51
ADJ5000-L	2500	2.4983	2.5014	2.4987	2.499	99.98
	5000	5.0014	5.0006	4.9994	5.000	100.01
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					

FRM-247c (Rev 2/Mar 03)

Book/page: 03 138

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010106

Balance #: 16 Thermometer #: G-011 diH20 Temperature (° C) 21

500 µL – 5000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	500	.5053	.5052	.5042
ADJ5000-C	2500	2.5092	2.5067	2.5013
	5000	4.9842	5.0042	4.9970
	500	.4960	.4999	.5007
ADJ5000-G	2500	2.4989	2.4930	2.4940
	5000	5.0314	4.9997	5.0132
	500	.5070	.5064	.5063
ADJ5000-H	2500	2.4932	2.4943	2.5015
	5000	5.0022	5.0071	5.0011
	500	.5090	.5087	.5093
ADJ5000-I	2500	2.5112	2.5163	2.5164
	5000	5.0193	5.0139	5.0118
	500	.5041	.5059	.5061
ADJ5000-J	2500	2.5018	2.5063	2.4980
	5000	5.0408	5.0016	5.0029
	500	.5035	.5029	.5026
ADJ5000-K	2500	2.5161	2.5118	2.5200
	5000	5.0365	5.0307	5.0330
	500	.5000	.4972	.4954
ADJ5000-L	2500	2.4983	2.5014	2.4987
	5000	5.0014	5.0006	4.9994
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500		7-29-03	
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			

Pipette verification performed 7-25-03; entry 7-29-03. JW

Analyst: John Wills Date: 7-29-03

Reviewed by: JWS Date: 8/1/03

Book/page: 03 085

010107

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	100	0.1011	0.1019	0.1014	0.101	101.47
ADJ1000-C	500	0.4967	0.4963	0.4973	0.497	99.35
	1000	1.0096	1.0042	0.9994	1.004	100.44
	100	0.0995	0.1005	0.1013	0.100	100.43
ADJ1000-D	500	0.4974	0.4980	0.4981	0.498	99.57
	1000	1.0024	1.0038	1.0044	1.004	100.35
	100	0.0995	0.0980	0.1010	0.100	99.50
ADJ1000-E	500	0.4948	0.4949	0.5060	0.499	99.71
	1000	0.9911	0.9876	0.9943	0.991	99.10
	100	0.1011	0.1013	0.1011	0.101	101.17
ADJ1000-F	500	0.5019	0.4984	0.4990	0.500	99.95
	1000	1.0028	1.0010	1.0032	1.002	100.23
	100	0.1011	0.1014	0.1012	0.101	101.23
ADJ1000-G	500	0.4943	0.4935	0.4944	0.494	98.81
	1000	0.9926	0.9940	0.9938	0.993	99.35
	100	0.1016	0.1019	0.1016	0.102	101.70
ADJ1000-H	500	0.4972	0.4967	0.4952	0.496	99.27
	1000	0.9980	0.9968	0.9918	0.996	99.55
	100					
ADJ1000	500					
	1000					
	100					
ADJ1000	500					
	1000					
	100					
ADJ1000	500					
	1000					

7-27-03

7-31-03

FRM-247b (Rev 1/Sept 02)

Book/page: 03 086

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 10108

Balance #: 16 Thermometer #: G011 diH20 Temperature (° C) 21

100 µL – 1000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	100	.1011	.1019	.1014
ADJ1000-C	500	.4967	.4963	.4973
	1000	1.0096	1.0042	.9994
	100	.0995	.1005	.1013
ADJ1000-D	500	.4974	.4980	.4981
	1000	1.0024	1.0038	1.0044
	100	.0995	.0980	.1010
ADJ1000-E	500	.4948	.4949	.5060
	1000	.9911	.9876	.9943
	100	.1011	.1013	.1011
ADJ1000-F	500	.5019	.4984	.4990
	1000	1.0028	1.0010	1.0032
	100	.1011	.1014	.1012
ADJ1000-G	500	.4943	.4935	.4944
	1000	.4926	.9940	.4938
	100	.1016	.1019	.1016
ADJ1000-H	500	.4972	.4967	.4952
	1000	.9980	.9963	.9918
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			

