SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

FINAL REPORT

SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

010001

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/21/03, 07/22/03

Matrix: Water

Project No.: 06002.01.141

SRR: 24668, 24678

TO: 030721-18, 030722-12

Sample ID	Lab System ID	Aluminum Results (mg/L)	Calcium Results (mg/L)	Lithium Results (mg/L)	Potassium Results (mg/L)	Silicon Results (mg/L)	Sodium Results (mg/L)
Prep Blank	----	<0.25	<0.05	<0.010	<0.25	<0.05	<0.2
Lab Control	----	10.1	20.0	3.90	89.3	4.11	19.7
True Value	----	10.0	20.0	4.00	100	4.00	20.0
Recovery	----	101%	100%	97.5%	89.3%	103%	98.5%
Prep Blank	----	<0.25	<0.05	<0.010	<0.25	<0.125	<0.2
Lab Control	----	9.98	21.0	3.86	84.3	20.6	19.6
True Value	----	10.0	20.0	4.00	100	20.0	20.0
Recovery	----	99.8%	105%	96.5%	84.3%	103%	98.0%
NaLi0.1-1	230742	<0.25	<0.05	80.0	<0.25	1.96	833
Duplicate result	230742	----	----	79.3	----	----	828
RPD	230742	----	----	0.88%	----	----	0.60%
Spike result	230742	----	----	271	----	----	1245
Spike added	230742	----	----	200	----	----	400
Recovery	230742	----	----	95.5%	----	----	103%
NaLi0.1-10	230743	<0.25	<0.05	547	<0.25	2.48	253
Duplicate result	230743	----	<0.05	----	----	----	----
RPD	230743	----	0.00%	----	----	----	----
NaLi0.1-11	230744	<0.25	<0.05	564	<0.25	1.93	192
Spike result	230744	----	19.5	----	----	----	----
Spike added	230744	----	20.0	----	----	----	----
Recovery	230744	----	97.5%	----	----	----	----
NaLi0.1-12	230745	<0.25	<0.05	575	<0.25	1.56	162
Duplicate result	230745	<0.25	----	----	<0.25	1.55	----
RPD	230745	0.00%	----	----	0.00%	0.64%	----
NaLi0.1-13	230746	<0.25	<0.05	592	<0.25	1.22	132
Spike result	230746	10.6	----	----	141	22.3	----
Spike added	230746	10.0	----	----	100	20.0	----
Recovery	230746	106%	----	----	141%	105%	----
NaLi0.1-14	230747	<0.25	<0.05	596	<0.25	0.899	95.4
NaLi0.1-15	230748	<0.25	<0.05	607	<0.25	0.607	66.8
NaLi0.1-16	230749	<0.25	<0.05	607	<0.25	0.478	50.6
NaLi0.1-17	230750	<0.25	<0.05	615	<0.25	0.376	36.2
NaLi0.1-18	230751	<0.25	<0.05	616	<0.25	0.231	21.1
NaLi0.1-19	230752	<0.25	<0.05	623	<0.25	0.137	13.6
NaLi0.1-2	230753	<0.25	<0.05	120	<0.25	2.60	704
NaLi0.1-20	230754	<0.25	0.143	625	<0.25	0.171	8.87
NaLi0.1-21	230755	<0.25	<0.05	623	<0.25	0.103	3.75
NaLi0.1-22	230756	<0.25	<0.05	620	<0.25	0.074	2.56
NaLi0.1-23	230757	<0.25	<0.05	538	<0.25	1.81	410
NaLi0.1-24	230758	<0.25	<0.05	617	<0.25	<0.125	13.5
NaLi0.1-25	230759	<0.25	<0.05	<0.010	<0.25	<0.125	<0.2
Reporting Limit:		0.25 mg/L	0.05 mg/L	0.010 mg/L	0.25 mg/L	0.05 mg/L	0.2 mg/L

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SOUTHWEST RESEARCH INSTITUTE

SAMPLE ANALYSIS DATA SHEET

010002

Lab Name: Southwest Research Institute

Client: Division 20

Lab Code: SwRI

Date Received: 07/21/03, 07/22/03

Matrix: Water

Project No.: 06002.01.141

SRR: 24668, 24678

TO: 030721-18, 030722-12

Sample ID	Lab System ID	Aluminum Results (mg/L)	Calcium Results (mg/L)	Lithium Results (mg/L)	Potassium Results (mg/L)	Silicon Results (mg/L)	Sodium Results (mg/L)
NaLi0.1-3	230760	<0.25	<0.05	309	0.381	1.57	1198
Duplicate result	230760	----	----	310	----	----	1206
RPD	230760	----	----	0.32%	----	----	0.67%
Spike result	230760	----	----	699	----	----	1610
Spike added	230760	----	----	400	----	----	400
Recovery	230760	----	----	97.5%	----	----	103%
NaLi0.1-4	230761	<0.25	<0.05	189	<0.25	2.38	520
Duplicate result	230761	----	<0.05	----	----	----	----
RPD	230761	----	0.00%	----	----	----	----
NaLi0.1-5	230762	<0.25	<0.05	442	<0.25	0.834	738
Spike result	230762	----	21.1	----	----	----	----
Spike added	230762	----	20.0	----	----	----	----
Recovery	230762	----	106%	----	----	----	----
NaLi0.1-6	230763	<0.25	<0.05	470	<0.25	1.97	617
NaLi0.1-7	230764	<0.25	<0.05	509	<0.25	2.53	479
Duplicate result	230764	<0.25	----	----	<0.25	2.53	----
RPD	230764	0.00%	----	----	0.00%	0.00%	----
NaLi0.1-8	230765	<0.25	<0.05	534	<0.25	1.87	412
Spike result	230765	10.5	----	----	138	22.6	----
Spike added	230765	10.0	----	----	100	20.0	----
Recovery	230765	105%	----	----	138%	104%	----
NaLi0.1-9	230766	<0.25	<0.05	553	<0.25	0.982	319
NaLi0.1-A	230767	<0.25	0.060	195	0.302	<0.125	1562
NaLi0.1-B	230768	<0.25	<0.05	332	<0.25	<0.125	1143
NaLi0.1-C	230769	<0.25	<0.05	458	<0.25	<0.125	677
NaLi0.1-D	230770	<0.25	0.064	525	<0.25	<0.125	460
NaLi0.1-E	230771	<0.25	<0.05	597	<0.25	<0.125	230
NaLi0.1-F	230772	<0.25	<0.05	624	<0.25	0.128	0.539
QA1	230773	<0.25	<0.05	0.016	94.9	<0.125	49.2
QA2	230774	<0.25	<0.05	<0.010	94.6	<0.125	48.6
NaLi0.1-1b	230868	<0.25	<0.05	65.2	<0.25	1.62	658
Duplicate result	230868	<0.25	----	64.4	<0.25	1.63	654
RPD	230868	0.00%	----	1.23%	0.00%	0.62%	0.61%
Spike result	230868	10.5	----	144	119	23.0	1095
Spike added	230868	10.0	----	80	100	20.0	400
Recovery	230868	105%	----	98.5%	119%	107%	109%
NaLi0.1-2b	230869	<0.25	<0.05	97.6	<0.25	2.13	543
Duplicate result	230869	----	<0.05	----	----	----	----
RPD	230869	----	0.00%	----	----	----	----
NaLi0.1-4b	230870	<0.25	0.052	144	<0.25	1.96	381
Spike result	230870	----	21.5	----	----	----	----
Spike added	230870	----	20.0	----	----	----	----
Recovery	230870	----	107%	----	----	----	----
Reporting Limit:		0.25 mg/L	0.05 mg/L	0.010 mg/L	0.25 mg/L	0.05 mg/L	0.2 mg/L

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SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

Task Orders/01-QPP-015

Southwest Research Institute

Laboratory Task Order

010003

TO #: 030721-18 Revision: 3

SDG: 230742
VTSR: 07/21/03
CASE: CNWRA - JBROWN

SRR #'s: 24668
Client(s): DIV 20

Project(s): 06002.01.141
Manager(s): DAMMANN, MIKE
To PM: 08/21/03
To QA: 09/01/03
To Client: 09/02/03

Instructions

DIVISION 20 - CNWRA. Using 14-day TAT as preliminary, 30-day TAT as hard copy. Subject to change. PROJECT IS NUCLEAR SAFETY RELATED, 10 CFR 50, Part 21, APPENDIX B. Contact Senior QA Inspector Charlie Butcher (Ext. 5928, pager 271-5172) before starting ANY work. Analysis of Calcium, Sodium, Potassium, Silicon and Aluminum by ICP as per Div. 20 request. Points of contact are Jennifer Brown (Ext. 2193) or Paul Bertetti (Ext. 5228, fax 5184). Send final report to Paul Bertetti. Contact PM with any questions.
UPDATED: Grouping task order with 030722-12 and also updating due dates. (dr07.22.03)
REVISION 1: Per Jennifer Brown request, adding Lithium to the required list. Send all new reports to Paul Bertetti. Change due date to add time for additional request. (dr08.12.03)

Documents Related to this task order: 5738

Test: DIL-DILUTION
Section: METALPREP

Holding: 28 days from CED
Prep, Dilution
Cnt: 33

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230742		1	Water	NaLi0.1-1	21 Jul 03	18 Aug 03
230743		1	Water	NaLi0.1-10	21 Jul 03	18 Aug 03
230744		1	Water	NaLi0.1-11	21 Jul 03	18 Aug 03
230745		1	Water	NaLi0.1-12	21 Jul 03	18 Aug 03
230746		1	Water	NaLi0.1-13	21 Jul 03	18 Aug 03
230747		1	Water	NaLi0.1-14	21 Jul 03	18 Aug 03
230748		1	Water	NaLi0.1-15	21 Jul 03	18 Aug 03
230749		1	Water	NaLi0.1-16	21 Jul 03	18 Aug 03
230750		1	Water	NaLi0.1-17	21 Jul 03	18 Aug 03
230751		1	Water	NaLi0.1-18	21 Jul 03	18 Aug 03
230752		1	Water	NaLi0.1-19	21 Jul 03	18 Aug 03
230753		1	Water	NaLi0.1-2	21 Jul 03	18 Aug 03
230754		1	Water	NaLi0.1-20	21 Jul 03	18 Aug 03
230755		1	Water	NaLi0.1-21	21 Jul 03	18 Aug 03
230756		1	Water	NaLi0.1-22	21 Jul 03	18 Aug 03
230757		1	Water	NaLi0.1-23	21 Jul 03	18 Aug 03
230758		1	Water	NaLi0.1-24	21 Jul 03	18 Aug 03
230759		1	Water	NaLi0.1-25	21 Jul 03	18 Aug 03
230760		1	Water	NaLi0.1-3	21 Jul 03	18 Aug 03
230761		1	Water	NaLi0.1-4	21 Jul 03	18 Aug 03
230762		1	Water	NaLi0.1-5	21 Jul 03	18 Aug 03
230763		1	Water	NaLi0.1-6	21 Jul 03	18 Aug 03
230764		1	Water	NaLi0.1-7	21 Jul 03	18 Aug 03
230765		1	Water	NaLi0.1-8	21 Jul 03	18 Aug 03
230766		1	Water	NaLi0.1-9	21 Jul 03	18 Aug 03
230767		1	Water	NaLi0.1-A	21 Jul 03	18 Aug 03
230768		1	Water	NaLi0.1-B	21 Jul 03	18 Aug 03
230769		1	Water	NaLi0.1-C	21 Jul 03	18 Aug 03
230770		1	Water	NaLi0.1-D	21 Jul 03	18 Aug 03
230771		1	Water	NaLi0.1-E	21 Jul 03	18 Aug 03
230772		1	Water	NaLi0.1-F	21 Jul 03	18 Aug 03
230773		1	Water	QA1	21 Jul 03	18 Aug 03
230774		1	Water	QA2	21 Jul 03	18 Aug 03

Test: ICP-SWRI
Section: METALS

Holding: 180 days from CED
ICP Analysis by SwRI Method (Ca, Na, K, Si, Al) - Lithium also needed.
Cnt: 33

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230742		1	Water	NaLi0.1-1	21 Jul 03	17 Jan 08/04 2003

Southwest Research Institute

Laboratory Task Order

010004

TO #: 030721-18 Revision: 3

SDG: 230742
VTSR: 07/21/03
CASE: CNWRA - JBROWN

SRR #'s: 24668
Client(s): DIV 20

Project(s): 06002.01.141
Manager(s): DAMMANN, MIKE
To PM: 08/21/03
To QA: 09/01/03
To Client: 09/02/03

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230743		1	Water	NaLi0.1-10	21 Jul 03	17 Jan 04
230744		1	Water	NaLi0.1-11	21 Jul 03	17 Jan 04
230745		1	Water	NaLi0.1-12	21 Jul 03	17 Jan 04
230746		1	Water	NaLi0.1-13	21 Jul 03	17 Jan 04
230747		1	Water	NaLi0.1-14	21 Jul 03	17 Jan 04
230748		1	Water	NaLi0.1-15	21 Jul 03	17 Jan 04
230749		1	Water	NaLi0.1-16	21 Jul 03	17 Jan 04
230750		1	Water	NaLi0.1-17	21 Jul 03	17 Jan 04
230751		1	Water	NaLi0.1-18	21 Jul 03	17 Jan 04
230752		1	Water	NaLi0.1-19	21 Jul 03	17 Jan 04
230753		1	Water	NaLi0.1-2	21 Jul 03	17 Jan 04
230754		1	Water	NaLi0.1-20	21 Jul 03	17 Jan 04
230755		1	Water	NaLi0.1-21	21 Jul 03	17 Jan 04
230756		1	Water	NaLi0.1-22	21 Jul 03	17 Jan 04
230757		1	Water	NaLi0.1-23	21 Jul 03	17 Jan 04
230758		1	Water	NaLi0.1-24	21 Jul 03	17 Jan 04
230759		1	Water	NaLi0.1-25	21 Jul 03	17 Jan 04
230760		1	Water	NaLi0.1-3	21 Jul 03	17 Jan 04
230761		1	Water	NaLi0.1-4	21 Jul 03	17 Jan 04
230762		1	Water	NaLi0.1-5	21 Jul 03	17 Jan 04
230763		1	Water	NaLi0.1-6	21 Jul 03	17 Jan 04
230764		1	Water	NaLi0.1-7	21 Jul 03	17 Jan 04
230765		1	Water	NaLi0.1-8	21 Jul 03	17 Jan 04
230766		1	Water	NaLi0.1-9	21 Jul 03	17 Jan 04
230767		1	Water	NaLi0.1-A	21 Jul 03	17 Jan 04
230768		1	Water	NaLi0.1-B	21 Jul 03	17 Jan 04
230769		1	Water	NaLi0.1-C	21 Jul 03	17 Jan 04
230770		1	Water	NaLi0.1-D	21 Jul 03	17 Jan 04
230771		1	Water	NaLi0.1-E	21 Jul 03	17 Jan 04
230772		1	Water	NaLi0.1-F	21 Jul 03	17 Jan 04
230773		1	Water	QA1	21 Jul 03	17 Jan 04
230774		1	Water	QA2	21 Jul 03	17 Jan 04

Southwest Research Institute

Laboratory Task Order

TO #: 030722-12 Revision: 1

SDG: 230742
VTSR: 07/22/03
CASE: CNWRA - JBROWN

SRR #'s: 24678
Client(s): DIV 20

Project(s): 06002.01.141
Manager(s): DAMMANN, MIKE
To PM: 08/21/03
To QA: 09/01/03
To Client: 09/02/03

010005

Instructions

DIVISION 20 - CNWRA. Using 14-day TAT as preliminary, 30-day TAT as hard copy. Subject to change. PROJECT IS NUCLEAR SAFETY RELATED, 10 CFR 50, Part 21, APPENDIX B. Contact Senior QA Inspector Charlie Butcher (Ext. 5928, pager 271-5172) before starting ANY work. Analysis of Calcium, Sodium, Potassium, Silicon and Aluminum by ICP as per Div. 20 request. Points of contact are Jennifer Brown (Ext. 2193) or Paul Bertetti (Ext. 5228, fax 5184). Send final report to Paul Bertetti. Contact PM with any questions.
GROUPING with task order 030721-18.
REVISION 1: Per Jennifer Brown request, adding Lithium to the required list. Send all new reports to Paul Bertetti. Change due date to add time for additional request. (dr08.12.03)

Documents Related to this task order: 5744

Test: DIL-DILUTION
Section: METALPREP
Holding: 28 days from CED
Prep, Dilution
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230868		1	Water	NaLi0.1-1b	22 Jul 03	19 Aug 03
230869		1	Water	NaLi0.1-2b	22 Jul 03	19 Aug 03
230870		1	Water	NaLi0.1-4b	22 Jul 03	19 Aug 03

Test: ICP-SWRI
Section: METALS
Holding: 180 days from CED
ICP Analysis by SwRI Method - Also Lithium
Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
230868		1	Water	NaLi0.1-1b	22 Jul 03	18 Jan 04
230869		1	Water	NaLi0.1-2b	22 Jul 03	18 Jan 04
230870		1	Water	NaLi0.1-4b	22 Jul 03	18 Jan 04

01-QPP-015
Division 01
Revision 4
November 2002

010006

Document No. 3

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Division 01

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

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

010007

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 Quality Assurance Manager	(210) 522-2169	10/30/02 **DATE**
REZA KARIMI Director, Department of Analytical and Environmental Chemistry	(210) 522-2412	10/30/02 **DATE**
for **MICHAEL G. MACNAUGHTON** Vice President, Chemistry and Chemical Engineering Division	(210) 522-5162	10/30/02 **DATE**
CHRISTOPHER HOBSON Quality Assurance Engineer	(210) 522-5838	10/30/02 **DATE**

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010008

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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.*

NA 9-9-03
~~010015~~

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

Chain of Custody/Login Paperwork

5738

01005

SAMPLE LIST/CHAIN OF CUSTODY

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

Shipper Name/Address: Jennifer Brown CNWRA-div 20 bldg 57

Client:

Client Purchase Order/Other ID:

Site/Zone ID:

Requested Turnaround:
- [x] 2 Weeks
- [ ] 3 Weeks
- [ ] Other: _____

SwRI Contact: Mike Darman

Analyses Requested

Sample ID	Sample Collection Date (mm/dd/yy)	Sample Collection Time	Matrix Type	Sample Type	# of Containers	Ca, K, Na, Si, Al by ICP							Tinted			REMARKS
NaLiO.1-11	7-21-03		W		1	X										
NaLiO.1-12						X										
NaLiO.1-13						X										
NaLiO.1-14						X										
NaLiO.1-15						X										
NaLiO.1-16						X										
NaLiO.1-17						X										
NaLiO.1-18						X										
NaLiO.1-19						X										
NaLiO.1-20						X										

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 procs

POC - Jennifer Brown x 2193 or Paul Bertetti x 5228

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 #: 027

Comments: 556/135

Relinquished by (Print/Signature)	Date	Time
Jennifer Brown / [signature]		
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time

SwRI Project#: 1.20.06002.01.141

Received by SwRI Lab: (Signature) [signature]

Date: 7/21/03 Time: 1110

Samples Disposed: Date: Time:

Samples Disposed by:

5738

SAMPLE LIST/CHAIN OF CUSTODY

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

Shipper Name/Address: Jennifer Brown
CNWRA_div 20
bld 57

Client:

Client Purchase Order/Other ID:

Site/Zone ID:

SwRI Contact: Mike Dammann

Requested Turnaround:
- [x] 2 Weeks
- [ ] 3 Weeks
- [ ] Other: _____

010016

Analyses Requested

Sample ID	Sample Collection Date (mm/dd/yy)	Sample Collection Time	Matrix Type	Sample Type	# of Containers	Ca, K, Na, Si, Al by ICP							Filtered		
NaLiO.1-1	7-21-03		W		1	X									
NaLiO.1-2						X									
NaLiO.1-3						X									
NaLiO.1-4						X									
NaLiO.1-5						X									
NaLiO.1-6						X									
NaLiO.1-7						X									
NaLiO.1-8						X									
NaLiO.1-9						X									
NaLiO.1-10						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 - Jennifer Brown x 2193 or Paul Bertetti x 5228

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 #: 027

Comments: 556/135

Relinquished by (Print/Signature)	Date	Time
Jennifer Brown / [signature]		
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time

SwRI Project#: 1.20.06002.01.141

Received by SwRI Lab (Signature): [signature]

Date: 7/21/03 Time: 1110

Samples Disposed: Date: Time:

Samples Disposed by:

5738

SAMPLE LIST/CHAIN OF CUSTODY

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

Shipper Name/Address: Jennifer Brown CNWRA – div 20 bld 57

Client: 010017

Client Purchase Order/Other ID:

Site/Zone ID:

Requested Turnaround:
- [x] 2 Weeks
- [ ] 3 Weeks
- [ ] Other:

SwRI Contact: Mike Dammann

Analyses Requested

Sample ID	Sample Collection Date (mm/dd/yy)	Sample Collection Time	Matrix Type	Sample Type	# of Containers	Ca, K, Na, Si, Al by ICP						Intact			
NaLi0.1-21	7-21-03		W		1	X						↓			
NaLi0.1-22	↓		↓		↓	X						↓			
NaLi0.1-23	↓		↓		↓	X						↓			
NaLi0.1-24	↓		↓		↓	X						↓			
NaLi0.1-25	↓		↓		↓	X						↓			
NaLi0.1-A	↓		↓		↓	X						↓			
NaLi0.1-B	↓		↓		↓	X						↓			
NaLi0.1-C	↓		↓		↓	X						↓			
NaLi0.1-D	↓		↓		↓	X						↓			
NaLi0.1-E	✓		✓		✓	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. Jennifer Brown x2193 or Paul Bertetti x5228

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 #: 027

Comments: 556/135

Relinquished by (Print/Signature)	Date	Time
Jennifer Brown / [signature]		
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time

SwRI Project#: 1.20.06002.01.141

Received by SwRI Lab: (Signature) [signature]

Date: 7/4/03 Time: 1110

Samples Disposed: Date: Time:

Samples Disposed by:

5738

SAMPLE LIST/CHAIN OF CUSTODY

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

Shipper Name/Address: Jennifer Brown
CNWRA - div 20
bld 57

Client: 010018

Client Purchase Order/Other ID:

Site/Zone ID:

Requested Turnaround:
- [x] 2 Weeks
- [ ] 3 Weeks
- [ ] Other: _____

SwRI Contact: Mike Dammann

Analyses Requested

Sample ID	Sample Collection Date (mm/dd/yy)	Sample Collection Time	Matrix Type	Sample Type	# of Containers	Ca, K, Na, Si, Al by ICP						Tinkert			
NaLiO.1-F	7-21-03		W		1	X									
QA1						X									
QA2						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 - Jennifer Brown x2193 or Paul Berfetti x5228

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: 22.0°C Therm #: 027

Comments: 556/135

Relinquished by (Print/Signature)	Date	Time
Jennifer Brown / [signature]		
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time

SwRI Project#: 120.06002.01.141

Received by SwRI Lab: (Signature) [signature]

Date: 7/21/03 Time: 1110

Samples Disposed: Date: Time:

Samples Disposed by:

Div 01 COC Form 01-01-001, Rev 8/02

5744

SAMPLE LIST/CHAIN OF CUSTODY

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

Shipper Name/Address: Jennifer Brown CNWRA-div 20 bld 57

Client: 010019

Client Purchase Order/Other ID:

Site/Zone ID:

Requested Turnaround:
- ☒ 2 Weeks
- ☐ 3 Weeks
- ☐ Other: _____

SwRI Contact: Mike Darmann

Analyses Requested

Sample ID	Sample Collection Date (mm/dd/yy)	Sample Collection Time	Matrix Type	Sample Type	# of Containers	Ca, K, Na, Si, Al by ICP								Inked	
NaLi0.1-1b	7-22-03		W		1	X								↓	
NaLi0.1-2b	↓		↓		↓	X									
NaLi0.1-4b	↓		↓		↓	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)
- ☒ Other (specify) None