Pipette ~~calibration~~ verification performed 7-25-03, entry 7-29-03 JW
JW 7-29-03

Analyst: John Wills Date: 7-29-03

Reviewed by: MS Date: 8/1/03

Book/page: 03 075

010109

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

L. Wright 6/24/03

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	100	0.0980	0.0993	0.0994	0.099	98.90
ADJ1000-C	500	0.4911	0.4901	0.4907	0.491	98.13
	1000	1.0013	0.9922	0.9979	0.997	99.71
	100	0.0991	0.0983	0.0996	0.099	99.00
ADJ1000-D	500	0.4832	0.4854	0.4828	0.484	96.76
	1000	0.9827	0.9799	0.9838	0.982	98.21
	100	0.0997	0.0998	0.0996	0.100	99.70
ADJ1000-E	500	0.4997	0.5001	0.5000	0.500	99.99
	1000	1.0200	1.0082	1.0042	1.011	101.08
	100	0.1005	0.1013	0.1020	0.101	101.27
ADJ1000-F	500	0.4953	0.4975	0.4966	0.496	99.29
	1000	0.9898	0.9893	0.9868	0.989	98.86
	100	0.1002	0.1017	0.1004	0.101	100.77
ADJ1000-G	500	0.4901	0.4905	0.4900	0.490	98.04
	1000	0.9837	0.9840	0.9859	0.985	98.45
	100	0.0984	0.0986	0.0988	0.099	98.60
ADJ1000-H	500	0.4906	0.4901	0.4905	0.490	98.08
	1000	0.9872	0.9835	0.9811	0.984	98.39
	100				0.000	0.00
ADJ1000	500				0.000	0.00
	1000				0.000	0.00
	100				0.000	0.00
ADJ1000	500				0.000	0.00
	1000				0.000	0.00
	100				0.000	0.00
ADJ1000	500				0.000	0.00
	1000				0.000	0.00

W 6/24/03

Book/page: 03 076

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010110

Balance #: 34 Thermometer #: G-058 diH20 Temperature (° C) 22.5

100 µL – 1000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	100	0.0980	0.0993	0.0994
ADJ1000-C	500	0.4911	0.4901	0.4907
Lab 29	1000	1.0013	0.9922	0.9979
	100	0.0991	0.0983	0.0996
ADJ1000-D	500	0.4832	0.4854	0.4828
Lab 21	1000	0.9827	0.9799	0.9838
	100	0.0997	0.0998	0.0996
ADJ1000-E	500	0.4997	0.5001	0.5000
Lab 34	1000	1.0200	1.0082	1.0042
	100	0.1005	0.1013	0.1020
ADJ1000-F	500	0.4953	0.4975	0.4966
Lab 39	1000	0.9898	0.9893	0.9868
	100	0.1002	0.1017	0.1004
ADJ1000-G	500	0.4901	0.4905	0.4900 *
Lab 29	1000	0.9837	0.9840	0.9859
	100	0.0984	0.0986	0.0988
ADJ1000-H	500	0.4906	0.4901	0.4905
Lab 28	1000	0.9872	0.9835	0.9811
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			

LW 6/20/03

* after adj + 0.4909, 0.4916, 0.4901 98.17% Avg Rec
0.9849, 0.9859, 0.9865 98.58% Avg Rec JR 7/11/03

Analyst: Laura Wright Date: 6/20/03

Reviewed by: Valerie Date: 07-11-03

Book/page: 03 023

010111

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

L.Wright 6/24/03

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	20	0.0202	0.0201	0.0199	0.020	100.33
ADJ200-A	100	0.0987	0.0986	0.0985	0.099	98.60
	200	0.1975	0.1979	0.1978	0.198	98.87
	20	0.0202	0.0201	0.0202	0.020	100.83
ADJ200-C	100	0.0987	0.0991	0.0987	0.099	98.83
	200	0.1991	0.1989	0.1988	0.199	99.47
	20	0.0200	0.0200	0.0198	0.020	99.67
ADJ200-D	100	0.0983	0.0980	0.0980	0.098	98.10
	200	0.1969	0.1967	0.1963	0.197	98.32
	20	0.0202	0.0203	0.0201	0.020	101.00
ADJ200-E	100	0.0984	0.0984	0.0981	0.098	98.30
	200	0.1965	0.1961	0.1976	0.197	98.37
	20	0.0200	0.0200	0.0200	0.020	100.00
ADJ200-G	100	0.0980	0.0981	0.0983	0.098	98.13
	200	0.1973	0.1970	0.1969	0.197	98.53
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					

LW 6/24/03

FRM-247a (Rev 2/Mar 03)

Book/page: 03 024

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010112

Balance #: 34 Thermometer #: G-058 diH20 Temperature (° C) 22.5

20 µL – 200 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	20	0.0202	0.0201	0.0199
ADJ200-A	100	0.0987	0.0986	0.0985
Lab 34	200	0.1975	0.1979	0.1978
	20	0.0202	0.0201	0.0202
ADJ200-C	100	0.0987	0.0991	0.0987
Lab 28	200	0.1991	0.1989	0.1988
	20	0.0200	0.0200	0.0198
ADJ200-D	100	0.0983	0.0980	0.0980
Lab 21	200	0.1969	0.1967	0.1963
	20	0.0202	0.0203	0.0201
ADJ200-E	100	0.0984	0.0984	0.0981
Lab 39	200	0.1965	0.1961	0.1976
	20	0.0200	0.0200	0.0200
ADJ200-G	100	0.0980	0.0981	0.0983
Lab 29	200	0.1973	0.1970	0.1969
	20			
ADJ200	100			
	200			
	20			
ADJ200	100			
	200			
	20			
ADJ200	100			
	200			
	20			
ADJ200	100			
	200			

6/20/03

Analyst: Laura Wright Date: 6/20/03

Reviewed by: [signature] Date: 07-11-03

Book/page: 03 127

010113

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

C.W. Wright 6/24/03

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	500	0.5071	0.4999	0.4995	0.502	100.43
ADJ5000-C	2500	2.4913	2.4911	2.4989	2.494	99.75
	5000	5.0907	5.0318	5.0197	5.047	100.95
	500	0.4944	0.4964	0.4970	0.496	99.19
ADJ5000-G	2500	2.4775	2.4761	2.4789	2.478	99.10
	5000	5.0439	5.0051	4.9772	5.009	100.17
	500	0.4972	0.5016	0.4989	0.499	99.85
ADJ5000-H	2500	2.4778	2.4899	2.4898	2.486	99.43
	5000	5.0323	5.0017	5.0011	5.012	100.23
	500	0.5070	0.5077	0.5096	0.508	101.62
ADJ5000-I	2500	2.4897	2.4903	2.4898	2.490	99.60
	5000	5.0410	5.0057	5.0062	5.018	100.35
	500	0.5048	0.5009	0.5061	0.504	100.79
ADJ5000-J	2500	2.5049	2.5068	2.5024	2.505	100.19
	5000	5.0323	5.0116	5.0168	5.020	100.40
	500	0.5093	0.5089	0.5066	0.508	101.65
ADJ5000-K	2500	2.4952	2.4898	2.4799	2.488	99.53
	5000	5.0162	4.9766	4.9822	4.992	99.83
	500	0.4916	0.4930	0.4908	0.492	98.36
ADJ5000-L	2500	2.4871	2.4901	2.4824	2.487	99.46
	5000	5.0755	5.0094	4.9843	5.023	100.46
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					

CW 6/24/03

FRM-247c (Rev 2/Mar 03)