Nuclear Safety related - use appropriate QA procedures

POC - Jennifer Brown x 2193 or Paul Bertetti x 5228

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~~ 026 LE

Comments: 556/137

Relinquished by (Print/Signature)	Date	Time
Jennifer Brown / [signature]		
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time
Received by (Print/Signature)	Date	Time
Relinquished by (Print/Signature)	Date	Time

SwRI Project#: 1.20.06002.01.141

Received by SwRI Lab: (Signature) [signature]

Date: 7/22/03 Time: 1115

Samples Disposed: Date: Time:

Samples Disposed by:

Southwest Research Institute

010020

LOG-IN CHECKLIST

Sample Receipt Report No.: **24668**

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: 07/21/03		Time: 3:01 PM	

FRM-012 (Rev 2/May 03)

SAMPLE LOG-IN SHEET **010021**

Lab Name: Southwest Research Institute	Page 1 of 2
Received By (Print Name): KHALED EDRISI	Log-in Date: 07/21/2003
Received By (Signature): Khaled Edrisi	
Case Number: CNWRA	Sample Delivery Group No.
SAS Number: N/A	

Remarks: 06602.01-141

1.	Custody Seal(s)	Present/~~Absent~~ Intact/~~Broken~~
2.	Custody Seal Nos.	N/A
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	07/21/2003
12.	Time Received	11:10:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
NaLi0.1-1	None	230742	Intact
NaLi0.1-10	None	230743	Intact
NaLi0.1-11	None	230744	Intact
NaLi0.1-12	None	230745	Intact
NaLi0.1-13	None	230746	Intact
NaLi0.1-14	None	230747	Intact
NaLi0.1-15	None	230748	Intact
NaLi0.1-16	None	230749	Intact
NaLi0.1-17	None	230750	Intact
NaLi0.1-18	None	230751	Intact
NaLi0.1-19	None	230752	Intact
NaLi0.1-2	None	230753	Intact
NaLi0.1-20	None	230754	Intact
NaLi0.1-21	None	230755	Intact
NaLi0.1-22	None	230756	Intact
NaLi0.1-23	None	230757	Intact
NaLi0.1-24	None	230758	Intact
NaLi0.1-25	None	230759	Intact
NaLi0.1-3	None	230760	Intact
NaLi0.1-4	None	230761	Intact
NaLi0.1-5	None	230762	Intact
NaLi0.1-6	None	230763	Intact
NaLi0.1-7	None	230764	Intact

Sample Transfer

Fraction: Inorganic	Fraction:
Area #: Inorg 1	Area #: 7/21/03
By: KE	By: KE
On: 7/21/03	On:

* Contact SMO and attach record of resolution

Reviewed By	Logbook No. Sample Receipt (24668)
Date	Logbook Page No. 4774 (3,4 of 4)

SAMPLE LOG-IN SHEET

010022

Lab Name: Southwest Research Institute	Page 2 of 2
Received By (Print Name): KHALED EDRISI	Log-in Date: 07/21/2003
Received By (Signature): Khaled Edrisi	
Case Number: CNWRA	Sample Delivery Group No.
Remarks: 06002.01.006	SAS Number: N/A

1.	Custody Seal(s)	Present/Absent* Intact/Broken
2.	Custody Seal Nos.	N/A
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	07/21/2003
12.	Time Received	11:10:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
NaLi0.1-8	None	230765	Intact
NaLi0.1-9	None	230766	Intact
NaLi0.1-A	None	230767	Intact
NaLi0.1-B	None	230768	Intact
NaLi0.1-C	None	230769	Intact
NaLi0.1-D	None	230770	Intact
NaLi0.1-E	None	230771	Intact
NaLi0.1-F	None	230772	Intact
QA1	None	230773	Intact
QA2	None	230774	Intact

Sample Transfer

Fraction: Inorganic	Fraction:
Area #: Inorg 1	Area #: 7/21/03
By: KE	By: KE
On: 7/21/03	On:

* Contact SMO and attach record of resolution

Reviewed By	CYNTHIA A. SALGADO	Logbook No.	Sample Receipt (24668)
Date	07/23/2003	Logbook Page No.	4774 (3,4 of 4)

Southwest Research Institute

LOG-IN CHECKLIST

Sample Receipt Report No.: **24678**

010023

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: 07/22/03		Time: 4:00 PM	

SAMPLE LOG-IN SHEET

010024

Lab Name: Southwest Research Institute	Page 1 of 1
Received By (Print Name): KHALED EDRISI	Log-in Date: 07/22/2003
Received By (Signature): Khaled Edrisi	
Case Number: CNWRA	Sample Delivery Group No.
Remarks: 06002.01-141	SAS Number: N/A

1.	Custody Seal(s)	Present/Absent* Intact/Broken
2.	Custody Seal Nos.	N/A
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	07/22/2003
12.	Time Received	11:15:00

EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc
NaLi0.1-1b	None	230868	Intact
NaLi0.1-2b	None	230869	Intact
NaLi0.1-4b	None	230870	Intact

Sample Transfer

Fraction: Inorganics	Fraction:
Area #: KE Inorg 1	Area #: 7/22/03 KE
By: KE	By:
On: 7/22/03	On:

* Contact SMO and attach record of resolution

Reviewed By: CYNTHIA A. SALCEDA	Logbook No.: Sample Receipt (24678)
Date: 07/24/2003	Logbook Page No.: 4775 (4 of 5)

FORM DC-1

OLMO4.2

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

Copies of Login Book

Sample Login Book

Jul 21, 2003

010025

SwRI Login Area
Division 1

Sample Receipt: 24667	Project: 05371.17.004	Client: BECHTEL JACOBS C
VTSR Date: Jul 21, 2003	VTSR Time: 08:30:00	Manager: SHANNON, KEVIN

System ID	Customer Sample ID	Matrix
230738	333L2AW25-0703	Air/#32
230739	6POPAW25-0703	Air/#239
230740	C400AOW250703	Air/#65
230741	C400AW25-0703	Air/#180

Sample Receipt: 24668	Project: 06002.01.141	Client: DIV 20
VTSR Date: Jul 21, 2003	VTSR Time: 11:10:00	Manager: DAMMANN, MIKE

System ID	Customer Sample ID	Matrix
230742	NaLi0.1-1	Water
230743	NaLi0.1-10	Water
230744	NaLi0.1-11	Water
230745	NaLi0.1-12	Water
230746	NaLi0.1-13	Water
230747	NaLi0.1-14	Water
230748	NaLi0.1-15	Water
230749	NaLi0.1-16	Water
230750	NaLi0.1-17	Water
230751	NaLi0.1-18	Water
230752	NaLi0.1-19	Water
230753	NaLi0.1-2	Water
230754	NaLi0.1-20	Water
230755	NaLi0.1-21	Water
230756	NaLi0.1-22	Water
230757	NaLi0.1-23	Water
230758	NaLi0.1-24	Water
230759	NaLi0.1-25	Water
230760	NaLi0.1-3	Water
230761	NaLi0.1-4	Water
230762	NaLi0.1-5	Water
230763	NaLi0.1-6	Water
230764	NaLi0.1-7	Water

Sample Login Book

Jul 21, 2003

010026

SwRI Login Area
Division 1

Sample Receipt: 24668	Project: 06002.01.141	Client: DIV 20
VTSR Date: Jul 21, 2003	VTSR Time: 11:10:00	Manager: DAMMANN, MIKE

System ID	Customer Sample ID	Matrix
230765	NaLi0.1-8	Water
230766	NaLi0.1-9	Water
230767	NaLi0.1-A	Water
230768	NaLi0.1-B	Water
230769	NaLi0.1-C	Water
230770	NaLi0.1-D	Water
230771	NaLi0.1-E	Water
230772	NaLi0.1-F	Water
230773	QA1	Water
230774	QA2	Water

Sample Receipt: 24669	Project: 06951.01.001	Client: DIV 03
VTSR Date: Jul 21, 2003	VTSR Time: 16:20:00	Manager: QUARDERER, SHRADDHA

System ID	Customer Sample ID	Matrix
230775	Test 0	Filter
230776	Test 0	Puf
230777	Test 11	Filter
230778	Test 11	Puf
230779	Test 12	Filter
230780	Test 12	Puf
230781	Test 13	Filter
230782	Test 13	Puf
230783	Test 14	Filter
230784	Test 14	Puf
230785	Test 6	Filter
230786	Test 6	Puf
230787	Test 7	Filter
230788	Test 7	Puf
230789	Test 8	Filter
230790	Test 8	Puf

Number of samples for today: 103

Number of Containers for today: 107

Sample Login Book

Jul 22, 2003

010027

SwRI Login Area
Division 1

Sample Receipt: 24677	Project: 01.01608.20X	Client: ALLIED SIGNAL
VTSR Date: Jul 22, 2003	VTSR Time: 09:55:00	Manager: SUN, GANG

System ID	Customer Sample ID	Matrix
230867	0307171406	Water

Sample Receipt: 24678	Project: 06002.01.141	Client: DIV 20
VTSR Date: Jul 22, 2003	VTSR Time: 11:15:00	Manager: DAMMANN, MIKE

System ID	Customer Sample ID	Matrix
230868	NaLi0.1-1b	Water
230869	NaLi0.1-2b	Water
230870	NaLi0.1-4b	Water

Sample Receipt: 24679	Project: 05774.01.001	Client: Colorado State U
VTSR Date: Jul 22, 2003	VTSR Time: 16:00:00	Manager: CAMANN, DAVID

System ID	Customer Sample ID	Matrix
230871	F-10170-A-1	HVS3 Dust
230872	F-10170-B-1	Dust
230873	F-10170-W-1	Wipe
230874	F-10170-WB-1	Wipe
230875	F-10170-Y-1	Soil
230876	F-10806-A-1	HVS3 Dust
230877	F-10806-B-1	Dust
230878	F-10806-W-1	Wipe
230879	F-10806-WB-1	Wipe
230880	F-10806-Y-1	Soil
230881	F-10807-A-1	HVS3 Dust
230882	F-10807-B-1	Dust
230883	F-10807-W-1	Wipe
230884	F-10807-WB-1	Wipe
230885	F-10807-Y-1	Soil
230886	F-10808-A-1	HVS3 Dust
230887	F-10808-C-1	Dust

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

RAW DATA

Trace Metals Reagent Logbook

010028

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 02 025

Reagent I.D.:	Preparation Description:	Prep Date:	Exp Date:	Initials:
RLB-02-025-01	1% HNO_3 / 5% HCL	7-15-03	8-15-03	JCW
	add di water to a 250mL Nalgene			
	bottle, add 2.5mL HNO_3 inorg # 4164			
	add 12.5mL HCL inorg # 4157, FV to 250mls			
RLB-02-025-02	0.5 % HNO_3	7-21-03	8-21-03	JCW
	to a ~~250~~ 500 Nalgene bottle add			
	100mls di water, add 2.5mL HNO_3			
	inorg # 4165, F.V. to 500mls w/ di water			
RLB-02-025-03	0.1 N HNO_3	7-21-03	8-21-03	JCW
	to a 500mL Nalgene bottle add 298mL			
	di water, add 1890mL HNO_3 inorg # 4165,			
	F.V. to 300 mL with di water			
RLB-02-025-04	50% HNO_3	7-22-03	8-22-03	JCW
	to a 250mL Nalgene bottle add 75mls			
	di water, add 75mls HNO_3 inorg-			
	-# 4166 F.V. is 150mls			
RLB-02-025-05	3% H_2O_2	7-22-03	7-29-03	JCW
	add 48.5mls di water to a 125mL			
	Nalgen bottle, add 1.5mls H_2O_2			
	inorg # 3413 F.V. is 50mls			
	~~WW 7/22/03~~			

Laura Wright 7/22/03

Trace Metals Reagent Logbook

010029

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 02 026

Reagent I.D.:	Preparation Description:	Prep Date:	Exp Date:	Initials:
RLB-02-026-01	1N HCl #4158	7/22/03	AU	MW
	4.125 mL HCl / FV 50 ml di H_2O			
RLB-02-026-02	1% HNO_3 / 5% HCL	7-30-03	8-30-03	JW
	add 150mls di to 250mL Nalgene bottle,		ALL used	
	add 2.5mls HNO_3 - inorg # 4168			
	add 12.5mls HCL - inorg # 4160			
	F.V. to 250mls w/di water			
RLB-02-026-03	1% HNO_3 / 5% HCL	7-30-03	8-30-03	JW
	add 150mls di water to a 250mL Nalgene			
	bottle, add 2.5mls HNO_3 - inorg # 4168			
	add 12.5mls HCL - inorg # 4160			
	JW 7-30-03 250 F.V. to ~~200~~ mls with di water			
RLB-02-026-04	5% HNO_3	7/30/03	AU	MW
	25mL #4168 → 500mL FV			
RLB-02-026-05	1% HNO_3 / 5% HCL	8-4-03	9-4-03	JW
	to a 250mL Nalgene bottle add 100mls			
	di H_2O, add 2.5mls HNO_3 - inorg # 4168,			
	add 12.5mls HCL - inorg # 4160, FV to 250mls			
RLB-02-026-06	Aqua Regia	8-7-03	8-8-03	JW
	to a 60mL Nalgene bottle add 10mls			
	HNO_3 - inorg # 4193, add 30mls HCL			
	inorg # 4161 F.V. 40mls			

SRamyh
9/3/03

Trace Metals Reagent Logbook 010030

SOUTHWEST RESEARCH INSTITUTE
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BOOK / PAGE: 02 028

Reagent I.D.:	Preparation Description:	Prep Date:	Exp Date:	Initials:
RLB-02-028-01	10% HNO_3	8/20/03	AN	W
	6 mL HNO_3 #			
	54 mL di H_2O.			
	60 mL FV for Div 08 (53-242)			
RLB-02-028-02	EF #1	8/21/03	11/21/03	W
	22.8 mL Acetic Acid, Glacial #3869			
	10.3 g NaOH #4177			
	FV = 4L for Div 01 TCLP reprep.			
RLB-02-028-03	50% HNO_3	8-22-03	9-22-03	JW
↓	add 75 mls di water to a 250 Nalgene	↓	↓	↓
	bottle, add 75 mls HNO_3 inorg # 4196			
	F.V. is 150 mls			
RLB-02-028-04	3% H_2O_2	8-22-03	8-23-03	JW
↓	add 48.5 mls di water to a 125 mL	↓	↓	↓
	Nalgene bottle, add 1.5 mls H_2O_2			
	inorg # 3413 F.V. is 50 mls			
RLB-02-028-05	1% HNO_3 / 5% HCL	8-25-03	9-25-03	JW
↓	add 150 mls di water to a 250 Nalgene	↓	↓	↓
	bottle, add 2.5 mL HNO_3 inorg # 4196			
	add 12.5 mls HCL inorg # 4188			
	F.V. to 250 mls			

J Ramirez 9/3/03

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SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Rd
San Antonio, Texas 78228

010031

TJA TRACE ICP DAILY LOG

ANALYST DL DATE 7-31-03

As 189.042 Profile Line As Intensity: 451.855

PEAK POSITION -.008556
VERNIER POSITION 288
AUTOSAMPLER Yes X No

QC PREP DATE:	
CCV/ICV	03G30
CRI	
ICSA	DL 7-31-03
ICSAB	

STDs PREP DATE:	
CLP_STD1_SC	03G04
CLP_STD2_SC	03F23
CLP_STD3_SC	03F19
CLP_STD4_SC	03G01
CLP_STD5_SC	03G01
CLP_STD6_SC	03F19
BLK_SC	03G~~04~~30 04

COMMENTS	FILE	CLIENT	TO#	PROJECT NO.	METHOD
A30731	Daily29	Div 20	030721-18 030722-12	06002.01.141	S4 131 Daily1
A30731	Daily29	Div 20		06002.01.141	S4 132 1

DL 7-31-03

COMMENTS:

MAINTENANCE:

REVIEWED BY: CRoeina DATE: 9/2/03

BOOK/ PAGE 06 080

SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Rd
San Antonio, Texas 78228

010032

TJA_2 TRACE ICP DAILY LOG

ANALYST DL

DATE 8-4-03

As 189.042 Profile Line

As Intensity: 503.129

PEAK POSITION -.032341

VERNIER POSITION 752

STDs PREP DATE:	
CLP_STD1_SC	03H04
CLP_STD2_SC	03F23
CLP_STD3_SC	03H04
CLP_STD4_SC	03G01
CLP_STD5_SC	03H04
CLP_STD6_SC	03H04
BLK_SC	~~03G01~~ 03G30 DL 8-4-03

QC PREP DATE:	
CCV/ICV	03G30
CRI	DL 8-4-03
ICSA	
ICSAB	

COMMENTS	FILE	CLIENT	TO#	PROJECT NO.	METHOD
B30804	Daily 51	Div 20	030721-18 030722-12	06002.01.141	Daily2 54 137
1	1	Div 20	1	06002.01.141	1 54 138

DL 8-4-03

COMMENTS:

MAINTENANCE:

REVIEWED BY: Cordova

DATE: 9/2/03

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SOUTHWEST RESEARCH INSTITUTE

6220 Culebra Rd
San Antonio, Texas 78228

010033

SPECTRO ICP DAILY LOG

ANALYST [signature]

DATE ~~8-1-03~~ DH 7.31-03

POWER: 1200

FLOWS:
Aux 3.4
Coolant 60
Mass Flow Controller 1052

CURRENT	PROPOSED	
4995	4994	Na
4778	4783	Fe
4927	4932	Sr

QC PREP DATE:	
CCV/ICV	03G30
CRI	
ICSA	
ICSAB	

CLP_STD1_SC	03G06
CLP_STD2_SC	
CLP_STD3_SC	
CLP_STD4_SC	
CLP_STD5_SC	
BLK_SC	~~03G31~~ 03G30

DH 9-2-03

FILE	CLIENT	TO#	PROJECT NO.	METHOD	PREP PAGE
030731	Div 20	030721-18 030722-17	06002.01.141	Li V NA	53129
1	Div 20	1	1	1	53130

7-31-03

COMMENTS:

MAINTENANCE:

Cleaned Torch: _____ YES
Changed Pump Tubing: _____ YES
Cleaned Optics: _____ YES
Polished Optics: _____ YES

OTHER:

REVIEWED BY: Cordova

DATE: 9/2/03

BOOK/ PAGE 18 028

SOUTHWEST RESEARCH INSTITUTE
6220 Culebra Rd
San Antonio, Texas 78228

010034

SPECTRO ICP DAILY LOG

ANALYST DL

DATE 8-1-03

POWER: 1200

FLOWS:
Aux 39
Coolant 61
Mass Flow Controller 1052

CURRENT	PROPOSED	
4994	4996	Na
4783	4778	Fe
4932	4934	Sr

CLP_STD1_SC	03G08
CLP_STD2_SC	
CLP_STD3_SC	
CLP_STD4_SC	
CLP_STD5_SC	
BLK_SC	~~03G01~~ 03G30 DL 9-2-03

QC PREP DATE:	
CCV/ICV	03G30
CRI	
ICSA	
ICSAB	

FILE	CLIENT	TO#	PROJECT NO.	METHOD	PREP PAGE
030801	DIV 20	030721-14 030722-12	06002.01.141	LiKNA	S4 133
	DIV 20		06002.01.141	LiKNA	S4 134

DL 8.1.03

COMMENTS:

MAINTENANCE:

Cleaned Torch: _____ YES
Changed Pump Tubing: X YES
Cleaned Optics: _____ YES
Polished Optics: _____ YES

OTHER:

REVIEWED BY: CArduna DATE: 9/2/03

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SOUTHWEST RESEARCH INSTITUTE

6220 Culebra Rd
San Antonio, Texas 78228

010035

SPECTRO ICP DAILY LOG

ANALYST DL

DATE 8-5-03

POWER: 1200

FLOWS:
Aux 39
Coolant 60
Mass Flow Controller 1053

CURRENT	PROPOSED	
4996	4979	Na
4778	4770	Fe
4934	4918	Sr

QC PREP DATE:	
CCV/ICV	03G30
CRI	
ICSA	8-5-03
ICSAB	

CLP_STD1_SC	03H04
CLP_STD2_SC	
CLP_STD3_SC	
CLP_STD4_SC	
CLP_STD5_SC	
BLK_SC	~~03G01~~ 03G30

DH 9-2-03

FILE	CLIENT	TO#	PROJECT NO.	METHOD	PREP PAGE
030805	DIVCO	030721-18 030722-12	06002.01.141	L.V NA	54 141

8-5-03

COMMENTS:

MAINTENANCE:

Cleaned Torch: _____ YES
Changed Pump Tubing: _____ YES
Cleaned Optics: _____ YES
Polished Optics: _____ YES

OTHER:

REVIEWED BY: Cordura

DATE: 9/2/03

BOOK/ PAGE 18 032

SOUTHWEST RESEARCH INSTITUTE

6220 Culebra Rd
San Antonio, Texas 78228

010036

SPECTRO ICP DAILY LOG

ANALYST DL

DATE 8-27-03

POWER: 1200

FLOWS:
Aux 40
Coolant 60
Mass Flow Controller 1052

CURRENT	PROPOSED	
4989	4987	Na
4764	4769	Fe
4929	4924	Sr

QC PREP DATE:	
CCV/ICV	03H26
CRI	
ICSA	
ICSAB	

DL 8-27-03

CLP_STD1_SC	03H04
CLP_STD2_SC	
CLP_STD3_SC	
CLP_STD4_SC	
CLP_STD5_SC	
BLK_SC	03H13

DL 8-27-03

FILE	CLIENT	TO#	PROJECT NO.	METHOD	PREP PAGE
030827	Div 20	030721-18 030722-12	06002.01.141	Li K NA	54 172
030827	Div 20			Li K-NA	54 173

DL 8-27-03

COMMENTS:

MAINTENANCE:

Cleaned Torch: _____ YES
Changed Pump Tubing: _____ YES
Cleaned Optics: _____ YES
Polished Optics: _____ YES

OTHER:

REVIEWED BY: COrduna

DATE: 9/2/03

ICP Calibration Blank/ICB/CCB Solution

ID: BLK- 03F06

Date Prepared: 6-8-03 Prepared By: [illegible]

Make up as needed in 1000ml volumetric flask.

Added ✓ 10 ml HNO3 INORG #: 4094

Added ✓ 50 ml HCL INORG #: 4077

Added ✓ 1000ul of 10000ppm Sc (INORG. VENT.) EXP. Date: 10-1-03 INORG #: 3683

010037

ICP Calibration Blank/ICB/CCB Solution

ID: BLK- 03G01

Date Prepared: 7-1-03 Prepared By: [illegible]

Make up as needed in 1000ml volumetric flask.

Added ✓ 10 ml HNO3 INORG #: 4097

Added ✓ 50 ml HCL INORG #: 4156

Added ✓ 1000ul of 10000ppm Sc (INORG. VENT.) EXP. Date: 10-1-03 INORG #: 3683

ICP Calibration Blank/ICB/CCB Solution

ID: BLK- 03G30

Date Prepared: 7-30-03 Prepared By: [illegible]

Make up as needed in 1000ml volumetric flask.

Added ✓ 10 ml HNO3 INORG #: 4168

Added ✓ 50 ml HCL INORG #: 4160

Added ✓ 1000ul of 10000ppm Sc (INORG. VENT.) EXP. Date: 10-1-30 INORG #: 3683

ICP Calibration Blank/ICB/CCB Solution

ID: BLK- 03H13

Date Prepared: 8/13/03 Prepared By: [illegible]

Make up as needed in 1000ml volumetric flask.