Book/page: 03 128

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010114

Balance #: 34 Thermometer #: G-058 diH20 Temperature (° C) 22.5

500 µL – 5000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	500	0.5071	0.4999	0.4995
ADJ5000-C	2500	2.4913	2.4911	2.4989
Lab 28	5000	5.0907	5.0318	5.0197
	500	0.4944	0.4964	0.4970
ADJ5000-G	2500	2.4775	2.4761	2.4789
Lab 28	5000	5.0439	5.0051	4.9772
	500	0.4972	0.5016	0.4989
ADJ5000-H	2500	2.4778	2.4899	2.4898
Lab 34	5000	5.0323	5.0017	5.0011
	500	0.5070	0.5077	0.5096
ADJ5000-I	2500	2.4897	2.4903	2.4898
Lab 28	5000	5.0410	5.0057	5.0062
	500	0.5048	0.5009	0.5061
ADJ5000-J	2500	2.5049	2.5068	2.5024
Lab 39	5000	5.0323	5.0116	5.0168
	500	0.5093	0.5089	0.5066
ADJ5000-K	2500	2.4952	2.4898	2.4799
Lab 29	5000	5.0162	4.9766	4.9822
	500	0.4916	0.4930	0.4908
ADJ5000-L	2500	2.4871	2.4901	2.4824
Lab 29	5000	5.0755	5.0094	4.9843
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			

LW 6/20/03

Analyst: Laura Wright Date: 6/20/03

Reviewed by: Walter Wh Date: 07-11-03

Book/page: 03 033

010115

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	20	0.0204	0.0201	0.0202	0.020	101.17
ADJ200-A	100	0.0988	0.1000	0.0998	0.100	99.53
	200	0.2004	0.2042	0.1993	0.201	100.65
	20	0.0204	0.0204	0.0203	0.020	101.83
ADJ200-C	100	0.0991	0.0996	0.1000	0.100	99.57
	200	0.2003	0.2000	0.1999	0.200	100.03
	20	0.0201	0.0203	0.0202	0.020	~~101.00~~ ~~101.50~~
ADJ200-D	100	0.0993	0.0996	0.0998	0.100	99.57
	200	0.1985	0.1985	0.1988	0.199	99.30
	20	0.0204	0.0203	0.0204	0.020	101.83
ADJ200-E	100	0.0997	0.0996	0.0993	0.099	99.30
	200	0.1990	0.1990	0.1995	0.199	99.58
	20	0.0204	0.0200	0.0202	0.020	101.00
ADJ200-G	100	0.0999	0.0999	0.0996	0.100	99.80
	200	0.1986	0.1998	0.1987	0.199	99.52
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					

FRM-247a (Rev 2/Mar 03)

Book/page: 03 034

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010116

Balance #: 16 Thermometer #: G011 diH20 Temperature (° C) 21

	Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
20 µL – 200 µL		20	.0304	.0201	.0202
	ADJ200-A	100	.0988	.1000	.0998
		200	.2004	.2042	.1993
		20	.0304	.0204	.0203
	ADJ200-C	100	.0991	.0996	.1000
		200	.2003	.2000	.1999
		20	.0304	.0203	.0202
	ADJ200-D	100	.0993	.0996	.0998
		200	.1985	.1985	.1988
		20	.0304	.0203	.0204
	ADJ200-E	100	.0997	.0996	.0993
		200	.1990	.1990	.1995
		20	.0304	.0200	.0202
	ADJ200-G	100	.0999	.0999	.0996
		200	.1986	.1998	.1987
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			

Pipette ~~calibration~~ verification performed 7-25-03, entry 7-29-03 ~~7-29-03~~ jw 7-29-03 jw

Analyst: John Wilder Date: 7-29-03

Reviewed by: [illegible] Date: 8/1/03

Book/page: 03 137

010117

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	500	0.5053	0.5052	0.5042	0.505	100.98
ADJ5000-C	2500	2.5092	2.5067	2.5013	2.506	100.23
	5000	4.9842	5.0042	4.9970	4.995	99.90
	500	0.4960	0.4999	0.5007	0.499	99.77
ADJ5000-G	2500	2.4989	2.4930	2.4940	2.495	99.81
	5000	5.0314	4.9997	5.0132	5.015	100.30
	500	0.5070	0.5064	0.5063	0.507	101.31
ADJ5000-H	2500	2.4932	2.4943	2.5015	2.496	99.85
	5000	5.0022	5.0071	5.0011	5.003	100.07
	500	0.5090	0.5087	0.5093	0.509	101.80
ADJ5000-I	2500	2.5112	2.5163	2.5164	2.515	100.59
	5000	5.0193	5.0139	5.0118	5.015	100.30
	500	0.5041	0.5059	0.5061	0.505	101.07
ADJ5000-J	2500	2.5018	2.5063	2.4980	2.502	100.08
	5000	5.0408	5.0016	5.0029	5.015	100.30
	500	0.5035	0.5029	0.5026	0.503	100.60
ADJ5000-K	2500	2.5161	2.5118	2.5200	2.516	100.64
	5000	5.0365	5.0307	5.0330	5.033	100.67
	500	0.5000	0.4972	0.4954	0.498	99.51
ADJ5000-L	2500	2.4983	2.5014	2.4987	2.499	99.98
	5000	5.0014	5.0006	4.9994	5.000	100.01
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					

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SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

010118

Balance #: 16 Thermometer #: G-011 diH20 Temperature (° C) 21

500 µL – 5000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	500	.5053	.5052	.5042
ADJ5000-C	2500	2.5092	2.5067	2.5013
	5000	4.9842	5.0042	4.9970
	500	.4960	.4999	.5007
ADJ5000-G	2500	2.4989	2.4930	2.4940
	5000	5.0314	4.9997	5.0132
	500	.5070	.5064	.5063
ADJ5000-H	2500	2.4932	2.4943	2.5015
	5000	5.0022	5.0071	5.0011
	500	.5090	.5087	.5093
ADJ5000-I	2500	2.5112	2.5163	2.5164
	5000	5.0193	5.0139	5.0118
	500	.5041	.5059	.5061
ADJ5000-J	2500	2.5018	2.5063	2.4980
	5000	5.0408	5.0016	5.0029
	500	.5035	.5029	.5026
ADJ5000-K	2500	2.5161	2.5118	2.5200
	5000	5.0365	5.0307	5.0330
	500	.5000	.4972	.4954
ADJ5000-L	2500	2.4983	2.5014	2.4987
	5000	5.0014	5.0006	4.9994
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			

Jw 7-29-03

Pipette verification performed 7-25-03, entry 7-29-03. Jw

Analyst: John Wills Date: 7-29-03

Reviewed by: JMS Date: 8/1/03

Book/page: 03 085

010119

SwRI – Div. 01, Inorganic Labs' Adjustable Volume Pipette Verification Log

(Space provided for Inorganic Laboratories' Adjustable Volume Pipette Verification Spreadsheet)

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	100	0.1011	0.1019	0.1014	0.101	101.47
ADJ1000-C	500	0.4967	0.4963	0.4973	0.497	99.35
	1000	1.0096	1.0042	0.9994	1.004	100.44
	100	0.0995	0.1005	0.1013	0.100	100.43
ADJ1000-D	500	0.4974	0.4980	0.4981	0.498	99.57
	1000	1.0024	1.0038	1.0044	1.004	100.35
	100	0.0995	0.0980	0.1010	0.100	99.50
ADJ1000-E	500	0.4948	0.4949	0.5060	0.499	99.71
	1000	0.9911	0.9876	0.9943	0.991	99.10
	100	0.1011	0.1013	0.1011	0.101	101.17
ADJ1000-F	500	0.5019	0.4984	0.4990	0.500	99.95
	1000	1.0028	1.0010	1.0032	1.002	100.23
	100	0.1011	0.1014	0.1012	0.101	101.23
ADJ1000-G	500	0.4943	0.4935	0.4944	0.494	98.81
	1000	0.9926	0.9940	0.9938	0.993	99.35
	100	0.1016	0.1019	0.1016	0.102	101.70
ADJ1000-H	500	0.4972	0.4967	0.4952	0.496	99.27
	1000	0.9980	0.9968	0.9918	0.996	99.55
	100					
ADJ1000	500					
	1000					
	100					
ADJ1000	500					
	1000					
	100					
ADJ1000	500					
	1000					