Added ✓ 10 ml HNO3 INORG #: 4194

Added ✓ 50 ml HCL INORG #: 4189

Added ✓ 1000ul of 10000ppm Sc (INORG. VENT.) EXP. Date: 10-1-03 INORG #: 3683

ICP ICV/CCV SOLUTION

010038

CCV- 03G30

Date Prepared: 7-30-03 Prepared By: [illegible]

HNO3 INORG #: 4168 HCl INORG #: 4160

Make up as needed in 1000ml volumetric flask in 1% HNO3 AND 5% HCl.

Element	Std Conc (ppm)	Amt added	Check	Source	Inorg #	Stock Conc (ppm)	Exp Date
Sc	10	1ml	✓	INORGVENT	3683	10000	10-1-03
B	5	5ml	✓	SPEX	4139	1000	6-30-04
Li	5	5ml	✓	SPEX	4065	1000	5-15-04
Mo	5	5ml	✓	SPEX	4066	1000	5-15-04
P	5	5ml	✓	SPEX	3927	1000	1-15-04
Si	5	5ml	✓	SPEX	3858	1000	12-15-03
Ti	5	5ml	✓	SPEX	3857	1000	12-15-03
Sr	5	5ml	✓	SPEX	3961	1000	12-15-04
Sn	5	5ml	✓	SPEX	4141	1000	6-30-04
Bi	5	5ml	✓	SPEX	4138	1000	6-30-04
La	5	5ml	✓	SPEX	4064	1000	5-15-04
Y	5	5ml	✓	SPEX	4067	1000	5-15-04
Pd	1	1ml	✓	SPEX	3928	1000	1-15-04
S	1	1ml	✓	SPEX	4140	1000	6-30-04
Th	1	1ml	✓	SPEX	3684	1000	9-15-03
U	1	1ml	✓	SPEX	4142	1000	6-30-04
W	1	1ml	✓	SPEX	3646	1000	8-15-03
Zr	5	5ml	✓	SPEX	3648	1000	8-15-03
Na	10	1ml	✓	SPEX	3951	10000	2-15-04
ICV-2A	vary	10ml	✓	SPEX	3773	mix	11-30-03
ICV-2B	vary	1ml	✓	SPEX	3774	mix	11-30-03
ICV-2C	vary	10ml	✓	SPEX	3775	mix	11-30-03

Expiration Date: 8-15-03

ICP ICV/CCV SOLUTION

010039

CCV- 03H256 DH

Date Prepared: 8-26-03 Prepared By: [illegible]

HNO3 INORG #: 4196 HCl INORG #: 4188

Make up as needed in 1000ml volumetric flask in 1% HNO3 AND 5% HCl.

Element	Std Conc (ppm)	Amt added	Check	Source	Inorg #	Stock Conc (ppm)	Exp Date
Sc	10	1ml	✓	INORGVENT	3683	10000	10-1-03
B	5	5ml	✓	SPEX	4139	1000	6-30-04
Li	5	5ml	✓	SPEX	4065	1000	5-15-04
Mo	5	5ml	✓	SPEX	4066	1000	5-15-04
P	5	5ml	✓	SPEX	3927	1000	1-15-04
Si	5	5ml	✓	SPEX	3858	1000	12-15-03
Ti	5	5ml	✓	SPEX	3857	1000	12-15-03
Sr	5	5ml	✓	SPEX	3961	1000	2-15-04
Sn	5	5ml	✓	SPEX	4141	1000	6-30-04
Bi	5	5ml	✓	SPEX	4138	1000	6-30-04
La	5	5ml	✓	SPEX	4064	1000	5-15-04
Y	5	5ml	✓	SPEX	4067	1000	5-15-04
Pd	1	1ml	✓	SPEX	3928	1000	1-15-04
S	1	1ml	✓	SPEX	4140	1000	6-30-04
Th	1	1ml	✓	SPEX	3684	1000	9-15-03
U	1	1ml	✓	SPEX	4142	1000	6-30-04
W	1	1ml	✓	SPEX	4212	1000	8-15-04
Zr	5	5ml	✓	SPEX	4213	1000	8-15-04
Na	10	1ml	✓	SPEX	3951	10000	2-15-04
ICV-2A	vary	10ml	✓	SPEX	3773	mix	11-30-03
ICV-2B	vary	1ml	✓	SPEX	3774	mix	11-30-03
ICV-2C	vary	10ml	✓	SPEX	3775	mix	11-30-03

Expiration Date: 9-15-03

ICP Calibration Standards

010040

Date Prepared: 7-8-03 Prepared By: DL

HNO3 INORG #: 4164 HCl INORG #: 4157

Make up as needed in 500 ml volumetric flasks in 1% HNO3 and 5% HCl.

Prepared	Standard Name	Element	Std Conc (ppm)	Added ml	Check	Source	INORG #	Stock Conc (ppm)	Exp Date
036068 7-8-03	STD1- 036068	Al	50	2.50	✓	INORVENT	3649	10000	9-1-03
		Ca	50	2.50	✓	INORVENT	3900	10000	2-1-04
		Fe	50	2.50	✓	INORVENT	3963	10000	3-1-04
		K	50	2.50	✓	INORVENT	3738	10000	11-1-03
		Mg	25	1.25	✓	INORVENT	3564	10000	8-1-03
		Na	50	2.50	✓	INORVENT	3565	10000	8-1-03
		Li	10	5.00	✓	INORVENT	3736	1000	11-1-03
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
	STD2-	Ba	10	5.00		INORVENT		1000	
		Be	5	2.50		INORVENT		1000	
		Cr	10	5.00		INORVENT		1000	
		Cu	10	5.00		INORVENT		1000	
		Ni	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD3-	Cd	10	5.00		INORVENT		1000	
		Co	10	5.00		INORVENT		1000	
		Mn	10	5.00		INORVENT		1000	
		V	10	5.00		INORVENT		1000	
		Zn	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD4-	Ag	2	1.00		INORVENT		1000	
		As	10	5.00		INORVENT		1000	
		Pb	10	5.00		INORVENT		1000	
		Sb	10	5.00		INORVENT		1000	
		Se	10	5.00		INORVENT		1000	
		TL	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD5-	B	10	5.00		INORVENT		1000	
		Mo	10	5.00		INORVENT		1000	
		P	10	5.00		INORVENT		1000	
		Si	10	5.00		INORVENT		1000	
		Ti	10	5.00		INORVENT		1000	
		Sr	10	5.00		INORVENT		1000	
		Sn	10	5.00		INORVENT		1000	
		Bi	5	2.50		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD6-	La	10	5.00		INORVENT		1000	
		Na	1	0.05		INORVENT		10000	
		Pd	10	5.00		INORVENT		1000	
		S	10	5.00		INORVENT		1000	
		Th	10	5.00		INORVENT		1000	
		U	10	5.00		INORVENT		1000	
		W	5	2.50		INORVENT		1000	
		Y	10	5.00		INORVENT		1000	
		Zr	10	5.00		INORVENT		1000	
		SC	10	0.500		INORVENT		10000	

Expiration Dates:

STD1: 8-1-03 **STD4:**

STD2: **STD5:**

STD3: **STD6:**

ICP Calibration Standards

Date Prepared: 6-23-03 Prepared By: DL **010041**

HNO3 INORG #: 4096 HCl INORG #: 4082

Make up as needed in 500 ml volumetric flasks in 1% HNO3 and 5% HCl.

Prepared	Standard Name	Element	Std Conc (ppm)	Added ml	Check	Source	INORG #	Stock Conc (ppm)	Exp Date
	STD1-	Al	50	2.50		INORVENT		10000	
		Ca	50	2.50		INORVENT		10000	
		Fe	50	2.50		INORVENT		10000	
		K	50	2.50		INORVENT		10000	
		Mg	25	1.25		INORVENT		10000	
		Na	50	2.50		INORVENT		10000	
		Li	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
03F23	STD2-	Ba	10	5.00	✓	INORVENT	3971	1000	3-1-04
	6-23-03 DL	Be	5	2.50	✓	INORVENT	4062	1000	6-1-04
		Cr	10	5.00	✓	INORVENT	3732	1000	11-1-03
		Cu	10	5.00	✓	INORVENT	3955	1000	3-1-04
		Ni	10	5.00	✓	INORVENT	3957	1000	3-1-04
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
	STD3-	Cd	10	5.00		INORVENT		1000	
		Co	10	5.00		INORVENT		1000	
		Mn	10	5.00		INORVENT		1000	
		V	10	5.00		INORVENT		1000	
		Zn	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD4-	Ag	2	1.00		INORVENT		1000	
		As	10	5.00		INORVENT		1000	
		Pb	10	5.00		INORVENT		1000	
		Sb	10	5.00		INORVENT		1000	
		Se	10	5.00		INORVENT		1000	
		TL	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD5-	B	10	5.00		INORVENT		1000	
		Mo	10	5.00		INORVENT		1000	
		P	10	5.00		INORVENT		1000	
		Si	10	5.00		INORVENT		1000	
		Ti	10	5.00		INORVENT		1000	
		Sr	10	5.00		INORVENT		1000	
		Sn	10	5.00		INORVENT		1000	
		Bi	5	2.50		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD6-	La	10	5.00		INORVENT		1000	
		Na	1	0.05		INORVENT		10000	
		Pd	10	5.00		INORVENT		1000	
		S	10	5.00		INORVENT		1000	
		Th	10	5.00		INORVENT		1000	
		U	10	5.00		INORVENT		1000	
		W	5	2.50		INORVENT		1000	
		Y	10	5.00		INORVENT		1000	
		Zr	10	5.00		INORVENT		1000	
		SC	10	0.500		INORVENT		10000	

Expiration Dates:

STD1: **STD4:**

STD2: 10-1-03 **STD5:**

STD3: **STD6:**

ICP Calibration Standards

010042

Date Prepared: 6-19-03 Prepared By: D

HNO3 INORG #: 4096 HCl INORG #: 4081

Make up as needed in 500 ml volumetric flasks in 1% HNO3 and 5% HCl.

Prepared	Standard Name	Element	Std Conc (ppm)	Added ml	Check	Source	INORG #	Stock Conc (ppm)	Exp Date
	STD1-	Al	50	2.50		INORVENT		10000	
		Ca	50	2.50		INORVENT		10000	
		Fe	50	2.50		INORVENT		10000	
		K	50	2.50		INORVENT		10000	
		Mg	25	1.25		INORVENT		10000	
		Na	50	2.50		INORVENT		10000	
		Li	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD2-	Ba	10	5.00		INORVENT		1000	
		Be	5	2.50		INORVENT		1000	
		Cr	10	5.00		INORVENT		1000	
		Cu	10	5.00		INORVENT		1000	
		Ni	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
6-19-03	STD3- 03-19 DM	Cd	10	5.00	✓	INORVENT	3972	1000	3-1-04
		Co	10	5.00	✓	INORVENT	3973	1000	3-1-04
		Mn	10	5.00	✓	INORVENT	3921	1000	2-1-04
		V	10	5.00	✓	INORVENT	3740	1000	11-1-03
		Zn	10	5.00	✓	INORVENT	3567	1000	8-1-03
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
	STD4-	Ag	2	1.00		INORVENT		1000	
		As	10	5.00		INORVENT		1000	
		Pb	10	5.00		INORVENT		1000	
		Sb	10	5.00		INORVENT		1000	
		Se	10	5.00		INORVENT		1000	
		TL	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD5-	B	10	5.00		INORVENT		1000	
		Mo	10	5.00		INORVENT		1000	
		P	10	5.00		INORVENT		1000	
		Si	10	5.00		INORVENT		1000	
		Ti	10	5.00		INORVENT		1000	
		Sr	10	5.00		INORVENT		1000	
		Sn	10	5.00		INORVENT		1000	
		Bi	5	2.50		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
6-19-03	STD6- 03-19 DM	La	10	5.00	✓	INORVENT	3650	1000	9-1-03
		Na	1	0.05	✓	INORVENT	3565	10000	8-1-03
		Pd	10	5.00	✓	INORVENT	3964	1000	3-1-04
		S	10	5.00	✓	INORVENT	3739	1000	11-1-03
		Th	10	5.00	✓	INORVENT	3681	1000	10-1-03
		U	10	5.00	✓	INORVENT	3974	1000	3-1-04
		W	5	2.50	✓	INORVENT	3568	1000	8-1-03
		Y	10	5.00	✓	INORVENT	4063	1000	6-1-04
		Zr	10	5.00	✓	INORVENT	3958	1000	3-1-04
		SC	10	0.500	✓	INORVENT	3683	10000	10-1-03

Expiration Dates:

STD1: **STD4:**

STD2: **STD5:**

STD3: 8-1-03 **STD6:** 8-1-03

ICP Calibration Standards

Date Prepared: 7-1-03 Prepared By: DL **010043**

HNO3 INORG #: 4097 HCl INORG #: 4156

Make up as needed in 500 ml volumetric flasks in 1% HNO3 and 5% HCl.

Prepared	Standard Name	Element	Std Conc (ppm)	Added ml	Check	Source	INORG #	Stock Conc (ppm)	Exp Date
	STD1-	Al	50	2.50		INORVENT		10000	
		Ca	50	2.50		INORVENT		10000	
		Fe	50	2.50		INORVENT		10000	
		K	50	2.50		INORVENT		10000	
		Mg	25	1.25		INORVENT		10000	
		Na	50	2.50		INORVENT		10000	
		Li	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD2-	Ba	10	5.00		INORVENT		1000	
		Be	5	2.50		INORVENT		1000	
		Cr	10	5.00		INORVENT		1000	
		Cu	10	5.00		INORVENT		1000	
		Ni	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
	STD3-	Cd	10	5.00		INORVENT		1000	
		Co	10	5.00		INORVENT		1000	
		Mn	10	5.00		INORVENT		1000	
		V	10	5.00		INORVENT		1000	
		Zn	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
7-1-03 a1	STD4- 03G01	Ag	2	1.00	✓	INORVENT	3653	1000	9-1-03
		As	10	5.00	✓	INORVENT	3899	1000	2-1-04
		Pb	10	5.00	✓	INORVENT	3735	1000	11-1-03
		Sb	10	5.00	✓	INORVENT	3953	1000	3-1-04
		Se	10	5.00	✓	INORVENT	3652	1000	9-1-03
		TL	10	5.00	✓	INORVENT	3922	1000	2-1-04
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
7-1-03 a1	STD5- 03G01	B	10	5.00	✓	INORVENT	3954	1000	3-1-04
		Mo	10	5.00	✓	INORVENT	3956	1000	3-1-04
		P	10	5.00	✓	INORVENT	3901	1000	2-1-04
		Si	10	5.00	✓	INORVENT	4153	1000	7-1-04
		Ti	10	5.00	✓	INORVENT	3762	1000	12-1-03
		Sr	10	5.00	✓	INORVENT	4154	1000	7-1-04
		Sn	10	5.00	✓	INORVENT	4026	1000	4-1-04
		Bi	5	2.50	✓	INORVENT	3606	1000	8-1-03
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
	STD6-	La	10	5.00		INORVENT		1000	
		Na	1	0.05		INORVENT		10000	
		Pd	10	5.00		INORVENT		1000	
		S	10	5.00		INORVENT		1000	
		Th	10	5.00		INORVENT		1000	
		U	10	5.00		INORVENT		1000	
		W	5	2.50		INORVENT		1000	
		Y	10	5.00		INORVENT		1000	
		Zr	10	5.00		INORVENT		1000	
		SC	10	0.500		INORVENT		10000	

Expiration Dates:

STD1: **STD4:** 9-1-03

STD2: **STD5:** 8-1-03

STD3: **STD6:**

ICP Calibration Standards

010044

Date Prepared: 8-4-03 Prepared By: DL

HNO3 INORG #: 4168 HCl INORG #: 4161

Make up as needed in 500 ml volumetric flasks in 1% HNO3 and 5% HCl.

Prepared	Standard Name	Element	Std Conc (ppm)	Added ml	Check	Source	INORG #	Stock Conc (ppm)	Exp Date
8-4-03 DL	STD1- 03H04	Al	50	2.50	✓	INORVENT	3649	10000	9-1-03
		Ca	50	2.50	✓	INORVENT	3900	10000	2-1-04
		Fe	50	2.50	✓	INORVENT	3963	10000	3-1-04
		K	50	2.50	✓	INORVENT	3738	10000	11-1-03
		Mg	25	1.25	✓	INORVENT	4204	10000	8-1-04
		Na	50	2.50	✓	INORVENT	4205	10000	8-1-04
		Li	10	5.00	✓	INORVENT	4149	1000	7-1-04
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
	STD2-	Ba	10	5.00		INORVENT		1000	
		Be	5	2.50		INORVENT		1000	
		Cr	10	5.00		INORVENT		1000	
		Cu	10	5.00		INORVENT		1000	
		Ni	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
8-4-03 DL	STD3- 03H04	Cd	10	5.00	✓	INORVENT	3972	1000	3-1-04
		Co	10	5.00	✓	INORVENT	3973	1000	3-1-04
		Mn	10	5.00	✓	INORVENT	3921	1000	2-1-04
		V	10	5.00	✓	INORVENT	3740	1000	11-1-03
		Zn	10	5.00	✓	INORVENT	3741	1000	11-1-03
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
	STD4-	Ag	2	1.00		INORVENT		1000	
		As	10	5.00		INORVENT		1000	
		Pb	10	5.00		INORVENT		1000	
		Sb	10	5.00		INORVENT		1000	
		Se	10	5.00		INORVENT		1000	
		TL	10	5.00		INORVENT		1000	
		Sc	10	0.500		INORVENT		10000	
8-4-03 DL	STD5- 03H04	B	10	5.00	✓	INORVENT	3954	1000	3-1-04
		Mo	10	5.00	✓	INORVENT	3956	1000	3-1-04
		P	10	5.00	✓	INORVENT	3901	1000	2-1-04
		Si	10	5.00	✓	INORVENT	4153	1000	7-1-04
		Ti	10	5.00	✓	INORVENT	3762	1000	12-1-03
		Sr	10	5.00	✓	INORVENT	4154	1000	7-1-04
		Sn	10	5.00	✓	INORVENT	4026	1000	4-1-04
		Bi	5	2.50	✓	INORVENT	4200	1000	8-1-04
		Sc	10	0.500	✓	INORVENT	3683	10000	10-1-03
8-4-03 DL	STD6- 03H04	La	10	5.00	✓	INORVENT	3650	1000	9-1-03
		Na	1	0.05	✓	INORVENT	4205	10000	8-1-04
		Pd	10	5.00	✓	INORVENT	3964	1000	3-1-04
		S	10	5.00	✓	INORVENT	3739	1000	11-1-03
		Th	10	5.00	✓	INORVENT	3681	1000	10-1-03
		U	10	5.00	✓	INORVENT	3974	1000	3-1-04
		W	5	2.50	✓	INORVENT	4203	1000	8-1-04
		Y	10	5.00	✓	INORVENT	4063	1000	6-1-04
		Zr	10	5.00	✓	INORVENT	3958	1000	3-1-04
		SC	10	0.500	✓	INORVENT	3683	10000	10-1-03

Expiration Dates:

STD1: 9-1-03

STD2:

STD3: 10-1-03

STD4: ~~10-1-03~~ DL

STD5: 10-1-03

STD6: 9-1-03

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 129

010045

CLIENT(S): DIV 20
TASK ORDER(S): 030721-18 / 030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141 JW 7-31-03
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER df 20 dilutions
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER
INSTRUMENT: GFAA ___ ICP ✓ ICP-MS ___ IC ___ FLAA ___ HYDRIDE ___ OTHER (SPECTRO)
ACID INORG #: HNO_3# 4168 (**) HCl# 4160 (**) H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM ___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 nL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-G3IW1			5	5	
LCSW-G3IW1 *			5		
230742			250 nL		
0742d					
0742(S) *					
0743					
0744					
0745					
0746					
0747					
0748					
0749					
0750					
0751					
0752					
0753					
0754					
0755					
0756					
0757					
0758					
0759					
* Spike 50 nL Spike I	Spex#	4074	Exp 5/04		
20 nL I-CAL I	Spex#	4070	Exp 5/04		
20 nL Si @ 1kppm	IV#	4153	Exp 7/04		
** RLB-02-026-03	1% HNO_3	/ 5% HCl	Exp 8-30-03		
PBW and LCSW are prepared as 5 mLs - **					
df 20 dilutions are prepared as		250 nL sample : 4.75 mLs - **			LOCATION: N/A

PREPARED BY: John Wells DATE: 7-31-03
REVIEWED BY: [illegible] DATE: 8-1-03
DISPOSAL INT/DATE/LOC:

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 130

CLIENT(S): DIV 50 ~~010046~~
TASK ORDER(S): 030721-18/ 030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER HF 20 dilutions
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER ___
INSTRUMENT: GFAA ___ ICP ✓ ICP-MS ___ IC ___ FLAA ___ HYDRIDE ___ OTHER (spectro)
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM ___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 nL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-G31W2			5	5	
LCSW-G31W2 *			5		
230760			250 nL		
0760d					
0760S *					
0761					
0762					
0763					
0764					
0765					
0766					
0767					
0768					
0769					
0770					
0771					
0772					
0773					
0774					
0868					
0868d					
0868S *					
0869					
0870					
* Spike 50 nL Spike1	Spex#	4074	Exp 5/04		
20 nL I-CAL 1	Spex#	4070	Exp 5/04		
20 nL Si @ 1Kppm	IV#	4153	Exp 7/04		
** RLB-02-026-03	1% HNO_3	/ 5% HCL	Exp 8-30-03		
PBW and LCSW are prepared as		5 mLs - **	4.75 mLs - **		LOCATION:
HF 20 dilutions are prepared	as	250 nL sample: ~~250 nL~~	JW 7-31-03		N/A

PREPARED BY: John Wilks DATE: 7-31-03
REVIEWED BY: [signature] DATE: 8-1-03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 131

CLIENT(S): DIV 20
TASK ORDER(S): 030721-18/030722-12 SDG(S): 230742 010047
PROJECT NO(S): 06002.01.141
METHOD: 3005A___ 3050B___ 3050B-7.5___ 3010A___ 3020A___ 7760A___ 7740A___ $HClO_4$___ H_2SO_4 Sb___
Microwave___ Fusion___ Teflon___ Rock___ OTHER ALiQouTs (Trace)
MATRIX: Water ✓ Soil___ Biota___ Solid___ Liquid___ TCLP Ext___ OTHER___
INSTRUMENT: GFAA___ ICP ✓ ICP-MS___ IC___ FLAA___ HYDRIDE___ OTHER___
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4#___ $HClO_4$#___ HF#___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 mL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-G31W3			5	5	
LCSW-G31W3 *			↓	↓	
230742					
0743					
0743d					
0744					
0744(S) *					
0745					
0746					
0747					
0748					
0749					
0750					
0751					
0752					
0753					
0754					
0755					
0756					
0757					
0758					
↓ 0759			↓	↓	
* Spike 50 uL Spike 1	Spex#	4074	Exp 5/04		
↓ 20 uL I-CAL 1	Spex#	4070	Exp 5/04		
↓ 20 uL Si @ 1kppm	IV#	4153	Exp 5/04		
** RLB-02-026-03 1% HNO_3		5% HCL	Exp 8-30-03		
PBW & LCSW are prepared as	5mL	-**			LOCATION: N/A

PREPARED BY: John Willis DATE: 7-31-03
REVIEWED BY: J Ramyl DATE: 7/31/03
DISPOSAL INT/DATE/LOC:

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 132

CLIENT(S): DIV 20 **010048**
TASK ORDER(S): 030721-18/030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER Ali Quots
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER ___
INSTRUMENT: GFAA ___ ICP ✓ ICP-MS ___ IC ___ FLAA ___ HYDRIDE ___ OTHER (Trace)
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM ___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 mL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-G31W4			5	5	
LCSW-G31W4 *					
230760					
0761					
0761d					
0762					
0762(5) *					
0763					
0764					
0765					
0766					
0767					
0768					
0769					
0770					
0771					
0772					
0773					
0774					
0868					
0869					
0869d					
0870					
0870(5) *					
* Spike 50 mL Spike1	Spike#	4074	Exp 5/04		
20 mL I-CAL1	Spike#	4070	Exp 5/04		
20 mL Si @ 1Kppm	IV#	4153	Exp 7/04		
** RLB-02-026-03 1% HNO_3	5% HCL		Exp 8-30-03		LOCATION:
PBW and LCSW are prepared as 5 mLs-**					N/A

PREPARED BY: John Wilber DATE: 7-31-03
REVIEWED BY: J Rangel DATE: 7/31/03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 133

CLIENT(S): DIV 20
TASK ORDER(S): 030721-18 / 030722-12 SDG(S): 230742 **010049**
PROJECT NO(S): 06002.01.141
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER ALIQUOTS
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER ___
INSTRUMENT: GFAA ___ ICP ✓ ICP-MS ___ IC ___ FLAA ___ HYDRIDE ___ OTHER (Spectro)
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM ___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 mL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-H01W1			5	5	
LCSW-H01W1 *			↓	↓	
230742					
0743					
0744					
0745					
0746					
0747					
0748					
0749					
0750					
0751					
0752					
0753					
0754					
0755					
0756					
0757					
0757d					
0758					
0758(S) *					
0759			↓	↓	
* Spike 50 mL Spike-1	Spec#	4074	Exp 5/04		
20 mL I-CAL 1	Spec#	4070	Exp 5/04		
↓ 20 mL Si @ 1kppm	IV#	4153	Exp 7/04		
** RLB-02-035-01 1% HNO_3 / 5% HCL			Exp 8/15/03		
PBW and LCSW are prepared as 5 mls - **					LOCATION: N/A

PREPARED BY: John Willis DATE: 8-1-03
REVIEWED BY: [illegible] DATE: 8-1-03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 134

CLIENT(S): DIV 20 **010050**
TASK ORDER(S): 030721-18/030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A___ 3050B___ 3050B-7.5___ 3010A___ 3020A___ 7760A___ 7740A___ $HClO_4$___ H_2SO_4 Sb___
Microwave___ Fusion___ Teflon___ Rock___ OTHER ALIQUOTS
MATRIX: Water ✓ Soil___ Biota___ Solid___ Liquid___ TCLP Ext___ OTHER___
INSTRUMENT: GFAA___ ICP ✓ ICP-MS___ IC___ FLAA___ HYDRIDE___ OTHER (Spectro)
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4#___ $HClO_4$#___ HF#___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50NL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-H01W2			5	5	
LCSW-H01W2 *					
230760					
0761					
0762					
0763					
0764					
0765					
0766					
0767					
0768					
0769					
0770					
0771					
0772					
0773					
0773d					
0774					
0774 (S) *					
0868					
0869					
0869d					
0870					
✓ 0870 (S) *					
* Spike 50NL Spike 1	Spex#	4074	Exp 5/04		
20NL I-CAL1	Spex#	4070	Exp 5/04		
20NL Si @ 1Kppm	IV#	4153	Exp 7/04		
** RLB-02-025-01 1%	HNO_3	/ 5% HCL	Exp 8/15/03		
PBW and LCSW are prepared as		5mLs-**			LOCATION: N/A

PREPARED BY: John Willer DATE: 8-1-03
REVIEWED BY: [illegible] DATE: 8-1-03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 137

010051

CLIENT(S): DIV 20
TASK ORDER(S): 030721-18 / 030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A___ 3050B___ 3050B-7.5___ 3010A___ 3020A___ 7760A___ 7740A___ $HClO_4$___ H_2SO_4 Sb___
Microwave___ Fusion___ Teflon___ Rock___ OTHER dt 5 dilutions
MATRIX: Water ✓ Soil___ Biota___ Solid___ Liquid___ TCLP Ext___ OTHER___
INSTRUMENT: GFAA___ ICP ✓ ICP-MS___ IC___ FLAA___ HYDRIDE___ OTHER (TRACE)
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4#___ $HClO_4$#___ HF#___
INTERNAL STD: Sc @ 10 PPM___ ✓ Be @ 10 PPM___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50nL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-H04W1			5	5	
LCSW-H04W1 *			5		
230742					
0743					
0744					
0745					
0745d					
0746					
0746② *					
0747					
0748					
0749					
0750					
0751					
0752					
0753					
0754					
0755					
0756					
0757					
0758					
0759					
* Spike 50nL Spike I	Spex#	4074	Exp 5/04		
20nL Z-CAL I	Spex#	4070	Exp 5/04		
20nL Si @ 1Kppm	IV#	4153	Exp 7/04		
** -RLB-02-026-05	1% HNO_3 / 5%		HCL	Exp 9-4-03	
PBW and LCSW are prepared as	5mLs - **				
dt 5 dilutions are prepared as 1mL	sample :		4mLs - **		LOCATION:

PREPARED BY: John Willis DATE: 8-4-03
REVIEWED BY: C. Orduña DATE: 8/4/03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 138

CLIENT(S): DW 20
TASK ORDER(S): 030721-18 | 030722-12 SDG(S): 230742 010052
PROJECT NO(S): 06002.01.141
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER dil 5 dilutions
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER ___
INSTRUMENT: GFAA ___ ICP ___ ✓ ICP-MS ___ IC ___ FLAA ___ HYDRIDE ___ OTHER ___
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM ___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 mL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-H04W2			5	5	
LCSW-H04W2 *			5		
230760					
0761					
0762					
0763					
0764					
0764d					
0765					
0765Ⓢ *					
0766					
0767					
0768					
0769					
0770					
0771					
0772					
0773					
0774					
0868					
0868d					
0868Ⓢ					
0869					
✓ 0870					
* Spike 50 mL Spike 1	Spex#	4074	Exp 5/04		
20 mL I-CA C1	Spex#	4070	Exp 5/04		
20 mL Si @ 1 kppm	IV#	4153	Exp 7/04		
** -RLB-02-026-05	1%	HNO_3 / 5	% HCl	Exp 9.4.03	
PBW and LCSW are prepared as 5 mLs -**					LOCATION:
dil 5 dilutions are prepared as 1 mL sample:			4 mLs -**		

PREPARED BY: John Wilks DATE: 8-4-03
REVIEWED BY: J. C. Ordaña DATE: 8/4/03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 141

CLIENT(S): DIV 20 **010053**
TASK ORDER(S): ~~030714-~~ 030721-18 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A___ 3050B___ 3050B-7.5___ 3010A___ 3020A___ 7760A___ 7740A___ $HClO_4$___ H_2SO_4 Sb___
Microwave___ Fusion___ Teflon___ Rock___ OTHER___ ~~HF~~ 10 Dilution
MATRIX: Water ✓ Soil___ Biota___ Solid___ Liquid___ TCLP Ext___ OTHER___
INSTRUMENT: GFAA___ ICP ✓ ICP-MS___ IC___ FLAA___ HYDRIDE___ OTHER (Spectro)
ACID INORG #: HNO_3# ~~**~~ HCl# ~~**~~ H_2SO_4#___ $HClO_4$#___ HF#___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM___ SOURCE: 1V INORG# 4151 EXP: 7/04 AMT: 50mL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-H05W1			5	5	
LCSW-H05W1 *			5	↓	
230773			500mL	↓	
↓ 0774			↓	↓	
* Spike 50mL Spike 1	Spec#	4074	Exp 5/04		
20mL I-CAL 1	Spec#	4070	Exp 5/04		
20mL Si @ 1kppm	IV#	4153	Exp 7/04		
** RLB-02-026-05		Exp 9-4-03			
					LOCATION:

PREPARED BY: John Willer DATE: 8-5-03
REVIEWED BY: [signature] DATE: 8-5-03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 172

010054

CLIENT(S): DIV 20
TASK ORDER(S): 030721-18 / 030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER dilutions
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER ___
INSTRUMENT: GFAA ___ ICP ___ ICP-MS ✓ IC ___ FLAA ___ HYDRIDE ___ OTHER ___
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ___ Be @ 10 PPM ✓ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 uL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW-H25W2			5	5	NOTE: 230743 is listed under the spike notation
LCSW-H25W2 *			5		
230742 df 50			100 uL		
0742d					
0742@ *					
0744 df 100			50 uL		
0745					
0746					
0747					
0748					
0749					
0750					
0751					
0752					
0753 df 50			100 uL		
0754 df 100			50 uL		
0755					
0756					
0757					
0758					
0759 df 2			2.5		
* Spike 20 uL Li @ 1kppm	IV#	4149	Exp 7/04		
→ 230743		8-25-03	50 ~~100~~ uL	5	
** - RLB-02-028-05	1%	HNO_3 / 5%	HCL	Exp 9-25-03	

PBW and LCSW are prepared as 5 mL - **
df 50 dilutions are prepared as 100 uL sample : 4.9 mLs - **
df 100 dilutions are prepared as 50 uL sample : 4.95 mLs - **
df 2 dilutions are prepared as 2.5 mLs sample : 2.5 mLs - **

8-25-03

LOCATION: N/A

PREPARED BY: John Wilfs DATE: 8-25-03
REVIEWED BY: [signature] DATE: 8-26-03
DISPOSAL INT/DATE/LOC: ___

FRM-191 (Rev 2/Mar 03)

TRACE METALS PREPARATORY LABORATORY DIGESTION LOG

SOUTHWEST RESEARCH INSTITUTE
SAN ANTONIO, TEXAS 78228

BOOK / PAGE: 54 173

CLIENT(S): DIV 20 **010055**
TASK ORDER(S): 030721-18 / 030722-12 SDG(S): 230742
PROJECT NO(S): 06002.01.141
METHOD: 3005A ___ 3050B ___ 3050B-7.5 ___ 3010A ___ 3020A ___ 7760A ___ 7740A ___ $HClO_4$ ___ H_2SO_4 Sb ___
Microwave ___ Fusion ___ Teflon ___ Rock ___ OTHER dilutions
MATRIX: Water ✓ Soil ___ Biota ___ Solid ___ Liquid ___ TCLP Ext ___ OTHER
INSTRUMENT: GFAA ___ ICP ✓ ICP-MS ✗ IC ___ FLAA ___ HYDRIDE ___ OTHER
ACID INORG #: HNO_3# ** HCl# ** H_2SO_4# ___ $HClO_4$# ___ HF# ___
INTERNAL STD: Sc @ 10 PPM ✓ Be @ 10 PPM ___ SOURCE: IV INORG# 4151 EXP: 7/04 AMT: 50 uL
Oven/Hotplate ID: — Temperature (°C): —

SAMPLE IDENTIFICATION	pH	WT (g)	I.V. (mL)	F.V. (mL)	
PBW - H25W3			5	5	* Spike 20 uL Li @ 1kppm IV# 4149 Exp 7/04
LCSW - H25W3 *			5		
230760 df 100			50 uL		
0760d					
0760③ *					
0761 df 50			100 uL		
0762 df 100			50 uL		
0763					
0764					
0765					
0766					
0767 df 50			100 uL		
0768 df 100			50 uL		
0769					
0770					
0771					
0772					
0773 df 2			2.5		
0774 df 2			2.5		
0868 df 20			250 uL		
0868d					
0868⑤ *					
0869 df 20					
✓0870 df 50			100 uL		
** - RLB-02-028-05	1% HNO3 / 5% HCL			Exp 9-25-03	
PBW and LCSW are prepared as 5 mLs - **					
df 2 dilutions are prepared as 2.5 mL sample: 2.5 mLs - **					
df 20 dilutions are prepared as 250 uL sample: 4.75 mLs - **					
df 50 dilutions are prepared as 100 uL sample: 4.9 mLs - **					LOCATION:
df 100 dilutions are prepared as 50 uL sample: 4.95 mLs - **					N/A

PREPARED BY: John Wilkes DATE: 8-25-03
REVIEWED BY: [signature] DATE: 8-26-03
DISPOSAL INT/DATE/LOC:

FRM-191 (Rev 2/Mar 03)

Div 20
to#030721-18 and 030722-12
06002.01.141

system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230742	Na589	833		mg/L	0.2				41.6486	20	0.2	832.972	07/31/03	12:41:23
230742d	Na589	828		mg/L	0.2				41.4126	20	0.2	828.252	07/31/03	12:44:27
230742s	Na589	1245		mg/L	0.2	400	103.1%		62.2711	20	0.2	1245.422	07/31/03	12:48:01
230743	Na589	253		mg/L	0.2				12.6688	20	0.2	253.376	07/31/03	12:51:05
230744	Na589	192		mg/L	0.2				9.6100	20	0.2	192.2	07/31/03	12:54:09
230745	Na589	162		mg/L	0.2				8.0876	20	0.2	161.752	07/31/03	12:57:13
230746	Na589	132		mg/L	0.2				6.6159	20	0.2	132.318	07/31/03	13:00:18
230747	Na589	95.4		mg/L	0.2				4.7724	20	0.2	95.448	07/31/03	13:03:22
230748	Na589	66.8		mg/L	0.2				3.3412	20	0.2	66.824	07/31/03	13:15:26
230749	Na589	50.6		mg/L	0.2				2.5291	20	0.2	50.582	07/31/03	13:19:00
230750	Na589	36.2		mg/L	0.2				1.8081	20	0.2	36.162	07/31/03	13:22:04
230751	Na589	21.1		mg/L	0.2				1.0537	20	0.2	21.074	07/31/03	13:25:08
230752	Na589	13.6		mg/L	0.2				13.5881	1	0.2	13.5881	08/01/03	12:09:19
230753	Na589	704		mg/L	0.2				35.2231	20	0.2	704.462	07/31/03	13:31:16
230754	Na589	8.87		mg/L	0.2				8.8698	1	0.2	8.8698	08/01/03	16:10:03
230755	Na589	3.75		mg/L	0.2				3.7539	1	0.2	3.7539	08/01/03	16:13:07
230756	Na589	2.56		mg/L	0.2				2.5552	1	0.2	2.5552	08/01/03	12:22:05
230757	Na589	410		mg/L	0.2				20.5207	20	0.2	410.414	07/31/03	13:44:02
230758	Na589	13.5		mg/L	0.2				13.4767	1	0.2	13.4767	08/01/03	16:22:24
230759	Na589	0.2	U	mg/L	0.2				0.1093	1	0.2	0.1093	08/01/03	12:53:23
230760	Na589	1198		mg/L	0.2				59.9051	20	0.2	1198.102	07/31/03	14:09:25
230760d	Na589	1206		mg/L	0.2				60.3216	20	0.2	1206.432	07/31/03	14:12:29
230760s	Na589	1610		mg/L	0.2	400	103.1%		80.5199	20	0.2	1610.398	07/31/03	14:16:02
230761	Na589	520		mg/L	0.2				25.9926	20	0.2	519.852	07/31/03	14:19:07
230762	Na589	738		mg/L	0.2				36.9034	20	0.2	738.068	07/31/03	14:22:11
230763	Na589	617		mg/L	0.2				30.8560	20	0.2	617.12	07/31/03	14:25:15
230764	Na589	479		mg/L	0.2				23.9264	20	0.2	478.528	07/31/03	14:37:19
230765	Na589	412		mg/L	0.2				20.5887	20	0.2	411.774	07/31/03	14:40:23
230766	Na589	319		mg/L	0.2				15.9679	20	0.2	319.358	07/31/03	14:43:27
230767	Na589	1562		mg/L	0.2				78.0925	20	0.2	1561.85	07/31/03	14:47:02
230768	Na589	1143		mg/L	0.2				57.1529	20	0.2	1143.058	07/31/03	14:50:06
230769	Na589	677		mg/L	0.2				33.8373	20	0.2	676.746	07/31/03	14:53:10
230770	Na589	460		mg/L	0.2				22.9850	20	0.2	459.7	07/31/03	14:56:14
230771	Na589	230		mg/L	0.2				11.5002	20	0.2	230.004	07/31/03	14:59:18
230772	Na589	0.539		mg/L	0.2				0.5386	1	0.2	0.5386	08/01/03	13:55:02
230773	Na589	49.2		mg/L	0.2				4.9246	10	0.2	49.246	08/05/03	
230774	Na589	48.6		mg/L	0.2				4.8647	10	0.2	48.647	08/05/03	
230868	Na589	658		mg/L	0.2				32.9136	20	0.2	658.272	07/31/03	15:21:05
230868d	Na589	654		mg/L	0.2				32.7237	20	0.2	654.474	07/31/03	15:24:18
230868s	Na589	1095		mg/L	0.2	400	109.1%		54.7392	20	0.2	1094.784	07/31/03	15:27:28

SRanger 8/5/03

SwRI 54 03 4 Sept 03

08/29/03

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Div 20
to#030721-18 and 030722-12
06002.01.141

system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230869	Na589	543		mg/L	0.2				27.1306	20	0.2	542.612	07/31/03	15:30:18
230870	Na589	381		mg/L	0.2				19.0496	20	0.2	380.992	07/31/03	15:33:22
lcsw-G31W1	Na589	19.7		mg/L	0.2	20	98.7%		19.7465	1	0.2	19.7465	07/31/03	12:38:19
lcsw-H01W1	Na589	19.6		mg/L	0.2	20	97.8%		19.5522	1	0.2	19.5522	08/01/03	11:26:05
pbw-G31W1	Na589	0.2	U	mg/L	0.2				-0.0273	1	0.2	-0.0273	07/31/03	12:35:15
pbw-H01W1	Na589	0.2	U	mg/L	0.2				0.0509	1	0.2	0.0509	08/01/03	11:23:01
230742	Ca3179	0.05	U	mg/L	0.05				0.00998	1	0.05	0.00998	07/31/03	15:00
230743	Ca3179	0.05	U	mg/L	0.05				0.00577	1	0.05	0.00577	07/31/03	15:05
230743d	Ca3179	0.05	U	mg/L	0.05				0.00268	1	0.05	0.00268	07/31/03	15:11
230744	Ca3179	0.05	U	mg/L	0.05				0.00160	1	0.05	0.0016	07/31/03	15:16
230744s	Ca3179	19.5		mg/L	0.05	20	97.6%		19.51772	1	0.05	19.51772	07/31/03	15:22
230745	Ca3179	0.05	U	mg/L	0.05				0.00114	1	0.05	0.00114	07/31/03	15:27
230746	Ca3179	0.05	U	mg/L	0.05				0.00442	1	0.05	0.00442	07/31/03	15:33
230747	Ca3179	0.05	U	mg/L	0.05				-0.00097	1	0.05	-0.00097	07/31/03	15:38
230748	Ca3179	0.05	U	mg/L	0.05				0.00021	1	0.05	0.00021	07/31/03	16:03
230749	Ca3179	0.05	U	mg/L	0.05				-0.00112	1	0.05	-0.00112	07/31/03	16:09
230750	Ca3179	0.05	U	mg/L	0.05				-0.00184	1	0.05	-0.00184	07/31/03	16:14
230751	Ca3179	0.05	U	mg/L	0.05				-0.00214	1	0.05	-0.00214	07/31/03	16:20
230752	Ca3179	0.05	U	mg/L	0.05				0.00657	1	0.05	0.00657	07/31/03	16:25
230753	Ca3179	0.05	U	mg/L	0.05				0.04609	1	0.05	0.04609	07/31/03	16:31
230754	Ca3179	0.143		mg/L	0.05				0.14322	1	0.05	0.14322	07/31/03	16:36
230755	Ca3179	0.05	U	mg/L	0.05				0.00623	1	0.05	0.00623	07/31/03	16:42
230756	Ca3179	0.05	U	mg/L	0.05				0.00862	1	0.05	0.00862	07/31/03	16:47
230757	Ca3179	0.05	U	mg/L	0.05				0.00645	1	0.05	0.00645	07/31/03	16:53
230758	Ca3179	0.05	U	mg/L	0.05				0.01287	1	0.05	0.01287	07/31/03	17:17
230759	Ca3179	0.05	U	mg/L	0.05				0.00679	1	0.05	0.00679	07/31/03	17:23
230760	Ca3179	0.05	U	mg/L	0.05				0.03413	1	0.05	0.03413	07/31/03	17:45
230761	Ca3179	0.05	U	mg/L	0.05				0.02901	1	0.05	0.02901	07/31/03	17:50
230761d	Ca3179	0.05	U	mg/L	0.05				0.00868	1	0.05	0.00868	07/31/03	17:56
230762	Ca3179	0.05	U	mg/L	0.05				0.01461	1	0.05	0.01461	07/31/03	18:01
230762s	Ca3179	21.1		mg/L	0.05	20	105.5%		21.09936	1	0.05	21.09936	07/31/03	18:07
230763	Ca3179	0.05	U	mg/L	0.05				0.00386	1	0.05	0.00386	07/31/03	18:12
230764	Ca3179	0.05	U	mg/L	0.05				-0.00002	1	0.05	-2E-05	07/31/03	18:35
230765	Ca3179	0.05	U	mg/L	0.05				0.00206	1	0.05	0.00206	07/31/03	18:40
230766	Ca3179	0.05	U	mg/L	0.05				-0.00015	1	0.05	-0.00015	07/31/03	18:45
230767	Ca3179	0.060		mg/L	0.05				0.05963	1	0.05	0.05963	07/31/03	18:50
230768	Ca3179	0.05	U	mg/L	0.05				0.04616	1	0.05	0.04616	07/31/03	18:56
230769	Ca3179	0.05	U	mg/L	0.05				0.03425	1	0.05	0.03425	07/31/03	19:01
230770	Ca3179	0.064		mg/L	0.05				0.06409	1	0.05	0.06409	07/31/03	19:06

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system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230771	Ca3179	0.05	U	mg/L	0.05				0.04029	1	0.05	0.04029	07/31/03	19:11
230772	Ca3179	0.05	U	mg/L	0.05				0.02739	1	0.05	0.02739	07/31/03	19:16
230773	Ca3179	0.05	U	mg/L	0.05				0.01428	1	0.05	0.01428	07/31/03	19:22
230774	Ca3179	0.05	U	mg/L	0.05				0.02357	1	0.05	0.02357	07/31/03	19:46
230868	Ca3179	0.05	U	mg/L	0.05				0.02041	1	0.05	0.02041	07/31/03	19:52
230869	Ca3179	0.05	U	mg/L	0.05				0.00866	1	0.05	0.00866	07/31/03	19:58
230869d	Ca3179	0.05	U	mg/L	0.05				0.00954	1	0.05	0.00954	07/31/03	20:03
230870	Ca3179	0.052		mg/L	0.05				0.05222	1	0.05	0.05222	07/31/03	20:09
230870s	Ca3179	21.5		mg/L	0.05	20	107.2%		21.49688	1	0.05	21.49688	07/31/03	20:14
lcsw-G31W3	Ca3179	20.0		mg/L	0.05	20	100.0%		20.00569	1	0.05	20.00569	07/31/03	14:54
lcsw-G31W4	Ca3179	21.0		mg/L	0.05	20	105.1%		21.02706	1	0.05	21.02706	07/31/03	17:39
pbw-G31W3	Ca3179	0.05	U	mg/L	0.05				0.01436	1	0.05	0.01436	07/31/03	14:49
pbw-G31W4	Ca3179	0.05	U	mg/L	0.05				0.01376	1	0.05	0.01376	07/31/03	17:34
230742	Al3082	0.25	U	mg/L	0.25				0.00821	5	0.05	0.04105	08/04/03	12:24
230743	Al3082	0.25	U	mg/L	0.25				0.02923	5	0.05	0.14615	08/04/03	12:29
230744	Al3082	0.25	U	mg/L	0.25				0.02068	5	0.05	0.1034	08/04/03	12:35
230745	Al3082	0.25	U	mg/L	0.25				0.01930	5	0.05	0.0965	08/04/03	12:40
230745d	Al3082	0.25	U	mg/L	0.25				0.01483	5	0.05	0.07415	08/04/03	12:45
230746	Al3082	0.25	U	mg/L	0.25				0.01694	5	0.05	0.0847	08/04/03	12:50
230746s	Al3082	10.6		mg/L	0.25	10	106.1%		2.12220	5	0.05	10.611	08/04/03	12:56
230747	Al3082	0.25	U	mg/L	0.25				0.00929	5	0.05	0.04645	08/04/03	13:01
230748	Al3082	0.25	U	mg/L	0.25				0.00420	5	0.05	0.021	08/04/03	13:24
230749	Al3082	0.25	U	mg/L	0.25				-0.00230	5	0.05	-0.0115	08/04/03	13:29
230750	Al3082	0.25	U	mg/L	0.25				-0.00069	5	0.05	-0.00345	08/04/03	13:34
230751	Al3082	0.25	U	mg/L	0.25				-0.00008	5	0.05	-0.0004	08/04/03	13:39
230752	Al3082	0.25	U	mg/L	0.25				0.00276	5	0.05	0.0138	08/04/03	13:45
230753	Al3082	0.25	U	mg/L	0.25				-0.00050	5	0.05	-0.0025	08/04/03	13:50
230754	Al3082	0.25	U	mg/L	0.25				0.00026	5	0.05	0.0013	08/04/03	13:55
230755	Al3082	0.25	U	mg/L	0.25				-0.00055	5	0.05	-0.00275	08/04/03	14:00
230756	Al3082	0.25	U	mg/L	0.25				0.00191	5	0.05	0.00955	08/04/03	14:05
230757	Al3082	0.25	U	mg/L	0.25				0.01299	5	0.05	0.06495	08/04/03	14:11
230758	Al3082	0.25	U	mg/L	0.25				-0.00137	5	0.05	-0.00685	08/04/03	14:34
230759	Al3082	0.25	U	mg/L	0.25				-0.00719	5	0.05	-0.03595	08/04/03	14:39
230760	Al3082	0.25	U	mg/L	0.25				0.01307	5	0.05	0.06535	08/04/03	17:41
230761	Al3082	0.25	U	mg/L	0.25				0.01619	5	0.05	0.08095	08/04/03	17:47
230762	Al3082	0.25	U	mg/L	0.25				0.01318	5	0.05	0.0659	08/04/03	17:52
230763	Al3082	0.25	U	mg/L	0.25				0.02008	5	0.05	0.1004	08/04/03	17:57
230764	Al3082	0.25	U	mg/L	0.25				0.01599	5	0.05	0.07995	08/04/03	18:02
230764d	Al3082	0.25	U	mg/L	0.25				0.01662	5	0.05	0.0831	08/04/03	18:07

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to#030721-18 and 030722-12
06002.01.141

system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230765	Al3082	0.25	U	mg/L	0.25				0.01893	5	0.05	0.09465	08/04/03	18:13
230765s	Al3082	10.5		mg/L	0.25	10	105.1%		2.10279	5	0.05	10.51395	08/04/03	18:18
230766	Al3082	0.25	U	mg/L	0.25				0.01914	5	0.05	0.0957	08/04/03	18:41
230767	Al3082	0.25	U	mg/L	0.25				0.01538	5	0.05	0.0769	08/04/03	18:46
230768	Al3082	0.25	U	mg/L	0.25				0.01110	5	0.05	0.0555	08/04/03	18:51
230769	Al3082	0.25	U	mg/L	0.25				0.00588	5	0.05	0.0294	08/04/03	18:57
230770	Al3082	0.25	U	mg/L	0.25				0.01095	5	0.05	0.05475	08/04/03	19:02
230771	Al3082	0.25	U	mg/L	0.25				0.01138	5	0.05	0.0569	08/04/03	19:07
230772	Al3082	0.25	U	mg/L	0.25				0.00758	5	0.05	0.0379	08/04/03	19:12
230773	Al3082	0.25	U	mg/L	0.25				0.00189	5	0.05	0.00945	08/04/03	19:17
230774	Al3082	0.25	U	mg/L	0.25				0.00460	5	0.05	0.023	08/04/03	19:23
230868	Al3082	0.25	U	mg/L	0.25				0.00924	5	0.05	0.0462	08/04/03	19:28
230868d	Al3082	0.25	U	mg/L	0.25				0.02348	5	0.05	0.1174	08/04/03	19:51
230868s	Al3082	10.5		mg/L	0.25	10	104.7%		2.09484	5	0.05	10.4742	08/04/03	19:56
230869	Al3082	0.25	U	mg/L	0.25				0.01249	5	0.05	0.06245	08/04/03	20:01
230870	Al3082	0.25	U	mg/L	0.25				0.03894	5	0.05	0.1947	08/04/03	20:07
lcsw-H04W1	Al3082	10.1		mg/L	0.25	10	101.2%		2.02321	5	0.05	10.11605	08/04/03	12:19
lcsw-H04W2	Al3082	9.98		mg/L	0.25	10	99.8%		1.99698	5	0.05	9.9849	08/04/03	17:36
pbw-H04W1	Al3082	0.25	U	mg/L	0.25				0.00356	5	0.05	0.0178	08/04/03	12:14
pbw-H04W2	Al3082	0.25	U	mg/L	0.25				0.00843	5	0.05	0.04215	08/04/03	17:31
230742	Si2881	1.96		mg/L	0.125				0.39260	5	0.025	1.963	08/04/03	12:24
230743	Si2881	2.48		mg/L	0.125				0.49571	5	0.025	2.47855	08/04/03	12:29
230744	Si2881	1.93		mg/L	0.125				0.38548	5	0.025	1.9274	08/04/03	12:35
230745	Si2881	1.56		mg/L	0.125				0.31103	5	0.025	1.55515	08/04/03	12:40
230745d	Si2881	1.55		mg/L	0.125				0.31078	5	0.025	1.5539	08/04/03	12:45
230746	Si2881	1.22		mg/L	0.125				0.24434	5	0.025	1.2217	08/04/03	12:50
230746s	Si2881	22.3		mg/L	0.125	20	105.2%		4.45171	5	0.025	22.25855	08/04/03	12:56
230747	Si2881	0.899		mg/L	0.05				0.89921	1	0.05	0.89921	07/31/03	15:38
230748	Si2881	0.607		mg/L	0.05				0.60682	1	0.05	0.60682	07/31/03	16:03
230749	Si2881	0.478		mg/L	0.05				0.47825	1	0.05	0.47825	07/31/03	16:09
230750	Si2881	0.376		mg/L	0.05				0.37620	1	0.05	0.3762	07/31/03	16:14
230751	Si2881	0.231		mg/L	0.05				0.23108	1	0.05	0.23108	07/31/03	16:20
230752	Si2881	0.137		mg/L	0.05				0.13714	1	0.05	0.13714	07/31/03	16:25
230753	Si2881	2.60		mg/L	0.125				0.51968	5	0.025	2.5984	08/04/03	13:50
230754	Si2881	0.171		mg/L	0.05				0.17053	1	0.05	0.17053	07/31/03	16:36
230755	Si2881	0.103		mg/L	0.05				0.10265	1	0.05	0.10265	07/31/03	16:42
230756	Si2881	0.074		mg/L	0.05				0.07351	1	0.05	0.07351	07/31/03	16:47
230757	Si2881	1.81		mg/L	0.125				0.36265	5	0.025	1.81325	08/04/03	14:11
230758	Si2881	0.125	U	mg/L	0.125				0.01826	5	0.025	0.0913	08/04/03	14:34

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to#030721-18 and 030722-12
06002.01.141

system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230759	Si2881	0.125	U	mg/L	0.125				0.00304	5	0.025	0.0152	08/04/03	14:39
230760	Si2881	1.57		mg/L	0.125				0.31351	5	0.025	1.56755	08/04/03	17:41
230761	Si2881	2.38		mg/L	0.125				0.47630	5	0.025	2.3815	08/04/03	17:47
230762	Si2881	0.834		mg/L	0.125				0.16679	5	0.025	0.83395	08/04/03	17:52
230763	Si2881	1.97		mg/L	0.125				0.39325	5	0.025	1.96625	08/04/03	17:57
230764	Si2881	2.53		mg/L	0.125				0.50618	5	0.025	2.5309	08/04/03	18:02
230764d	Si2881	2.53		mg/L	0.125				0.50512	5	0.025	2.5256	08/04/03	18:07
230765	Si2881	1.87		mg/L	0.125				0.37325	5	0.025	1.86625	08/04/03	18:13
230765s	Si2881	22.6		mg/L	0.125	20	103.5%		4.51307	5	0.025	22.56535	08/04/03	18:18
230766	Si2881	0.982		mg/L	0.125				0.19649	5	0.025	0.98245	08/04/03	18:41
230767	Si2881	0.125	U	mg/L	0.125				-0.00978	5	0.025	-0.0489	08/04/03	18:46
230768	Si2881	0.125	U	mg/L	0.125				-0.00523	5	0.025	-0.02615	08/04/03	18:51
230769	Si2881	0.125	U	mg/L	0.125				0.00678	5	0.025	0.0339	08/04/03	18:57
230770	Si2881	0.125	U	mg/L	0.125				0.01748	5	0.025	0.0874	08/04/03	19:02
230771	Si2881	0.125	U	mg/L	0.125				0.01359	5	0.025	0.06795	08/04/03	19:07
230772	Si2881	0.128		mg/L	0.125				0.02565	5	0.025	0.12825	08/04/03	19:12
230773	Si2881	0.125	U	mg/L	0.125				0.01225	5	0.025	0.06125	08/04/03	19:17
230774	Si2881	0.125	U	mg/L	0.125				0.01245	5	0.025	0.06225	08/04/03	19:23
230868	Si2881	1.62		mg/L	0.125				0.32438	5	0.025	1.6219	08/04/03	19:28
230868d	Si2881	1.63		mg/L	0.125				0.32628	5	0.025	1.6314	08/04/03	19:51
230868s	Si2881	23.0		mg/L	0.125	20	106.8%		4.59566	5	0.025	22.9783	08/04/03	19:56
230869	Si2881	2.13		mg/L	0.125				0.42585	5	0.025	2.12925	08/04/03	20:01
230870	Si2881	1.96		mg/L	0.125				0.39236	5	0.025	1.9618	08/04/03	20:07
lcsw-G31W3	Si2881	4.11		mg/L	0.05	4	102.7%		4.10815	1	0.05	4.10815	07/31/03	14:54
lcsw-H04W2	Si2881	20.6		mg/L	0.125	20	103.2%		4.12663	5	0.025	20.63315	08/04/03	17:36
pbw-G31W3	Si2881	0.050	U	mg/L	0.05				0.00476	1	0.05	0.00476	07/31/03	14:49
pbw-H04W2	Si2881	0.125	U	mg/L	0.125				0.00950	5	0.025	0.0475	08/04/03	17:31
230742	K_7664	0.25	U	mg/L	0.25				0.03496	5	0.05	0.1748	08/04/03	12:24
230743	K_766	0.25	U	mg/L	0.25				0.2194	1	0.25	0.2194	08/01/03	11:32:13
230744	K_7664	0.25	U	mg/L	0.25				0.00198	5	0.05	0.0099	08/04/03	12:35
230745	K_7664	0.25	U	mg/L	0.25				0.01752	5	0.05	0.0876	08/04/03	12:40
230745d	K_7664	0.25	U	mg/L	0.25				0.00690	5	0.05	0.0345	08/04/03	12:45
230746	K_7664	0.25	U	mg/L	0.25				0.02563	5	0.05	0.12815	08/04/03	12:50
230746s	K_7664	141		mg/L	0.25	100	140.9%		28.17252	5	0.05	140.8626	08/04/03	12:56
230747	K_7664	0.25	U	mg/L	0.25				0.01268	5	0.05	0.0634	08/04/03	13:01
230748	K_7664	0.25	U	mg/L	0.25				-0.00073	5	0.05	-0.00365	08/04/03	13:24
230749	K_7664	0.25	U	mg/L	0.25				0.00717	5	0.05	0.03585	08/04/03	13:29
230750	K_7664	0.25	U	mg/L	0.25				0.00667	5	0.05	0.03335	08/04/03	13:34
230751	K_7664	0.25	U	mg/L	0.25				0.00223	5	0.05	0.01115	08/04/03	13:39

Div 20
to#030721-18 and 030722-12
06002.01.141

system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230752	K_7664	0.25	U	mg/L	0.25				0.00446	5	0.05	0.0223	08/04/03	13:45
230753	K_7664	0.25	U	mg/L	0.25				0.00817	5	0.05	0.04085	08/04/03	13:50
230754	K_7664	0.25	U	mg/L	0.25				0.00758	5	0.05	0.0379	08/04/03	13:55
230755	K_7664	0.25	U	mg/L	0.25				0.00301	5	0.05	0.01505	08/04/03	14:00
230756	K_7664	0.25	U	mg/L	0.25				0.00228	5	0.05	0.0114	08/04/03	14:05
230757	K_7664	0.25	U	mg/L	0.25				0.02602	5	0.05	0.1301	08/04/03	14:11
230758	K_7664	0.25	U	mg/L	0.25				0.00551	5	0.05	0.02755	08/04/03	14:34
230759	K_7664	0.25	U	mg/L	0.25				-0.01653	5	0.05	-0.08265	08/04/03	14:39
230760	K_7664	0.381		mg/L	0.25				0.07618	5	0.05	0.3809	08/04/03	17:41
230761	K_7664	0.25	U	mg/L	0.25				0.04368	5	0.05	0.2184	08/04/03	17:47
230762	K_7664	0.25	U	mg/L	0.25				0.03735	5	0.05	0.18675	08/04/03	17:52
230763	K_7664	0.25	U	mg/L	0.25				0.03731	5	0.05	0.18655	08/04/03	17:57
230764	K_7664	0.25	U	mg/L	0.25				0.04919	5	0.05	0.24595	08/04/03	18:02
230764d	K_7664	0.25	U	mg/L	0.25				0.03021	5	0.05	0.15105	08/04/03	18:07
230765	K_7664	0.25	U	mg/L	0.25				0.03815	5	0.05	0.19075	08/04/03	18:13
230765s	K_7664	138		mg/L	0.25	100	138.4%		27.68431	5	0.05	138.42155	08/04/03	18:18
230766	K_7664	0.25	U	mg/L	0.25				0.03963	5	0.05	0.19815	08/04/03	18:41
230767	K_7664	0.302		mg/L	0.25				0.06040	5	0.05	0.302	08/04/03	18:46
230768	K_7664	0.25	U	mg/L	0.25				0.01707	5	0.05	0.08535	08/04/03	18:51
230769	K_7664	0.25	U	mg/L	0.25				0.02050	5	0.05	0.1025	08/04/03	18:57
230770	K_7664	0.25	U	mg/L	0.25				0.03178	5	0.05	0.1589	08/04/03	19:02
230771	K_7664	0.25	U	mg/L	0.25				0.02017	5	0.05	0.10085	08/04/03	19:07
230772	K_7664	0.25	U	mg/L	0.25				0.01402	5	0.05	0.0701	08/04/03	19:12
230773	K_766	94.9		mg/L	0.25				9.4879	10	0.25	94.879	08/05/03	
230774	K_766	94.6		mg/L	0.25				9.4575	10	0.25	94.575	08/05/03	
230868	K_7664	0.25	U	mg/L	0.25				0.03792	5	0.05	0.1896	08/04/03	19:28
230868d	K_7664	0.25	U	mg/L	0.25				0.03164	5	0.05	0.1582	08/04/03	19:51
230868s	K_7664	119		mg/L	0.25	100	118.9%		23.77659	5	0.05	118.88295	08/04/03	19:56
230869	K_7664	0.25	U	mg/L	0.25				0.04115	5	0.05	0.20575	08/04/03	20:01
230870	K_7664	0.25	U	mg/L	0.25				0.02608	5	0.05	0.1304	08/04/03	20:07
lcsw-H04W1	K_7664	89.3		mg/L	0.25	100	89.3%		17.85264	5	0.05	89.2632	08/04/03	12:19
lcsw-H04W2	K_7664	84.3		mg/L	0.25	100	84.3%		16.85258	5	0.05	84.2629	08/04/03	17:36
pbw-H04W1	K_7664	0.25	U	mg/L	0.25				-0.01254	5	0.05	-0.0627	08/04/03	12:14
pbw-H04W2	K_7664	0.25	U	mg/L	0.25				0.01234	5	0.05	0.0617	08/04/03	17:31

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system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230742	Li670	80.0		mg/L	0.01				1.6004	50	0.005	80.02	08/27/03	16:41:12
230742D	Li670	79.3		mg/L	0.01				1.5864	50	0.005	79.32	08/27/03	16:44:16
230742s	Li670	271		mg/L	0.01	200	95.3%		5.4107	50	0.005	270.535	08/27/03	16:47:20
230743	Li670	547		mg/L	0.01				5.4710	100	0.005	547.1	08/27/03	19:36:06
230744	Li670	564		mg/L	0.01				5.6371	100	0.005	563.71	08/27/03	16:50:24
230745	Li670	575		mg/L	0.01				5.7534	100	0.005	575.34	08/27/03	16:53:27
230746	Li670	592		mg/L	0.01				5.9203	100	0.005	592.03	08/27/03	16:57:01
230747	Li670	596		mg/L	0.01				5.9630	100	0.005	596.3	08/27/03	17:00:04
230748	Li670	607		mg/L	0.01				6.0715	100	0.005	607.15	08/27/03	17:03:09
230749	Li670	607		mg/L	0.01				6.0687	100	0.005	606.87	08/27/03	17:15:28
230750	Li670	615		mg/L	0.01				6.1501	100	0.005	615.01	08/27/03	17:19:02
230751	Li670	616		mg/L	0.01				6.1636	100	0.005	616.36	08/27/03	17:22:06
230752	Li670	623		mg/L	0.01				6.2260	100	0.005	622.6	08/27/03	17:25:10
230753	Li670	120		mg/L	0.01				2.4094	50	0.005	120.47	08/27/03	17:28:14
230754	Li670	625		mg/L	0.01				6.2491	100	0.005	624.91	08/27/03	17:31:18
230755	Li670	623		mg/L	0.01				6.2280	100	0.005	622.8	08/27/03	17:34:21
230756	Li670	620		mg/L	0.01				6.1969	100	0.005	619.69	08/27/03	17:37:25
230757	Li670	538		mg/L	0.01				5.3800	100	0.005	538	08/27/03	17:40:29
230758	Li670	617		mg/L	0.01				6.1743	100	0.005	617.43	08/27/03	17:44:03
230759	Li670	0.010	U	mg/L	0.01				0.0035	2	0.005	0.007	08/27/03	17:56:20
230760	Li670	309		mg/L	0.01				3.0942	100	0.005	309.42	08/27/03	18:08:08
230760d	Li670	310		mg/L	0.01				3.0989	100	0.005	309.89	08/27/03	18:11:12
230760s	Li670	699		mg/L	0.01	400	97.3%		6.9873	100	0.005	698.73	08/27/03	18:14:15
230761	Li670	189		mg/L	0.01				3.7744	50	0.005	188.72	08/27/03	18:17:20
230762	Li670	442		mg/L	0.01				4.4154	100	0.005	441.54	08/27/03	18:20:23
230763	Li670	470		mg/L	0.01				4.7001	100	0.005	470.01	08/27/03	18:23:27
230764	Li670	509		mg/L	0.01				5.0875	100	0.005	508.75	08/27/03	18:27:01
230765	Li670	534		mg/L	0.01				5.3409	100	0.005	534.09	08/27/03	18:39:21
230766	Li670	553		mg/L	0.01				5.5339	100	0.005	553.39	08/27/03	18:42:25
230767	Li670	195		mg/L	0.01				3.8983	50	0.005	194.915	08/27/03	18:45:29
230768	Li670	332		mg/L	0.01				3.3188	100	0.005	331.88	08/27/03	18:49:03
230769	Li670	458		mg/L	0.01				4.5794	100	0.005	457.94	08/27/03	18:52:07
230770	Li670	525		mg/L	0.01				5.2486	100	0.005	524.86	08/27/03	18:55:11
230771	Li670	597		mg/L	0.01				5.9680	100	0.005	596.8	08/27/03	18:58:15
230772	Li670	624		mg/L	0.01				6.2367	100	0.005	623.67	08/27/03	19:01:19
230773	Li670	0.016		mg/L	0.01				0.0082	2	0.005	0.0164	08/27/03	19:04:22
230774	Li670	0.010	U	mg/L	0.01				0.0035	2	0.005	0.007	08/27/03	19:07:26
230868	Li670	65.2		mg/L	0.01				3.2577	20	0.005	65.154	08/27/03	19:20:16
230868d	Li670	64.4		mg/L	0.01				3.2175	20	0.005	64.35	08/27/03	19:23:20

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Div 20
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06002.01.141

system id	elem	result	qual	units	rl	tv	rec		ug/ml @instr	df	rl	mg/L	date	time
230868s	Li670	144		mg/L	0.01	80	98.0%		7.1759	20	0.005	143.518	08/27/03	19:26:24
230869	Li670	97.6		mg/L	0.01				4.8784	20	0.005	97.568	08/27/03	19:29:28
230870	Li670	144		mg/L	0.01				2.8796	50	0.005	143.98	08/27/03	19:33:02
lcsw-H25W2	Li670	3.90		mg/L	0.01	4	97.5%		3.8983	1	0.005	3.8983	08/27/03	16:38:08
lcsw-H25W3	Li670	3.86		mg/L	0.01	4	96.5%		3.8605	1	0.005	3.8605	08/27/03	18:05:04
pbw-H25W2	Li670	0.010	U	mg/L	0.01				0.0014	1	0.005	0.0014	08/27/03	16:35:04
pbw-H25W3	Li670	0.010	U	mg/L	0.01				0.0028	1	0.005	0.0028	08/27/03	18:02:00

ICP ANALYSIS

Na K20

PROJ. NO.	PROJECT	TO#	DATE	MATRIX	LOGBK PG
06002.01.141	Div 20	030721-14 030722-12	7-31-03	WATER	54 129
↓	Div 20	↓	7.31-03	WATER	54 130

INSTRUMENT: Spectro FILENAME: 030731

INSTRUMENT DL:

010064

EVOLUTION by Micro-Active Australia Pty Ltd 12:22:38 PM July 31, 2003

Keep last result visible enabled ...
Starting run ...
Creating high priority queue entries ...
BACKGROUND CORRECTED INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 12:21:54 PM July 31, 2003

	K_766	Li670	Na589	Sc361
# 1	19.0	-4.0	49.0	5077.5
# 2	27.0	0.0	28.0	4906.5
Mean	23.0	-2.0	38.5	4992.0
SD	5.7	2.8	14.8	120.9
%RSD	24.6	141.4	38.6	2.4

INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 12:21:54 PM July 31, 2003

	K_766	Li670	Na589	Sc361
# 1	0.0	-0.0	0.0	5077.5
# 2	0.0	0.0	0.0	4906.5
Mean	0.0	-0.0	0.0	4992.0
SD	0.0	0.0	0.0	120.9
%RSD	26.9	141.4	36.3	2.4

8/1/03

4Sep03

7-31-03

EVOLUTION by Micro-Active Australia Pty Ltd 12:32:38 PM July 31, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 12:25:02 PM July 31, 2003

	K_766	Li670	Na589
# 1	4566.5	37363.0	22505.0
# 2	4497.5	36770.0	22180.0
Mean	4532.0	37066.5	22342.5
SD	48.8	419.3	229.8
%RSD	1.1	1.1	1.0

INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 12:25:02 PM July 31, 2003

	K_766	Li670	Na589
# 1	0.9	7.6	4.6
# 2	0.9	7.6	4.6
Mean	0.9	7.6	4.6
SD	0.0	0.0	0.0
%RSD	0.5	0.4	0.5

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 12:28:10 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1791.5	18653.5	13257.5	5042.5	5042.5
# 2	1769.5	18335.5	13070.5	4950.5	4950.5
Mean	1780.5	18494.5	13164.0	4996.5	4996.5
SD	15.6	224.9	132.2	65.1	65.1
%RSD	0.9	1.2	1.0	1.3	1.3

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 12:28:10 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.0093	4.8795	28.7297	5042.500 H	101.0129
# 2	19.1263	4.8855	28.8512	4950.500	99.1676
Mean	19.0678	4.8825	28.7905	4996.500 H	100.0903
SD	0.0827	0.0042	0.0859	65.054	1.3049
%RSD	0.4339	0.0862	0.2984	1.302	1.3037

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.068	22.000
Li670	4.500	4.882	5.500
Na589	27.000	28.790	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 12:32:24 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.0	-1.0	39.0	5166.0	5166.0
# 2	18.0	-9.0	19.0	5088.0	5088.0

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EVOLUTION by Micro-Active Australia Pty Ltd 12:32:38 PM July 31, 2003

Mean	15.5	-5.0	29.0	5127.0	5127.0
SD	3.5	5.7	14.1	55.2	55.2
%RSD	22.8	113.1	48.8	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 12:32:24 PM July 31, 2003

		K_766 ppm		Li670 ppm		Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.1133		0.0003	L	-0.0018	5166.000	H	103.4901
# 2	L	-0.0580	L	-0.0018	L	-0.0436	5088.000	H	101.9256
Mean	L	-0.0857	L	-0.0008	L	-0.0227	5127.000	H	102.7079
SD		0.0391		0.0015		0.0296	55.154		1.1063
%RSD		45.6980		191.8602		130.2895	1.076		1.0771

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.086
Li670	0.010	-0.001
Na589	0.050	-0.023
Sc361	0.000	102.708

EVOLUTION by Micro-Active Australia Pty Ltd 12:42:10 PM July 31, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-G31W1 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:35:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.0	-6.0	22.5	4918.5	4918.5
# 2	23.0	-5.0	28.5	4854.5	4854.5
Mean	22.5	-5.5	25.5	4886.5	4886.5
SD	0.7	0.7	4.2	45.3	45.3
%RSD	3.1	12.9	16.6	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : pbw-G31W1 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:35:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	L -0.0073	L -0.0011	L -0.0344	4918.500	98.5257
# 2	0.0071	L -0.0008	L -0.0202	4854.500	97.2420
Mean	L -0.0001	L -0.0010	L -0.0273	4886.500	97.8839
SD	0.0102	0.0002	0.0100	45.255	0.9077
%RSD	9455.0917	18.5407	36.8168	0.926	0.9274

BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-G31W1 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:38:38 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1782.0	-11.5	8785.5	4844.5	4844.5
# 2	1772.0	3.5	8663.5	4798.5	4798.5
Mean	1777.0	-4.0	8724.5	4821.5	4821.5
SD	7.1	10.6	86.3	32.5	32.5
%RSD	0.4	265.2	1.0	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : lcsw-G31W1 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:38:38 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.6901 L	-0.0026	19.7906	4844.500	97.0414
# 2	19.7683	0.0015	19.7025	4798.500	96.1187
Mean	19.7292 L	-0.0006	19.7465	4821.500	96.5801
SD	0.0553	0.0029	0.0623	32.527	0.6524
%RSD	0.2802	520.5029	0.3155	0.675	0.6755

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:41:46 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.0	14910.0	18603.5	4887.0	4887.0
# 2	17.0	14822.0	18470.5	4849.0	4849.0
Mean	17.5	14866.0	18537.0	4868.0	4868.0

SD		0.7	62.2	94.0	26.9	26.9
%RSD		4.0	0.4	0.5	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230742 Identity 2 : pg54-129 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 12:51:40 PM July 31, 2003

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Weight : 1.0000 Volume : 1.00 Printed : 12:41:46 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0501	4.0245	41.6355	4887.000	97.8939
# 2	L	-0.0597	4.0321	41.6618	4849.000	97.1317
Mean	L	-0.0549	4.0283	41.6486	4868.000	97.5128
SD		0.0068	0.0054	0.0186	26.870	0.5390
%RSD		12.3829	0.1334	0.0447	0.552	0.5527

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742d Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:44:54 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	0.0	14994.0	18467.5	4881.5	4881.5
# 2	14.0	14861.0	18347.5	4841.5	4841.5
Mean	7.0	14927.5	18407.5	4861.5	4861.5
SD	9.9	94.0	84.9	28.3	28.3
%RSD	141.4	0.6	0.5	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230742d Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:44:54 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.2498	4.0517	41.3771	4881.500	97.7836
# 2	L	-0.0930	4.0489	41.4480	4841.500	96.9812
Mean	L	-0.1714	4.0503	41.4126	4861.500	97.3824
SD		0.1108	0.0020	0.0501	28.284	0.5673
%RSD		64.6747	0.0482	0.1211	0.582	0.5826

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742s Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:48:02 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1819.5	14836.0	27285.5	4792.5	4792.5
# 2	1817.5	14782.0	27215.5	4786.5	4786.5
Mean	1818.5	14809.0	27250.5	4789.5	4789.5
SD	1.4	38.2	49.5	4.2	4.2
%RSD	0.1	0.3	0.2	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230742s Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:48:02 PM July 31, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	20.3307	4.0834 H	62.3122	4792.500	95.9984
# 2	20.3338	4.0737 H	62.2301	4786.500	95.8780
Mean	20.3322	4.0786 H	62.2711	4789.500	95.9382
SD	0.0022	0.0069	0.0580	4.243	0.0851

%RSD	0.0109	0.1692	0.0932	0.089	0.0887

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230743 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:51:10 PM July 31, 2003
EVOLUTION by Micro-Active Australia Pty Ltd 12:57:42 PM July 31, 2003

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	K_766	Li670	Na589	Sc	Sc361
# 1	24.0	103820.5	5707.0	4938.0	4938.0
# 2	23.0	103143.5	5721.0	4883.0	4883.0
Mean	23.5	103482.0	5714.0	4910.5	4910.5
SD	0.7	478.7	9.9	38.9	38.9
%RSD	3.0	0.5	0.2	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230743 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:51:10 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0137 H	27.7304	12.5817	4938.000	98.9169
# 2	0.0056 H	27.8599	12.7558	4883.000	97.8137
Mean	0.0096 H	27.7951	12.6688	4910.500	98.3653
SD	0.0058	0.0916	0.1231	38.891	0.7801
%RSD	59.6499	0.3294	0.9717	0.792	0.7930

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230744 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:54:18 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.5	105415.5	4295.5	4851.0	4851.0
# 2	21.5	105640.5	4295.5	4861.0	4861.0
Mean	19.0	105528.0	4295.5	4856.0	4856.0
SD	3.5	159.1	0.0	7.1	7.1
%RSD	18.6	0.2	0.0	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230744 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:54:18 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0654 H	28.6614	9.6200	4851.000	97.1718
# 2 L	-0.0100 H	28.6634	9.6000	4861.000	97.3724
Mean L	-0.0377 H	28.6624	9.6100	4856.000	97.2721
SD	0.0392	0.0015	0.0141	7.071	0.1418
%RSD	103.9076	0.0051	0.1469	0.146	0.1458

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230745 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:57:26 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	29.5	107789.0	3613.0	4858.0	4858.0
# 2	24.5	107466.0	3599.0	4814.0	4814.0
Mean	27.0	107627.5	3606.0	4836.0	4836.0
SD	3.5	228.4	9.9	31.1	31.1
%RSD	13.1	0.2	0.3	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230745 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:57:26 PM July 31, 2003

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	K_766	Li670	Na589	Sc	Sc361
EVOLUTION by Micro-Active Australia Pty Ltd 1:08:12 PM July 31, 2003					
	ppm	ppm	ppm		ppm
# 1	0.0794 H	29.2644	8.0663	4858.000	97.3122
# 2	0.0261 H	29.4434	8.1089	4814.000	96.4296
Mean	0.0528 H	29.3539	8.0876	4836.000	96.8709
SD	0.0377	0.1266	0.0301	31.113	0.6241
%RSD	71.4092	0.4311	0.3727	0.643	0.6442

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230746 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:00:34 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	-4.0	110822.0	3007.5	4894.0	4894.0
# 2	6.0	109751.0	2947.5	4846.0	4846.0
Mean	1.0	110286.5	2977.5	4870.0	4870.0
SD	7.1	757.3	42.4	33.9	33.9
%RSD	707.1	0.7	1.4	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230746 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:00:34 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.2941 H	29.8666	6.6504	4894.000	98.0343
# 2 L	-0.1826 H	29.8709	6.5814	4846.000	97.0715
Mean L	-0.2384 H	29.8687	6.6159	4870.000	97.5529
SD	0.0788	0.0031	0.0488	33.941	0.6808
%RSD	33.0553	0.0103	0.7373	0.697	0.6979

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230747 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:03:42 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	21.0	111406.0	2162.0	4844.5	4844.5
# 2	12.0	110622.0	2116.0	4808.5	4808.5
Mean	16.5	111014.0	2139.0	4826.5	4826.5
SD	6.4	554.4	32.5	25.5	25.5
%RSD	38.6	0.5	1.5	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230747 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:03:42 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0148 H	30.3307	4.8065	4844.500	97.0414
# 2 L	-0.1145 H	30.3428	4.7383	4808.500	96.3193
Mean L	-0.0646 H	30.3367	4.7724	4826.500	96.6804
SD	0.0705	0.0085	0.0482	25.456	0.5106
%RSD	109.0891	0.0280	1.0109	0.527	0.5281

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BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 1:08:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1786.0	18478.0	13134.0	5027.0	5027.0
# 2	1784.0	18370.0	13117.0	4952.0	4952.0
Mean	1785.0	18424.0	13125.5	4989.5	4989.5
SD	1.4	76.4	12.0	53.0	53.0
%RSD	0.1	0.4	0.1	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 1:08:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.0094	4.8485	28.5493	5027.000 H	100.7020
# 2	19.2792	4.8932	28.9454	4952.000	99.1977
Mean	19.1443	4.8708	28.7474	4989.500	99.9499
SD	0.1908	0.0316	0.2800	53.033	1.0637
%RSD	0.9965	0.6483	0.9742	1.063	1.0643

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.144	22.000
Li670	4.500	4.871	5.500
Na589	27.000	28.747	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 1:12:44 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.5	0.5	20.0	5113.0	5113.0
# 2	20.5	-2.5	41.0	5021.0	5021.0
Mean	16.0	-1.0	30.5	5067.0	5067.0
SD	6.4	2.1	14.8	65.1	65.1
%RSD	39.8	212.1	48.7	1.3	1.3

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 1:12:44 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.1278	0.0007 L	-0.0417	5113.000 H	102.4270
# 2 L	-0.0284 L	-0.0001	0.0050	5021.000 H	100.5817
Mean L	-0.0781	0.0003 L	-0.0183	5067.000 H	101.5044
SD	0.0703	0.0006	0.0330	65.054	1.3049
%RSD	89.9573	210.0006	179.7292	1.284	1.2855

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.078
Li670	0.010	0.000
Na589	0.050	-0.018

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Sc361	0.000	101.504

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230748 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:15:52 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.0	111548.5	1469.0	4776.0	4776.0
# 2	28.0	110606.5	1498.0	4717.0	4717.0
Mean	26.5	111077.5	1483.5	4746.5	4746.5
SD	2.1	666.1	20.5	41.7	41.7
%RSD	8.0	0.6	1.4	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : 230748 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:15:52 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0340 H	30.8051	3.2864	4776.000	95.6674
# 2	0.0720 H	30.9270	3.3959	4717.000	94.4840
Mean	0.0530 H	30.8660	3.3412	4746.500	95.0757
SD	0.0269	0.0862	0.0775	41.719	0.8368
%RSD	50.7240	0.2793	2.3183	0.879	0.8802

Keep last result visible enabled ...
BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230749 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:18:58 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	23.0	113494.5	1139.0	4840.0	4840.0
# 2	15.0	112865.5	1163.0	4813.0	4813.0
Mean	19.0	113180.0	1151.0	4826.5	4826.5
SD	5.7	444.8	17.0	19.1	19.1
%RSD	29.8	0.4	1.5	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230749 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:19:00 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0078 H	30.9280	2.4946	4840.000	96.9512
# 2 L	-0.0808 H	30.9292	2.5637	4813.000	96.4096
Mean L	-0.0365 H	30.9286	2.5291	4826.500	96.6804
SD	0.0627	0.0008	0.0489	19.092	0.3829
%RSD	171.8241	0.0026	1.9324	0.396	0.3961

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230750 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:22:08 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.5	114220.5	831.5	4838.5	4838.5
# 2	18.5	113316.5	832.5	4797.5	4797.5

Mean	17.5	113768.5	832.0	4818.0	4818.0
SD	1.4	639.2	0.7	29.0	29.0
%RSD	8.1	0.6	0.1	0.6	0.6

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APPARENT CONCENTRATIONS
Identity 1 : 230750 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:22:08 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0649	H	31.1355	1.7989	4838.500	96.9211
# 2	L	-0.0407	H	31.1531	1.8173	4797.500	96.0987
Mean	L	-0.0528	H	31.1443	1.8081	4818.000	96.5099
SD		0.0171		0.0124	0.0130	28.991	0.5815
%RSD		32.3738		0.0399	0.7188	0.602	0.6025

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230751 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:25:16 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	27.0	115478.5	498.5	4861.5	4861.5
# 2	5.0	114558.5	505.5	4806.5	4806.5
Mean	16.0	115018.5	502.0	4834.0	4834.0
SD	15.6	650.5	4.9	38.9	38.9
%RSD	97.2	0.6	1.0	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230751 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:25:16 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0513	H	31.3295	1.0393	4861.500	97.3824
# 2	L	-0.1934	H	31.4356	1.0681	4806.500	96.2792
Mean	L	-0.0710	H	31.3825	1.0537	4834.000	96.8308
SD		0.1730		0.0750	0.0204	38.891	0.7801
%RSD		243.5726		0.2389	1.9341	0.805	0.8056

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230752 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:28:24 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	116016.0	302.0	4856.5	4856.5
# 2	15.5	115451.0	309.0	4827.5	4827.5
Mean	15.0	115733.5	305.5	4842.0	4842.0
SD	0.7	399.5	4.9	20.5	20.5
%RSD	4.7	0.3	1.6	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230752 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:28:24 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0879	H	31.5077	0.5970	4856.500	97.2821
# 2	L	-0.0757	H	31.5427	0.6170	4827.500	96.7004

Mean	L	-0.0818 H	31.5252	0.6070	4842.000	96.9913
SD		0.0086	0.0247	0.0141	20.506	0.4113
%RSD		10.5462	0.0783	2.3282	0.424	0.4241

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BACKGROUND CORRECTED INTENSITIES
EVOLUTION by Micro-Active Australia Pty Ltd 1:38:14 PM July 31, 2003

Identity 1 : 230753 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:31:32 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	21.0	22747.0	15702.5	4890.0	4890.0
# 2	28.0	22523.0	15559.5	4814.0	4814.0
Mean	24.5	22635.0	15631.0	4852.0	4852.0
SD	4.9	158.4	101.1	53.7	53.7
%RSD	20.2	0.7	0.6	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : 230753 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:31:32 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0170	6.1358	35.1081	4890.000	97.9541
# 2		0.0655	6.1712	35.3382	4814.000	96.4296
Mean		0.0243	6.1535	35.2231	4852.000	97.1919
SD		0.0583	0.0251	0.1627	53.740	1.0779
%RSD		240.1818	0.4078	0.4618	1.108	1.1091

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230754 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:34:40 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	116024.0	181.0	4856.0	4856.0
# 2	5.5	114573.0	200.0	4790.0	4790.0
Mean	10.0	115298.5	190.5	4823.0	4823.0
SD	6.4	1026.0	13.4	46.7	46.7
%RSD	63.6	0.9	7.1	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230754 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:34:40 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0879 H	31.5132	0.3240	4856.000	97.2721
# 2	L	-0.1875 H	31.5478	0.3731	4790.000	95.9482
Mean	L	-0.1377 H	31.5305	0.3485	4823.000	96.6102
SD		0.0704	0.0245	0.0347	46.669	0.9361
%RSD		51.1562	0.0778	9.9618	0.968	0.9689

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230755 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:37:48 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	24.5	116436.5	121.0	4866.0	4866.0
# 2	24.5	115940.5	104.0	4836.0	4836.0
Mean	24.5	116188.5	112.5	4851.0	4851.0
SD	0.0	350.7	12.0	21.2	21.2

%RSD	0.0	0.3	10.7	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230755 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:37:48 PM July 31, 2003
EVOLUTION by Micro-Active Australia Pty Ltd 1:48:16 PM July 31, 2003

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	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0232 H	31.5602	0.1880	4866.000	97.4727
# 2	0.0249 H	31.6207	0.1512	4836.000	96.8709
Mean	0.0240 H	31.5905	0.1696	4851.000	97.1718
SD	0.0012	0.0428	0.0260	21.213	0.4255
%RSD	4.9835	0.1354	15.3592	0.437	0.4379

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230756 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:40:56 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	5.5	115764.5	87.5	4885.5	4885.5
# 2	17.5	114306.5	83.5	4809.5	4809.5
Mean	11.5	115035.5	85.5	4847.5	4847.5
SD	8.5	1031.0	2.8	53.7	53.7
%RSD	73.8	0.9	3.3	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : 230756 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:40:56 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.1887 H	31.2528	0.1118	4885.500	97.8638
# 2	L	-0.0525 H	31.3468	0.1057	4809.500	96.3394
Mean	L	-0.1206 H	31.2998	0.1088	4847.500	97.1016
SD		0.0963	0.0665	0.0043	53.740	1.0779
%RSD		79.8527	0.2124	3.9096	1.109	1.1101

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230757 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:44:04 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	99963.0	9092.0	4837.5	4837.5
# 2	9.5	99729.0	9053.0	4813.5	4813.5
Mean	11.0	99846.0	9072.5	4825.5	4825.5
SD	2.1	165.5	27.6	17.0	17.0
%RSD	19.3	0.2	0.3	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230757 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:44:04 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.1097 H	27.2548	20.5137	4837.500	96.9010
# 2	L	-0.1428 H	27.3265	20.5276	4813.500	96.4196
Mean	L	-0.1262 H	27.2906	20.5207	4825.500	96.6603
SD		0.0234	0.0508	0.0098	16.971	0.3404
%RSD		18.5346	0.1860	0.0479	0.352	0.3522

EVOLUTION by Micro-Active Australia Pty Ltd 1:53:20 PM July 31, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 1:48:50 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1837.5	18575.5	13216.0	5066.5	5066.5
# 2	1755.5	18142.5	13017.0	4920.5	4920.5
Mean	1796.5	18359.0	13116.5	4993.5	4993.5
SD	58.0	306.2	140.7	103.2	103.2
%RSD	3.2	1.7	1.1	2.1	2.1

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 1:48:50 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.4102	4.8361	28.5035	5066.500 H	101.4943
# 2	19.0902	4.8635	28.9085	4920.500	98.5658
Mean	19.2502	4.8498	28.7060	4993.500 H	100.0301
SD	0.2263	0.0194	0.2864	103.238	2.0708
%RSD	1.1755	0.3997	0.9977	2.067	2.0701

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.250	22.000
Li670	4.500	4.850	5.500
Na589	27.000	28.706	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 1:53:04 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	28.5	-1.5	41.0	5113.0	5113.0
# 2	25.5	-0.5	33.0	5063.0	5063.0
Mean	27.0	-1.0	37.0	5088.0	5088.0
SD	2.1	0.7	5.7	35.4	35.4
%RSD	7.9	70.7	15.3	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 1:53:04 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0524	0.0001	0.0034	5113.000 H	102.4270
# 2	0.0233	0.0004 L	-0.0131	5063.000 H	101.4241
Mean	0.0378	0.0003 L	-0.0049	5088.000 H	101.9256
SD	0.0206	0.0002	0.0116	35.355	0.7092
%RSD	54.4569	67.2667	239.0231	0.695	0.6958

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	0.038
Li670	0.010	0.000
Na589	0.050	-0.005
Sc361	0.000	101.926

010077

EVOLUTION by Micro-Active Australia Pty Ltd 2:03:50 PM July 31, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230758 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:56:12 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	30.5	114998.0	288.0	4824.0	4824.0
# 2	23.5	114285.0	292.0	4780.0	4780.0
Mean	27.0	114641.5	290.0	4802.0	4802.0
SD	4.9	504.2	2.8	31.1	31.1
%RSD	18.3	0.4	1.0	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230758 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:56:12 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0930 H	31.4417	0.5698	4824.000	96.6302
# 2	0.0167 H	31.5344	0.5850	4780.000	95.7477
Mean	0.0549 H	31.4880	0.5774	4802.000	96.1889
SD	0.0539	0.0655	0.0107	31.113	0.6241
%RSD	98.2506	0.2081	1.8608	0.648	0.6488

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230759 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:59:20 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.5	80.5	39.0	4794.5	4794.5
# 2	12.5	86.5	26.0	4750.5	4750.5
Mean	13.0	83.5	32.5	4772.5	4772.5
SD	0.7	4.2	9.2	31.1	31.1
%RSD	5.4	5.1	28.3	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230759 Identity 2 : pg54-129 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:59:20 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0971	0.0227	0.0046	4794.500	96.0385
# 2 L	-0.1071	0.0245 L	-0.0245	4750.500	95.1560
Mean L	-0.1021	0.0236 L	-0.0100	4772.500	95.5972
SD	0.0071	0.0013	0.0206	31.113	0.6241
%RSD	6.9224	5.6037	207.0998	0.652	0.6528

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-G31W2 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:03:34 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.5	-11.0	38.0	4847.0	4847.0
# 2	13.5	-25.0	55.0	4805.0	4805.0

Mean	12.5	-18.0	46.5	4826.0	4826.0
SD	1.4	9.9	12.0	29.7	29.7
%RSD	11.3	55.0	25.9	0.6	0.6

APPARENT CONCENTRATIONS
EVOLUTION by Micro-Active Australia Pty Ltd 2:03:50 PM July 31, 2003 010078

Identity 1 : pbw-G31W2 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:03:34 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.1211	L	-0.0025	0.0014	4847.000	97.0916
# 2	L	-0.0975	L	-0.0063	0.0409	4805.000	96.2491
Mean	L	-0.1093	L	-0.0044	0.0212	4826.000	96.6703
SD		0.0167		0.0027	0.0279	29.698	0.5957
%RSD		15.3245		62.1871	132.0782	0.615	0.6162

EVOLUTION by Micro-Active Australia Pty Ltd 2:13:18 PM July 31, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-G31W2 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:06:40 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1740.5	-3.0	8669.0	4759.0	4759.0
# 2	1749.5	0.0	8566.0	4707.0	4707.0
Mean	1745.0	-1.5	8617.5	4733.0	4733.0
SD	6.4	2.1	72.8	36.8	36.8
%RSD	0.4	141.4	0.8	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : lcsw-G31W2 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:06:40 PM July 31, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	19.5757 L	-0.0003	19.8794	4759.000	95.3264
# 2	19.8983	0.0005	19.8601	4707.000	94.2834
Mean	19.7370	0.0001	19.8697	4733.000	94.8049
SD	0.2282	0.0006	0.0136	36.770	0.7375
%RSD	1.1560	521.6567	0.0686	0.777	0.7779