FRM-247b (Rev 1/Sept 02)

Book/page: 03 086

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010120

Balance #: 16 Thermometer #: G011 diH20 Temperature (° C) 21

100 µL – 1000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	100	.1011	.1019	.1014
ADJ1000-C	500	.4967	.4963	.4973
	1000	1.0096	1.0042	.9994
	100	.0995	.1005	.1013
ADJ1000-D	500	.4974	.4980	.4981
	1000	1.0024	1.0038	1.0044
	100	.0995	.0980	.1010
ADJ1000-E	500	.4948	.4949	.5060
	1000	.9911	.9876	.9943
	100	.1011	.1013	.1011
ADJ1000-F	500	.5019	.4984	.4990
	1000	1.0028	1.0010	1.0032
	100	.1011	.1014	.1012
ADJ1000-G	500	.4943	.4935	.4944
	1000	.9926	.9940	.9938
	100	.1016	.1019	.1016
ADJ1000-H	500	.4972	.4967	.4952
	1000	.9980	.9963	.9918
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			

JW 7-29-03

Pipette ~~calibration~~ verification performed 7-25-03, entry 7-29-03 JW
JW 7-29-03

Analyst: John Willis Date: 7-29-03

Reviewed by: MS Date: 8/1/03

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

Balance Calibrations

Southwest Research Institute
Division 01

BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
34	28	1116031935	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
6/24/03	2.0000	2.0000	MW	SN:99J50526-15
6-25-03	2.0000	2.0000	[illegible]	"
6-26-03	2.0000	2.0001	[illegible]	"
6-27-03	2.0000	2.0000	[illegible]	"
6-28-03	2.0000	2.0000	[illegible]	"
6/29/03	2.0000	2.0000	MW	"
6/30/03	2.0000	2.0000	MW	"
7-1-03	2.0000	2.0000	[illegible]	"
7-2-03	2.0000	2.0000	[illegible]	"
7-3-03	2.0000	2.0001	[illegible]	"

If balance is out of limits, clean the balance and re-calibrate using Class "S" weights.
If balance is still out of limits, place a "DO NOT USE" sign on it and call (x5896) for service.

Cordova
7/11/03

Southwest Research Institute
Division 01

BALANCE VERIFICATION LOG

010122

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
34	28	1116031935	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
7-31-03	2.0000	2.0004	JW	SN: 5537
8/01/03	2.0000	2.0005	JW	1.

If balance is out of limits, clean the balance and re-calibrate using Class "S" weights.
If balance is still out of limits, place a "DO NOT USE" sign on it and call (x5896) for service.

Southwest Research Institute
Division 01

BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
34	28	1116031935	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
12-30-02	2.0000	2.0000	JW	S.N. 3505 26-15
12/31/02	2.0000	1.9999	JW	"
1-2-03	2.0000	1.9999	JW	"
1/03/03	2.0000	2.0000	JW	"
1/06/03	2.0000	2.0000	JW	"
1/07/03	2.0000	2.0000	JW	"
1-8-03	2.0000	2.0000	JW	"
1-9-03	2.0000	2.0000	JW	"
1-10-03	2.0000	2.0000	JW	"
1/13/03	2.0000	2.0000	JW	"

If balance is out of limits, clean the balance and re-calibrate using Class "S" weights.
If balance is still out of limits, place a "DO NOT USE" sign on it and call (x5896) for service.

✓ ams 1/15/03

Southwest Research Institute
Division 01

010124

BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
34	28	1116031935	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
7-31-03	2.0000	2.0004	Jw	SN: 5537
8/01/03	2.0000	2.0003	JW	"

If balance is out of limits, clean the balance and re-calibrate using Class "S" weights.
If balance is still out of limits, place a "DO NOT USE" sign on it and call (x5896) for service.

FRM-112 (Rev 1/Dec 99)

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030714-6
SRR: 24617
SDG: 230256
CASE: CNWRA
VTSR: July 14, 2003
PROJECT#: 06002.01.141

DI Water Verification

D.I. WATER SYSTEM NOTEBOOK 01 021
METALS LAB
SOUTHWEST RESEARCH INSTITUTE 010125

DATE	INITIALS	READING (M OHMS)	SET PT./ QC LT. Green=OK	CALL FOR Service LT. Green=OK	USAGE (GALS)	COMMENTS
12/16/02	DR	18.0	✓	✓	48534.1	5:35 p.m.
12/17/02	DR	18.0	✓	✓	48546.2	9:25 p.m
12/18/02	DR	18.0	✓	✓	48562.0	5:56 p.m.
12/19/02	DR	18.0	✓	✓	48570.9	6:09 p.m.
12/20/02	DR	18.0	✓	✓	48585.4	6 p.m
12/23/02	DR	18.0	✓	✓	48595.2	6:21 p.m
12/26/02	DR	18.0	✓	✓	48601.0	12:25 p.m.
12/27/02	DR	18.0	✓	✓	48617.5	5:35 p.m
12/30/02	DR	18.0	✓	✓	48629.2	6:04 p.m
12/31/02	DR	18.0	✓	✓	48633.0	10:15 p.m
01/02/2003	DR	18.0	✓	✓	48647.9	6:05 p.m — [illegible]
01/03/2003	DR	18.0	✓	✓	48661.5	5:50 p.m
01/06/03	DR	18.0	✓	✓	48689.5	6:45 p.m
01/07/03	DR	18.0	✓	✓	48699.7	6:21 p.m
01/08/03	DR	18.0	✓	✓	48705.8	7:30 p.m
01/09/03	DR	18.0	✓	✓	48735.2	6:38 p.m
01/10/03	DR	18.0	✓	✓	48767.4	6:15 p.m
01/13/03	DR	18.0	✓	✓	48791.6	7:40 p.m
01/14/03	DR	18.0	✓	✓	48814.6	10:55 p.m
		Reviewed ams 1/15/03				
01/15/03	DR	18.0	✓	✓	48829.0	8:01 p.m
01/16/03	DR	18.0	✓	✓	48838.5	5:20 p.m
1/17-1/19/03	System could not be checked due to asbestos abatement →					
		Reviewed ams 1/20/03				

D.I. WATER SYSTEM NOTEBOOK
METALS LAB
SOUTHWEST RESEARCH INSTITUTE

01 026

010126

DATE	INITIALS	READING (M OHMS)	SET PT./ QC LT. Green=OK	CALL FOR Service LT. Green=OK	USAGE (GALS)	COMMENTS
6/19/03	DR	18.0	✓	✓	50302.9	8:06 p.m.
6/20/03	DR	18.0	✓	✓	50316.2	7:52 p.m.
6/23/03	DR	18.0	✓	✓	50339.0	6:32 p.m.
6/24/03	DR	18.0	✓	✓	50355.5	8:36 p.m.
6/25/03	DR	18.0	✓	✓	50365.0	6:48 p.m.
6/26/03	DR	18.0	✓	✓	50376.7	6:18 p.m.
6/27/03	DR	18.0	✓	✓	50385.1	6:37 p.m.
6/30/03	DR	18.0	✓	✓	50404.7	6:45 p.m.
7/1/03	DR	18.0	✓	✓	50417.1	6:20 p.m.
7/2/03	DR	18.0	✓	✓	50427.2	9:00 p.m.
7/3/03	DR	18.0	✓	✓	50437.8	7:40 p.m.
7/7/03	DR	18.0	✓	✓	50447.4	5:20 p.m.
7/8/03	DR	18.0	✓	✓	50453.2	5:40 p.m.
7/9/03	DR	18.0	✓	✓	50462.8	4:40 p.m.
7/10/03	DR	18.0	✓	✓	50473.8	9:29 p.m.
		Expires		7/11/03		
7/11/03	DR	18.0	✓	✓	50482.2	7:30 p.m.
7/12/03	VDS	18.0	✓	✓	50557.5	5:00 p.m.
7/13/03			ARC 7/14/03			
7/19/03	DR	18.0	✓	✓	50573.1	10:18 p.m.
7/20/03	DR	18.0	✓	✓	50574.5	9:31 p.m.
7/21/03	DR	18.0	✓	✓	50586.1	5:07 p.m.
7/22/03	DR	18.0	✓	✓	50602.5	5:10 p.m.
7/23/03	DR	18.0	✓	yellow	50614.8	5:36 p.m. Need R.O. Tank U.S. Filter
7/24/03	DR	18.0	✓	yellow	50681.4	3:40 p.m. U.S. Filter called.
7/25/03	DR	18.0	✓	✓	50692.6	tank exchange backonline 7:45 AM.
7/28/03	DR	18.0	✓	✓	50717.2	5:48 pm
7/29/03	DR	18.0	✓	✓	50727.5	7:05 pm
7/30/03	DR	18.0	✓	✓	50740.8	6:16 p.m.
8/1/03	DR	18.0	✓	✓	50755.6	1:30 A.M. (yes, A.M.)
		Ams 8/1/03				