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:09:50 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	8.0	57484.0	26590.0	4855.0	4855.0
# 2	14.0	56892.0	26281.0	4804.0	4804.0
Mean	11.0	57188.0	26435.5	4829.5	4829.5
SD	4.2	418.6	218.5	36.1	36.1
%RSD	38.6	0.7	0.8	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230760 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:09:50 PM July 31, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1 L	-0.1604 H	15.6167 H	59.9389	4855.000	97.2520
# 2 L	-0.0918 H	15.6199 H	59.8712	4804.000	96.2291
Mean L	-0.1261 H	15.6183 H	59.9051	4829.500	96.7405
SD	0.0485	0.0023	0.0479	36.062	0.7233
%RSD	38.4943	0.0147	0.0799	0.747	0.7477

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760d Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:12:58 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	9.5	57656.0	26624.5	4847.0	4847.0
# 2	15.5	57552.0	26651.5	4819.0	4819.0
Mean	12.5	57604.0	26638.0	4833.0	4833.0

SD	4.2	73.5	19.1	19.8	19.8
%RSD	33.9	0.1	0.1	0.4	0.4

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APPARENT CONCENTRATIONS
Identity 1 : 230760d Identity 2 : pg54-130 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 2:22:48 PM July 31, 2003

Weight : 1.0000 Volume : 1.00 Printed : 2:12:58 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.1435 H	15.6892 H	60.1160	4847.000	97.0916
# 2	L	-0.0754 H	15.7519 H	60.5272	4819.000	96.5299
Mean	L	-0.1095 H	15.7206 H	60.3216	4833.000	96.8108
SD		0.0482	0.0443	0.2908	19.799	0.3971
%RSD		44.0009	0.2820	0.4820	0.410	0.4102

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760s Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:16:04 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1839.5	57062.5	35128.5	4778.0	4778.0
# 2	1816.5	55880.5	34373.5	4672.0	4672.0
Mean	1828.0	56471.5	34751.0	4725.0	4725.0
SD	16.3	835.8	533.9	75.0	75.0
%RSD	0.9	1.5	1.5	1.6	1.6

APPARENT CONCENTRATIONS
Identity 1 : 230760s Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:16:04 PM July 31, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	20.6200 H	15.7520 H	80.4914	4778.000	95.7076
# 2	20.8267 H	15.7757 H	80.5485	4672.000	93.5814
Mean	20.7233 H	15.7638 H	80.5199	4725.000	94.6445
SD	0.1461	0.0168	0.0404	74.953	1.5034
%RSD	0.7051	0.1063	0.0501	1.586	1.5885

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230761 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:19:14 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	30.5	34776.0	11476.5	4818.5	4818.5
# 2	25.5	34585.0	11363.5	4780.5	4780.5
Mean	28.0	34680.5	11420.0	4799.5	4799.5
SD	3.5	135.1	79.9	26.9	26.9
%RSD	12.6	0.4	0.7	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230761 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:19:14 PM July 31, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0934	9.5194	26.0184	4818.500	96.5199
# 2	0.0394	9.5423	25.9668	4780.500	95.7577
Mean	0.0664	9.5308	25.9926	4799.500	96.1388
SD	0.0382	0.0162	0.0365	26.870	0.5390

%RSD	57.4879	0.1704	0.1403	0.560	0.5606

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230762 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:22:22 PM July 31, 2003
EVOLUTION by Micro-Active Australia Pty Ltd 2:30:26 PM July 31, 2003

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	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	82667.5	16328.5	4852.5	4852.5
# 2	20.5	82032.5	16276.5	4808.5	4808.5
Mean	17.5	82350.0	16302.5	4830.5	4830.5
SD	4.2	449.0	36.8	31.1	31.1
%RSD	24.2	0.5	0.2	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230762 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:22:22 PM July 31, 2003

		K_766		Li670	Na589	Sc	Sc361
		ppm		ppm	ppm		ppm
# 1	L	-0.0878	H	22.4696	36.7939	4852.500	97.2019
# 2	L	-0.0187	H	22.5010	37.0129	4808.500	96.3193
Mean	L	-0.0532	H	22.4853	36.9034	4830.500	96.7606
SD		0.0489		0.0222	0.1548	31.113	0.6241
%RSD		91.8506		0.0988	0.4195	0.644	0.6450

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230763 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:25:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.0	88175.5	13742.5	4879.0	4879.0
# 2	10.0	87228.5	13630.5	4817.0	4817.0
Mean	10.5	87702.0	13686.5	4848.0	4848.0
SD	0.7	669.6	79.2	43.8	43.8
%RSD	6.7	0.8	0.6	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : 230763 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:25:30 PM July 31, 2003

		K_766		Li670	Na589	Sc	Sc361
		ppm		ppm	ppm		ppm
# 1	L	-0.1275	H	23.8365	30.7848	4879.000	97.7334
# 2	L	-0.1372	H	23.8840	30.9273	4817.000	96.4898
Mean	L	-0.1324	H	23.8602	30.8560	4848.000	97.1116
SD		0.0068		0.0336	0.1008	43.841	0.8794
%RSD		5.1707		0.1408	0.3266	0.904	0.9055

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 2:30:16 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1804.5	18321.0	13110.5	5017.5	5017.5
# 2	1784.5	18285.0	13059.5	4950.5	4950.5
Mean	1794.5	18303.0	13085.0	4984.0	4984.0
SD	14.1	25.5	36.1	47.4	47.4
%RSD	0.8	0.1	0.3	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 2:30:16 PM July 31, 2003

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	K_766	Li670	Na589	Sc	Sc361
EVOLUTION by Micro-Active Australia Pty Ltd 2:37:54 PM July 31, 2003					
	ppm	ppm	ppm		ppm
# 1	19.2457	4.8164	28.5522	5017.500 H	100.5115
# 2	19.2906	4.8720	28.8269	4950.500	99.1676
Mean	19.2681	4.8442	28.6896	4984.000	99.8395
SD	0.0317	0.0393	0.1942	47.376	0.9503
%RSD	0.1646	0.8114	0.6770	0.951	0.9518

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.268	22.000
Li670	4.500	4.844	5.500
Na589	27.000	28.690	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 2:34:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.5	-4.5	43.5	5073.5	5073.5
# 2	22.5	3.5	45.5	5022.5	5022.5
Mean	21.5	-0.5	44.5	5048.0	5048.0
SD	1.4	5.7	1.4	36.1	36.1
%RSD	6.6	1131.4	3.2	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 2:34:30 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0307 L	-0.0006	0.0094	5073.500 H	101.6347
# 2 L	-0.0069	0.0014	0.0148	5022.500 H	100.6118
Mean L	-0.0188	0.0004	0.0121	5048.000 H	101.1233
SD	0.0168	0.0015	0.0038	36.062	0.7233
%RSD	89.4680	366.4798	31.0741	0.714	0.7153

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.019
Li670	0.010	0.000
Na589	0.050	0.012
Sc361	0.000	101.123

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230764 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:37:38 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	17.5	95764.0	10679.0	4862.0	4862.0
# 2	17.5	94045.0	10424.0	4770.0	4770.0
Mean	17.5	94904.5	10551.5	4816.0	4816.0
SD	0.0	1215.5	180.3	65.1	65.1
%RSD	0.0	1.3	1.7	1.4	1.4

APPARENT CONCENTRATIONS
Identity 1 : 230764 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:37:38 PM July 31, 2003

EVOLUTION by Micro-Active Australia Pty Ltd 2:47:20 PM July 31, 2003

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		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0546	H	25.9784	23.9872	4862.000	97.3924
# 2	L	-0.0509	H	26.0041	23.8656	4770.000	95.5471
Mean	L	-0.0528	H	25.9912	23.9264	4816.000	96.4698
SD		0.0027		0.0182	0.0860	65.054	1.3049
%RSD		5.0434		0.0700	0.3594	1.351	1.3526

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230765 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:40:46 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.5	100999.5	9178.5	4867.0	4867.0
# 2	9.5	99031.5	9007.5	4774.0	4774.0
Mean	16.0	100015.5	9093.0	4820.5	4820.5
SD	9.2	1391.6	120.9	65.8	65.8
%RSD	57.5	1.4	1.3	1.4	1.4

APPARENT CONCENTRATIONS
Identity 1 : 230765 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:40:46 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0008	H	27.3704	20.5837	4867.000	97.4927
# 2	L	-0.1419	H	27.3599	20.5937	4774.000	95.6273
Mean	L	-0.0705	H	27.3652	20.5887	4820.500	96.5600
SD		0.1009		0.0074	0.0071	65.761	1.3190
%RSD		143.1171		0.0272	0.0346	1.364	1.3660

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230766 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:43:54 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.0	103812.5	7057.5	4829.5	4829.5
# 2	20.0	103450.5	7044.5	4798.5	4798.5
Mean	18.0	103631.5	7051.0	4814.0	4814.0
SD	2.8	256.0	9.2	21.9	21.9
%RSD	15.7	0.2	0.1	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230766 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:43:54 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0702	H	28.3512	15.9310	4829.500	96.7405
# 2	L	-0.0238	H	28.4348	16.0048	4798.500	96.1187
Mean	L	-0.0470	H	28.3930	15.9679	4814.000	96.4296
SD		0.0328		0.0592	0.0522	21.920	0.4397
%RSD		69.7397		0.2083	0.3267	0.455	0.4560

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230767 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:47:02 PM July 31, 2003

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EVOLUTION by Micro-Active Australia Pty Ltd 2:53:36 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.5	36911.5	34873.0	4893.0	4893.0
# 2	20.5	36379.5	34476.0	4829.0	4829.0
Mean	18.5	36645.5	34674.5	4861.0	4861.0
SD	2.8	376.2	280.7	45.3	45.3
%RSD	15.3	1.0	0.8	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : 230767 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:47:04 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0670	9.9500 H	78.0253	4893.000	98.0142
# 2	L	-0.0196	9.9366 H	78.1596	4829.000	96.7305
Mean	L	-0.0433	9.9433 H	78.0925	4861.000	97.3724
SD		0.0335	0.0095	0.0949	45.255	0.9077
%RSD		77.2908	0.0956	0.1215	0.931	0.9322

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230768 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:50:12 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	62705.5	25424.0	4881.0	4881.0
# 2	7.5	61997.5	25245.0	4821.0	4821.0
Mean	10.0	62351.5	25334.5	4851.0	4851.0
SD	3.5	500.6	126.6	42.4	42.4
%RSD	35.4	0.8	0.5	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : 230768 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:50:12 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.1109 H	16.9444 H	57.0011	4881.000	97.7735
# 2	L	-0.1654 H	16.9616 H	57.3047	4821.000	96.5701
Mean	L	-0.1382 H	16.9530 H	57.1529	4851.000	97.1718
SD		0.0385	0.0122	0.2146	42.426	0.8510
%RSD		27.8858	0.0717	0.3755	0.875	0.8758

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230769 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:53:20 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	4.0	85998.0	15008.0	4836.0	4836.0
# 2	3.0	85116.0	14799.0	4794.0	4794.0
Mean	3.5	85557.0	14903.5	4815.0	4815.0
SD	0.7	623.7	147.8	29.7	29.7
%RSD	20.2	0.7	1.0	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230769 Identity 2 : pg54-130 Type : SAMPLE

Weight : 1.0000 Volume : 1.00 Printed : 2:53:20 PM July 31, 2003

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		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.2049	H	23.4546	33.9272	4836.000	96.8709

EVOLUTION by Micro-Active Australia Pty Ltd 3:03:02 PM July 31, 2003

# 2	L	-0.2158	H	23.4174	33.7474	4794.000	96.0285
Mean	L	-0.2104	H	23.4360	33.8373	4815.000	96.4497
SD		0.0077		0.0263	0.1272	29.698	0.5957
%RSD		3.6686		0.1122	0.3758	0.617	0.6176

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230770 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:56:28 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	3.0	98242.5	10176.0	4842.5	4842.5
# 2	17.0	97739.5	10139.0	4808.5	4808.5
Mean	10.0	97991.0	10157.5	4825.5	4825.5
SD	9.9	355.7	26.2	24.0	24.0
%RSD	99.0	0.4	0.3	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230770 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:56:28 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.2162	H	26.7580	22.9458	4842.500	97.0013
# 2	L	-0.0581	H	26.8092	23.0243	4808.500	96.3193
Mean	L	-0.1371	H	26.7836	22.9850	4825.500	96.6603
SD		0.1118		0.0362	0.0555	24.042	0.4822
%RSD		81.4988		0.1353	0.2415	0.498	0.4989

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230771 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:59:36 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.0	111967.5	5127.0	4875.5	4875.5
# 2	6.0	110581.5	5108.0	4807.5	4807.5
Mean	10.0	111274.5	5117.5	4841.5	4841.5
SD	5.7	980.0	13.4	48.1	48.1
%RSD	56.6	0.9	0.3	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230771 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:59:36 PM July 31, 2003

		K_766 ppm		Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0941	H	30.2898	11.4403	4875.500	97.6632
# 2	L	-0.1821	H	30.3380	11.5600	4807.500	96.2993
Mean	L	-0.1381	H	30.3139	11.5002	4841.500	96.9812
SD		0.0622		0.0341	0.0846	48.083	0.9645
%RSD		45.0602		0.1124	0.7360	0.993	0.9945

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230772 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:02:46 PM July 31, 2003

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	K_766	Li670	Na589	Sc	Sc361
# 1	16.5	115876.5	37.5	4841.5	4841.5
# 2	6.5	115568.5	66.5	4810.5	4810.5

EVOLUTION by Micro-Active Australia Pty Ltd 3:10:52 PM July 31, 2003

Mean	11.5	115722.5	52.0	4826.0	4826.0
SD	7.1	217.8	20.5	21.9	21.9
%RSD	61.5	0.2	39.4	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230772 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:02:46 PM July 31, 2003

		K_766		Li670	Na589	Sc	Sc361
		ppm		ppm	ppm		ppm
# 1	L	-0.0650	H	31.5674	0.0004	4841.500	96.9812
# 2	L	-0.1765	H	31.6863	0.0670	4810.500	96.3594
Mean	L	-0.1208	H	31.6268	0.0337	4826.000	96.6703
SD		0.0788		0.0841	0.0471	21.920	0.4397
%RSD		65.2854		0.2660	139.8935	0.454	0.4548

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230773 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:05:54 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	431.0	78.5	1096.0	4842.0	4842.0
# 2	433.0	96.5	1066.0	4820.0	4820.0
Mean	432.0	87.5	1081.0	4831.0	4831.0
SD	1.4	12.7	21.2	15.6	15.6
%RSD	0.3	14.5	2.0	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230773 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:05:54 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	4.5755	0.0219	2.3962	4842.000	96.9913
# 2	4.6200	0.0269	2.3393	4820.000	96.5500
Mean	4.5977	0.0244	2.3678	4831.000	96.7706
SD	0.0315	0.0036	0.0402	15.556	0.3120
%RSD	0.6846	14.5431	1.6990	0.322	0.3224

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 3:10:40 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1786.5	18496.5	13087.5	5020.0	5020.0
# 2	1771.5	18409.5	12973.5	4963.0	4963.0
Mean	1779.0	18453.0	13030.5	4991.5	4991.5
SD	10.6	61.5	80.6	40.3	40.3
%RSD	0.6	0.3	0.6	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 3:10:40 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361

	ppm	ppm	ppm		ppm
# 1	19.0416	4.8601	28.4877	5020.000 H	100.5616
# 2	19.0994	4.8928	28.5642	4963.000	99.4183
Mean	19.0705	4.8765	28.5260	4991.500	99.9900

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EVOLUTION by Micro-Active Australia Pty Ltd 3:18:24 PM July 31, 2003

SD	0.0408	0.0231	0.0540	40.305	0.8084
%RSD	0.2140	0.4741	0.1894	0.807	0.8085

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.070	22.000
Li670	4.500	4.876	5.500
Na589	27.000	28.526	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 3:14:54 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.0	1.5	26.0	5109.5	5109.5
# 2	14.0	-0.5	21.0	5027.5	5027.5
Mean	19.5	0.5	23.5	5068.5	5068.5
SD	7.8	1.4	3.5	58.0	58.0
%RSD	39.9	282.8	15.0	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 3:14:54 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0155	0.0009 L	-0.0288	5109.500 H	102.3568
# 2 L	-0.0988	0.0004 L	-0.0387	5027.500 H	100.7121
Mean L	-0.0417	0.0007 L	-0.0338	5068.500 H	101.5344
SD	0.0808	0.0004	0.0071	57.983	1.1630
%RSD	193.9479	55.8388	20.9301	1.144	1.1455

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.042
Li670	0.010	0.001
Na589	0.050	-0.034
Sc361	0.000	101.534

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230774 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:18:02 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	433.0	-7.0	1093.0	4813.5	4813.5
# 2	419.0	-16.0	1057.0	4735.5	4735.5
Mean	426.0	-11.5	1075.0	4774.5	4774.5
SD	9.9	6.4	25.5	55.2	55.2
%RSD	2.3	55.3	2.4	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : 230774 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:18:02 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	4.6265 L	-0.0014	2.4041	4813.500	96.4196
# 2	4.5466 L	-0.0039	2.3617	4735.500	94.8551

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EVOLUTION by Micro-Active Australia Pty Ltd 3:27:54 PM July 31, 2003

Mean	4.5866 L	-0.0027	2.3829	4774.500	95.6373
SD	0.0565	0.0018	0.0299	55.154	1.1063
%RSD	1.2324	67.5061	1.2560	1.155	1.1568

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:21:10 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.5	11945.5	14670.0	4871.5	4871.5
# 2	24.5	11882.5	14584.0	4844.5	4844.5
Mean	25.0	11914.0	14627.0	4858.0	4858.0
SD	0.7	44.5	60.8	19.1	19.1
%RSD	2.8	0.4	0.4	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230868 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:21:10 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0340	3.2347	32.9189	4871.500	97.5830
# 2	0.0244	3.2355	32.9083	4844.500	97.0414
Mean	0.0292	3.2351	32.9136	4858.000	97.3122
SD	0.0068	0.0006	0.0075	19.092	0.3829
%RSD	23.2728	0.0191	0.0228	0.393	0.3935

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868d Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:24:18 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.5	11969.0	14647.0	4905.0	4905.0
# 2	15.5	11890.0	14591.0	4862.0	4862.0
Mean	19.0	11929.5	14619.0	4883.5	4883.5
SD	4.9	55.9	39.6	30.4	30.4
%RSD	26.1	0.5	0.3	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230868d Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:24:18 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0011	3.2189	32.6421	4905.000	98.2549
# 2 L	-0.0769	3.2259	32.8053	4862.000	97.3924
Mean L	-0.0390	3.2224	32.7237	4883.500	97.8237
SD	0.0536	0.0050	0.1154	30.406	0.6099
%RSD	137.4495	0.1543	0.3527	0.623	0.6234

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868s Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:27:28 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361

# 1	1901.0	11887.5	23894.5	4783.0	4783.0
# 2	1898.0	11742.5	23547.5	4701.0	4701.0
Mean	1899.5	11815.0	23721.0	4742.0	4742.0
SD	2.1	102.5	245.4	58.0	58.0
%RSD	0.1	0.9	1.0	1.2	1.2

EVOLUTION by Micro-Active Australia Pty Ltd 3:33:54 PM July 31, 2003

010089

APPARENT CONCENTRATIONS
Identity 1 : 230868s Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:27:28 PM July 31, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	21.2952	3.2785 H	54.6661	4783.000	95.8078
# 2	21.6364	3.2950 H	54.8122	4701.000	94.1631
Mean	21.4658	3.2868 H	54.7392	4742.000	94.9855
SD	0.2413	0.0117	0.1033	57.983	1.1630
%RSD	1.1240	0.3549	0.1887	1.223	1.2244

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230869 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:30:36 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	18066.5	12254.0	4915.5	4915.5
# 2	28.5	17877.5	12040.0	4867.5	4867.5
Mean	21.5	17972.0	12147.0	4891.5	4891.5
SD	9.9	133.6	151.3	33.9	33.9
%RSD	46.0	0.7	1.2	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230869 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:30:36 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0899	4.8481	27.2368	4915.500	98.4656
# 2		0.0676	4.8447	27.0244	4867.500	97.5028
Mean	L	-0.0111	4.8464	27.1306	4891.500	97.9842
SD		0.1114	0.0024	0.1502	33.941	0.6808
%RSD		1002.7908	0.0497	0.5536	0.694	0.6948

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230870 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:33:44 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.5	26668.0	8555.5	4922.0	4922.0
# 2	19.5	26347.0	8485.5	4839.0	4839.0
Mean	20.0	26507.5	8520.5	4880.5	4880.5
SD	0.7	227.0	49.5	58.7	58.7
%RSD	3.5	0.9	0.6	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : 230870 Identity 2 : pg54-130 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 3:33:44 PM July 31, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0240	7.1466	18.9655	4922.000	98.5959

# 2	L	-0.0313	7.1816	19.1337	4839.000	96.9311
Mean	L	-0.0276	7.1641	19.0496	4880.500	97.7635
SD		0.0052	0.0248	0.1189	58.690	1.1772
%RSD		18.7472	0.3462	0.6244	1.203	1.2041

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EVOLUTION by Micro-Active Australia Pty Ltd 3:42:56 PM July 31, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 3:38:32 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1777.5	18478.0	13110.0	5000.0	5000.0
# 2	1776.5	18398.0	13028.0	4942.0	4942.0
Mean	1777.0	18438.0	13069.0	4971.0	4971.0
SD	0.7	56.6	58.0	41.0	41.0
%RSD	0.0	0.3	0.4	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 3:38:32 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.0212	4.8747	28.6514	5000.000 H	100.1605
# 2	19.2364	4.9105	28.8068	4942.000	98.9971
Mean	19.1288	4.8926	28.7291	4971.000	99.5788
SD	0.1522	0.0254	0.1099	41.012	0.8226
%RSD	0.7955	0.5182	0.3825	0.825	0.8261

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.129	22.000
Li670	4.500	4.893	5.500
Na589	27.000	28.729	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 3:42:44 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	-14.0	33.0	5089.5	5089.5
# 2	4.5	-12.0	40.0	5014.5	5014.5
Mean	9.5	-13.0	36.5	5052.0	5052.0
SD	7.1	1.4	4.9	53.0	53.0
%RSD	74.4	10.9	13.6	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 3:42:44 PM July 31, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0953 L	-0.0031 L	-0.0135	5089.500 H	101.9557
# 2 L	-0.2011 L	-0.0026	0.0029	5014.500 H	100.4513
Mean L	-0.1482 L	-0.0029 L	-0.0053	5052.000 H	101.2035
SD	0.0748	0.0003	0.0116	53.033	1.0637
%RSD	50.4721	11.6491	219.0452	1.050	1.0511

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	-0.148	Contaminated
Li670	0.010	-0.003	
Na589	0.050	-0.005	
Sc361	0.000	101.203	

EVOLUTION by Micro-Active Australia Pty Ltd 3:52:56 PM July 31, 2003

010091

ICP ANALYSIS

Ca, Si

SAR

PROJ. NO.	PROJECT	TO#	DATE	MATRIX	LOGBK PG
06002.01.141	DIV 20	030721-18, 030722-12	7-31-03	WATER	54 131
↓	DIV. 20	030721-18, 030722-12	7-31-03	WATER	54 132

INSTRUMENT: TRACE1 FILENAME: A030731

INSTRUMENT DL:

010092

Standardization Rpt. 07/31/03 01:49:18 PM page 1

Method: DAILY1 Standard: blk
Run Time: 07/31/03 13:44:18

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Avge	-.00000	.0008	-.0000	.0004	-.0000	-.0002	.0000
SDev	.00002	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	1092.8	1.841	129.1	3.788	.1471	.8237	423.1
#1	-.00002	.0008	-.0000	.0004	-.0000	-.0002	-.0000
#2	.00002	.0008	-.0000	.0004	-.0000	-.0002	.0000