D.I. WATER SYSTEM NOTEBOOK
METALS LAB
SOUTHWEST RESEARCH INSTITUTE

01 026

010127

DATE	INITIALS	READING (M OHMS)	SET PT./ QC LT. Green=OK	CALL FOR Service LT. Green=OK	USAGE (GALS)	COMMENTS
6/19/03	DR	18.0	✓	✓	50302.9	8:06 p.m.
6/20/03	DR	18.0	✓	✓	50316.2	7:52 p.m.
6/23/03	DR	18.0	✓	✓	50339.0	6:32 p.m.
6/24/03	DR	18.0	✓	✓	50355.5	8:36 p.m.
6/25/03	DR	18.0	✓	✓	50365.0	6:48 p.m.
6/26/03	DR	18.0	✓	✓	50376.7	6:18 p.m.
6/27/03	DR	18.0	✓	✓	50385.1	6:37 p.m.
6/30/03	DR	18.0	✓	✓	50404.7	6:45 p.m.
7/1/03	DR	18.0	✓	✓	50417.1	6:20 p.m.
7/2/03	DR	18.0	✓	✓	50427.2	9:30 p.m.
7/3/03	DR	18.0	✓	✓	50437.8	7:40 p.m.
7/7/03	DR	18.0	✓	✓	50447.4	5:30 p.m.
7/8/03	DR	18.0	✓	✓	50453.2	5:40 p.m.
7/9/03	DR	18.0	✓	✓	50462.8	4:40 p.m.
7/10/03	DR	18.0	✓	✓	50473.8	7:29 p.m.
			Expires	7/11/03		
7/11/03	DR	18.0	✓	✓	50482.2	7:30 p.m.
7/17/03	VDS	18.0	✓	✓	505525	5:00 p.m.
7/18/03			Exp 7/19/03			
7/19/03	DR	18.0	✓	✓	50573.1	10:18 p.m.
7/20/03	DR	18.0	✓	✓	50574.5	9:31 p.m.
7/21/03	DR	18.0	✓	✓	50586.1	5:07 p.m.
7/22/03	DR	18.0	✓	✓	50602.5	5:10 p.m.
7/23/03	DR	18.0	✓	yellow	50664.8	5:36 p.m. Red Re. Filter last U.S.
7/24/03	DR	18.0	✓	yellow	50681.4	3:40 p.m. U.S. Filter called.
7/25/03	DR	18.0	✓	✓	50692.6	tank exchange. back online. 7:45 AM.
7/28/03	DR	18.0	✓	✓	50717.2	5:48 pm
7/29/03	DR	18.0	✓	✓	50727.5	7:05 pm
7/30/03	DR	18.0	✓	✓	50740.8	6:16 p.m.
8/1/03	DR	18.0	✓	✓	50755.6	1:30 A.M. (yes. A.M.)
		Ams 8/1/03				