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Avge	.0001	.0000	.0000	.0004	.0005	.0001	.0021
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0003
%RSD	4.112	293.2	235.4	.5708	1.516	9.607	14.83
#1	.0001	-.0000	-.0000	.0005	.0005	.0001	.0019
#2	.0001	.0000	.0000	.0004	.0005	.0001	.0024

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Avge	.0005	.0003	-.0000	.0001	.0000	-.0104	-.0002
SDev	.0000	.0000	.0000	.0000	.0000	.0001	.0000
%RSD	6.694	.8106	141.4	.8419	94.20	.9953	2.392
#1	.0005	.0003	-.0000	.0001	.0000	-.0104	-.0002
#2	.0005	.0003	.0000	.0001	.0000	-.0103	-.0002

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Avge	.0010	.0001	.0001	.0000	.0000	-.0000	.0000
SDev	.0000	.0000	.0001	.0001	.0000	.0000	.0000
%RSD	2.342	20.55	84.47	1445.	235.4	70.82	641.4
#1	.0010	.0001	.0000	.0001	-.0000	-.0000	-.0000
#2	.0010	.0001	.0001	-.0001	.0000	-.0000	.0000

Elem	Sc3613	1960/1	1960/2	Si2881	Sn1899	Sr4215	Th2837
Avge	65.68	.0001	.0001	.0017	.0000	.0000	.0000
SDev	.10	.0001	.0000	.0000	.0000	.0000	.0000
%RSD	.1541	162.9	49.37	.8382	150.2	22.95	8.465
#1	65.75	.0001	.0001	.0017	-.0000	.0000	.0000
#2	65.61	-.0000	.0000	.0017	.0001	.0000	.0000

Elem	Ti3372	Tl1908	U_3859	V_2924	W_2079	Y_3710	Zn2062
Avge	-.0014	-.0000	.0043	-.0000	.0000	-.0000	.0000
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	.9132	83.29	.2988	47.27	97.98	60.73	47.27
#1	-.0014	-.0000	.0042	-.0000	.0000	-.0000	.0000
#2	-.0014	-.0000	.0043	-.0000	.0000	-.0000	.0000

Elem	Zr3496
Avge	.0002
SDev	.0000
%RSD	15.43
#1	.0002
#2	.0002

8/4/03

SWRI 54 04

4 Sept 03

7-31-03

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	656768	10000	--	--	--	--	--
SDev	965.9078	.0000000	--	--	--	--	--
%RSD	.1470699	.0000000	--	--	--	--	--
#1	657451	10000	--	--	--	--	--
#2	656085	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 01:53:43 PM page 1

Method: DAILY1 Standard: clp_std4
Run Time: 07/31/03 13:49:28

Elem	Ag3280	As1890	2203/1	2203/2	Sb2068	1960/1	1960/2
Avge	.05493	.1193	.4615	.4795	.1237	.2455	.4314
SDev	.00009	.0001	.0033	.0003	.0002	.0022	.0041
%RSD	.15410	.1141	.7133	.0646	.1330	.8791	.9542
#1	.05499	.1192	.4638	.4797	.1236	.2470	.4285
#2	.05487	.1194	.4591	.4793	.1238	.2440	.4343

Elem	Tl1908
Avge	.0323
SDev	.0001
%RSD	.2268
#1	.0323
#2	.0324

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	651528	10000	--	--	--	--	--
SDev	6680.745	.0000000	--	--	--	--	--
%RSD	1.025397	.0000000	--	--	--	--	--
#1	646804	10000	--	--	--	--	--
#2	656252	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 01:58:08 PM page 1

Method: DAILY1 Standard: clp_std1
Run Time: 07/31/03 13:53:53

Elem	Al3082	Ca3179	Fe2714	K_7664	Li6707	Mg2790	Na3302
Avge	.1288	.1555	.1083	1.478	3.033	.0584	.0117
SDev	.0003	.0010	.0004	.008	.007	.0003	.0001
%RSD	.2225	.6611	.3304	.5663	.2332	.4465	.6564
#1	.1290	.1562	.1086	1.484	3.038	.0585	.0117
#2	.1286	.1548	.1081	1.472	3.028	.0582	.0116

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	652418	10000	--	--	--	--	--
SDev	5190.871	.0000000	--	--	--	--	--
%RSD	.7956364	.0000000	--	--	--	--	--
#1	648747	10000	--	--	--	--	--
#2	656088	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:10:31 PM page 1

Method: DAILY1 Standard: blk
Run Time: 07/31/03 14:05:33

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Avge	-.00000	.0008	-.0000	.0004	-.0000	-.0001	.0000
SDev	.00001	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	606.83	2.488	32.46	2.752	16.05	1.904	179.3
#1	-.00001	.0008	-.0000	.0004	-.0000	-.0001	-.0000
#2	.00001	.0007	-.0000	.0004	-.0000	-.0001	.0000

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Avge	.0000	-.0000	-.0000	.0000	.0005	-.0001	.0017
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0001
%RSD	4.374	123.8	141.4	9.527	2.554	29.34	5.526
#1	.0000	-.0000	-.0000	.0000	.0005	-.0001	.0018
#2	.0000	-.0000	.0000	.0000	.0005	-.0000	.0017

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Avge	.0005	.0003	-.0000	.0000	-.0000	-.0074	-.0002
SDev	.0000	.0000	.0000	.0000	.0000	.0002	.0000
%RSD	5.561	6.849	28.61	70.45	38.88	2.741	8.089
#1	.0004	.0004	-.0000	.0000	-.0000	-.0073	-.0002
#2	.0005	.0003	-.0000	.0000	-.0000	-.0076	-.0002

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Avge	-.0000	.0001	.0001	-.0000	-.0000	.0000	.0000
SDev	.0000	.0000	.0001	.0001	.0000	.0000	.0000
%RSD	96.94	.7387	131.1	150.8	17.34	70.45	1797.
#1	-.0001	.0001	.0000	-.0001	-.0000	.0000	-.0000
#2	-.0000	.0001	.0002	.0000	-.0000	.0000	.0000

Elem	Sc3613	1960/1	1960/2	Si2881	Sn1899	Sr4215	Th2837
Avge	69.90	-.0001	.0001	.0018	.0000	.0000	.0000
SDev	.24	.0002	.0001	.0000	.0001	.0000	.0000
%RSD	.3411	201.8	97.73	.4461	146.1	12.52	70.45
#1	69.73	-.0002	.0000	.0018	-.0000	.0000	.0000
#2	70.06	.0000	.0003	.0018	.0001	.0000	.0000

Elem	Ti3372	Tl1908	U_3859	V_2924	W_2079	Y_3710	Zn2062
Avge	-.0014	-.0000	.0041	-.0000	.0001	-.0000	.0000
SDev	.0000	.0000	.0000	.0000	.0001	.0000	.0000
%RSD	1.114	5.809	.6219	47.44	82.27	141.4	13.19
#1	-.0014	-.0000	.0041	-.0000	.0000	-.0000	.0000
#2	-.0014	-.0000	.0041	-.0000	.0002	.0000	.0000

Elem	Zr3496
Avge	.0001
SDev	.0000
%RSD	27.65
#1	.0001
#2	.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	698930	10000	--	--	--	--	--
SDev	2382.243	.0000000	--	--	--	--	--
%RSD	.3408416	.0000000	--	--	--	--	--
#1	697245	10000	--	--	--	--	--
#2	700614	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:14:55 PM page 1

Method: DAILY1 Standard: clp_std4
Run Time: 07/31/03 14:10:40

Elem	Ag3280	As1890	2203/1	2203/2	Sb2068	1960/1	1960/2
Avge	.05419	.1179	.4576	.4710	.1234	.2476	.4371
SDev	.00037	.0009	.0017	.0030	.0007	.0013	.0068
%RSD	.68838	.7752	.3786	.6341	.5696	.5278	1.563
#1	.05393	.1172	.4563	.4689	.1229	.2466	.4323
#2	.05445	.1185	.4588	.4731	.1239	.2485	.4420

Elem	Tl1908
Avge	.0319
SDev	.0002
%RSD	.6002
#1	.0317
#2	.0320

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	718336	10000	--	--	--	--	--
SDev	3157.232	.0000000	--	--	--	--	--
%RSD	.4395205	.0000000	--	--	--	--	--
#1	720568	10000	--	--	--	--	--
#2	716103	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:19:19 PM

Method: DAILY1 Standard: clp_std1
Run Time: 07/31/03 14:15:04

Elem	Al3082	Ca3179	Fe2714	K_7664	Li6707	Mg2790	Na3302
Avge	.1310	.1480	.1059	1.542	3.125	.0573	.0119
SDev	.0001	.0003	.0001	.002	.007	.0002	.0000
%RSD	.1122	.2255	.0873	.1487	.2234	.3705	.2567
#1	.1308	.1478	.1058	1.541	3.120	.0571	.0119
#2	.1311	.1482	.1060	1.544	3.130	.0574	.0119

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	705672	10000	--	--	--	--	--
SDev	979.3429	.0000000	--	--	--	--	--
%RSD	.1387815	.0000000	--	--	--	--	--
#1	704980	10000	--	--	--	--	--
#2	706365	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:23:22 PM page 1

Method: DAILY1 Standard: clp_std5
Run Time: 07/31/03 14:19:28

Elem	B_2496	Bi2230	Mo2020	P_1782	Si2881	Sn1899	Sr4215
Avge	.4084	.0629	.1664	.0471	.1389	.1943	1.472
SDev	.0002	.0001	.0002	.0002	.0006	.0002	.005
%RSD	.0406	.1493	.1367	.4101	.4312	.1012	.3465
#1	.4083	.0630	.1666	.0470	.1393	.1944	1.475
#2	.4086	.0628	.1662	.0473	.1385	.1942	1.468

Elem	Ti3372
Avge	1.057
SDev	.003
%RSD	.2686
#1	1.059
#2	1.055

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	708394	10000	--	--	--	--	--
SDev	9760.195	.0000000	--	--	--	--	--
%RSD	1.377793	.0000000	--	--	--	--	--
#1	701492	10000	--	--	--	--	--
#2	715295	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:27:03 PM page 1

Method: DAILY1 Standard: clp_std2
Run Time: 07/31/03 14:23:31

Elem	Ba4934	Be3130	Cr2677	Cu3247	Ni2316
Avge	.6077	.2567	.2993	.3237	.7814
SDev	.0006	.0012	.0005	.0012	.0003
%RSD	.0958	.4547	.1540	.3630	.0405
#1	.6081	.2559	.2990	.3229	.7816
#2	.6073	.2575	.2996	.3246	.7811

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	699035	10000	--	--	--	--	--
SDev	5146.323	.0000000	--	--	--	--	--
%RSD	.7362039	.0000000	--	--	--	--	--
#1	695396	10000	--	--	--	--	--
#2	702674	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:31:27 PM page 1

Method: DAILY1 Standard: clp_std3
Run Time: 07/31/03 14:27:12

Elem	Cd2265	Co2286	Mn2576	V_2924	Zn2062
Avge	1.215	.2804	.4173	.0757	.0926
SDev	.009	.0020	.0024	.0006	.0006
%RSD	.7810	.7264	.5672	.7598	.6916
#1	1.209	.2790	.4156	.0753	.0922
#2	1.222	.2819	.4190	.0761	.0931

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	697372	10000	--	--	--	--	--
SDev	2617.002	.0000000	--	--	--	--	--
%RSD	.3752661	.0000000	--	--	--	--	--
#1	699223	10000	--	--	--	--	--
#2	695522	10000	--	--	--	--	--

Standardization Rpt. 07/31/03 02:36:36 PM page 1

Method: DAILY1 Standard: clp_std6
Run Time: 07/31/03 14:31:37

Elem	La4086	Na5889	Pd3404	S_1820	Th2837	U_3859	W_2079
Avge	.3719	.1124	.1540	.0524	.0587	.0311	.0853
SDev	.0005	.0010	.0003	.0001	.0000	.0000	.0001
%RSD	.1440	.8511	.2000	.1679	.0158	.1422	.1299
#1	.3715	.1117	.1538	.0523	.0587	.0311	.0853
#2	.3722	.1131	.1542	.0525	.0587	.0312	.0852

Elem	Y_3710	Zr3496
Avge	.9979	1.180
SDev	.0011	.000
%RSD	.1067	.0286
#1	.9986	1.180
#2	.9971	1.180

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	701817	10000	--	--	--	--	--
SDev	4908.735	.0000000	--	--	--	--	--
%RSD	.6994324	.0000000	--	--	--	--	--
#1	698346	10000	--	--	--	--	--
#2	705288	10000	--	--	--	--	--

Standardization Report 07/31/03 02:36:36 PM page 1

Method: DAILY1 Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	clp_std4	blk	36.9052	.000080	07/31/03 02:31:37
Al3082	308.215	clp_std1	blk	384.032	-.289576	07/31/03 02:31:37
As1890	189.042	clp_std4	blk	84.8113	.002671	07/31/03 02:31:37
B_2496	249.678	clp_std5	blk	24.5044	-.008817	07/31/03 02:31:37
Ba4934	493.409	clp_std2	blk	16.4547	.000530	07/31/03 02:31:37
Be3130	313.042	clp_std2	blk	19.4684	.002632	07/31/03 02:31:37
Bi2230	223.061	clp_std5	blk	78.9363	-.001689	07/31/03 02:31:37
Ca3179	317.933	clp_std1	blk	337.922	-.014503	07/31/03 02:31:37
Cd2265	226.502	clp_std3	blk	8.22559	.000094	07/31/03 02:31:37
Co2286	228.616	clp_std3	blk	35.6583	.000179	07/31/03 02:31:37
Cr2677	267.716	clp_std2	blk	33.4157	-.001028	07/31/03 02:31:37
Cu3247	324.753	clp_std2	blk	30.9361	-.015137	07/31/03 02:31:37
Fe2714	271.441	clp_std1	blk	471.833	.026341	07/31/03 02:31:37
K_7664	766.491	clp_std1	blk	32.4547	-.056354	07/31/03 02:31:37
La4086	408.672	clp_std6	blk	26.0260	-.012045	07/31/03 02:31:37
Li6707	670.784	clp_std1	blk	3.19992	-.001094	07/31/03 02:31:37
Mg2790	279.078	clp_std1	blk	436.361	.006246	07/31/03 02:31:37
Mn2576	257.610	clp_std3	blk	23.9622	-.000068	07/31/03 02:31:37
Mo2020	202.030	clp_std5	blk	60.0988	.000473	07/31/03 02:31:37
Na5889	588.995	clp_std6	blk	8.34465	.061914	07/31/03 02:31:37
Na3302	330.232	clp_std1	blk	4126.27	.891337	07/31/03 02:31:37
Ni2316	231.604	clp_std2	blk	12.7975	.000523	07/31/03 02:31:37
P_1782	178.287	clp_std5	blk	212.650	-.019928	07/31/03 02:31:37
2203/1	220.351	clp_std4	blk	21.8599	-.002153	07/31/03 02:31:37
2203/2	220.352	clp_std4	blk	21.2281	.000914	07/31/03 02:31:37
Pd3404	340.458	clp_std6	blk	65.8978	.000754	07/31/03 02:31:37
S_1820	182.040	clp_std6	blk	191.201	-.001639	07/31/03 02:31:37
Sb2068	206.838	clp_std4	blk	81.0624	-.000169	07/31/03 02:31:37
Sc3613	361.384	blk	dark	1.43330	-.181527	07/31/03 02:31:37
1960/1	196.021	clp_std4	blk	40.3822	.003508	07/31/03 02:31:37
1960/2	196.022	clp_std4	blk	22.8852	-.003400	07/31/03 02:31:37
Si2881	288.158	clp_std5	blk	72.7221	-.130891	07/31/03 02:31:37
Pb220	220.353	NONE	NONE	.000000	.000000	*NOT STANDARDIZED
Se196	196.026	NONE	NONE	1.00000	.000000	*NOT STANDARDIZED
Sn1899	189.989	clp_std5	blk	51.5084	-.002242	07/31/03 02:31:37
Sr4215	421.552	clp_std5	blk	6.79528	-.000107	07/31/03 02:31:37
Th2837	283.730	clp_std6	blk	178.791	-.003066	07/31/03 02:31:37
Ti3372	337.280	clp_std5	blk	9.44459	.013588	07/31/03 02:31:37
Tl1908	190.864	clp_std4	blk	313.694	.005161	07/31/03 02:31:37
U_3859	385.958	clp_std6	blk	369.757	-1.51540	07/31/03 02:31:37
V_2924	292.402	clp_std3	blk	132.131	.000851	07/31/03 02:31:37
W_2079	207.910	clp_std6	blk	58.7025	-.006039	07/31/03 02:31:37
Y_3710	371.030	clp_std6	blk	10.0192	.000072	07/31/03 02:31:37
Zn2062	206.200	clp_std3	blk	107.976	-.000850	07/31/03 02:31:37
Zr3496	349.621	clp_std6	blk	9.01547	-.001205	07/31/03 02:31:37

Analysis Report QC Standard 07/31/03 02:41:45 PM page 1

Method: DAILY1 Sample Name: icv/ccv Operator:
Run Time: 07/31/03 14:36:46
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0088	9.604	4.857	4.757	10.04	1.026	4.892
SDev	.0037	.010	.037	.024	.01	.003	.001
%RSD	.36811	.1070	.7606	.5063	.1083	.2674	.0262
#1	1.0062	9.597	4.883	4.740	10.03	1.028	4.893
#2	1.0115	9.612	4.831	4.774	10.05	1.024	4.891
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	1.0000	10.00	5.000	5.000	10.00	1.000	5.000
Range	10.000	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.55	.9998	4.913	1.956	2.061	9.847	Q17.87
SDev	.07	.0054	.028	.013	.008	.035	.02
%RSD	.3514	.5379	.5782	.6877	.4099	.3583	.1007
#1	19.60	1.004	4.933	1.965	2.055	9.872	Q17.86
#2	19.50	.9960	4.893	1.946	2.067	9.822	Q17.88
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Fail
Value	20.00	1.000	5.000	2.000	2.000	10.00	20.00
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.961	4.716	19.33	1.024	5.012	Q47.25	Q26.07
SDev	.011	.005	.09	.007	.006	.02	.08
%RSD	.2210	.1166	.4449	.6864	.1103	.0453	.2971
#1	4.954	4.720	19.39	1.029	5.016	Q47.27	Q26.01
#2	4.969	4.713	19.27	1.019	5.008	Q47.24	Q26.12
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Fail	QC Fail
Value	5.000	5.000	20.00	1.000	5.000	30.00	30.00
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.864	4.933	4.824	4.874	1.011	1.021	.9787
SDev	.018	.114	.021	.026	.002	.006	.0019
%RSD	.3758	2.308	.4335	.5254	.1543	.5663	.1942
#1	4.877	5.014	4.839	4.892	1.012	1.017	.9801
#2	4.851	4.853	4.809	4.856	1.010	1.025	.9774
Errors	QC Pass	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass
Value	5.000	5.000			1.000	1.000	1.000
Range	10.00	10.00			10.00	10.00	10.00

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	99.32	5.096	5.058	4.951	4.853	5.066	4.910
SDev	1.11	.062	.032	.012	.024	.042	.028
%RSD	1.115	1.220	.6390	.2415	.4950	.8336	.5607
#1	98.54	5.140	5.081	4.959	4.870	5.095	4.930
#2	100.1	5.052	5.035	4.942	4.836	5.036	4.891
Errors	NOCHECK	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value				5.000	5.000	5.000	5.000
Range				10.00	10.00	10.00	10.00

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.289	.9707	4.916	5.220	1.032	4.973	Q1.627
SDev	.006	.0101	.003	.006	.011	.014	.009
%RSD	.1067	1.038	.0640	.1102	1.112	.2720	.5243
#1	5.293	.9778	4.914	5.224	1.040	4.983	Q1.621
#2	5.285	.9636	4.918	5.216	1.024	4.964	Q1.633
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Fail
Value	5.000	1.000	5.000	5.000	1.000	5.000	1.000
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.987	1.001	4.835
SDev	.003	.009	.004
%RSD	.0668	.9247	.0817
#1	4.989	1.008	4.833
#2	4.984	.9945	4.838
Errors	QC Pass	QC Pass	QC Pass
Value	5.000	1.000	5.000
Range	10.00	10.00	10.00

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	694176	10000	--	--	--	--	--
SDev	7727.263	.0000000	--	--	--	--	--
%RSD	1.113156	.0000000	--	--	--	--	--
#1	688712	10000	--	--	--	--	--
#2	699640	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: icb/ccb Operator:
Run Time: 07/31/03 14:44:15
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00010	.0003	-.0003	.0136	.0001	.0000	-.0033
SDev	.00032	.0056	.0016	.0027	.0001	.0001	.0041
%RSD	309.87	1865.	529.1	19.75	114.3	165.2	123.4
#1	.00033	.0043	.0008	.0155	.0002	-.0000	-.0004
#2	-.00012	-.0037	-.0014	.0117	.0000	.0001	L-.0063
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0111	.0001	.0002	-.0004	-.0000	.0089	.0040
SDev	.0007	.0000	.0000	.0001	.0001	.0140	.0026
%RSD	6.066	34.22	19.52	14.65	492.7	157.9	64.20
#1	.0115	.0001	.0002	-.0004	-.0001	.0188	.0058
#2	.0106	.0002	.0002	-.0005	.0001	-.0010	.0022
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0000	.0039	.0000	.0015	-.0057	.0263
SDev	.0008	.0000	.0026	.0001	.0002	.0003	.0528
%RSD	396.3	202.6	68.27	589.2	15.92	5.902	200.6
#1	.0007	.0000	.0057	.0001	.0013	-.0055	-.0110
#2	-.0003	-.0001	.0020	-.0000	.0017	-.0060	H.0636
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	L-.0101	-.0009	.0010	.0011	.0058	.0001
SDev	.0004	.0010	.0021	.0009	.0008	.0006	.0017
%RSD	80.09	10.28	225.8	93.19	76.33	10.30	1204.
#1	.0008	L-.0108	.0005	.0003	.0017	.0063	.0014
#2	.0002	-.0094	-.0024	.0016	.0005	.0054	-.0011
Errors	LC Pass	LC Low	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.6	.0016	.0001	-.0014	.0003	.0006	-.0024
SDev	.3	.0050	.0009	.0001	.0001	.0011	.0000
%RSD	.3127	311.1	979.2	8.872	27.90	179.9	.0156
#1	100.4	.0052	-.0005	-.0014	.0004	.0014	-.0024
#2	100.8	-.0019	.0007	-.0013	.0003	-.0002	-.0024
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0014	.0004	-.0047	.0357	.0003	.0025
SDev	.0001	.0022	.0004	.0165	.0013	.0003	.0075
%RSD	29.05	153.7	98.88	351.5	3.527	86.09	296.2
#1	.0002	-.0001	.0008	L-.0163	.0366	.0005	.0079
#2	.0001	.0030	.0001	.0070	.0348	.0001	-.0028
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	-.0005	.0004
SDev	.0001	.0001	.0003
%RSD	108.2	23.01	81.50
#1	.0001	-.0004	.0007
#2	.0000	-.0005	.0002
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

010110

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	703008	10000	--	--	--	--	--
SDev	2240.821	.0000000	--	--	--	--	--
%RSD	.3187479	.0000000	--	--	--	--	--
#1	701423	10000	--	--	--	--	--
#2	704592	10000	--	--	--	--	--

Analysis Report 07/31/03 02:54:42 PM

Method: DAILY1 Sample Name: pbw-G31W3 pg54-131 Operator:
Run Time: 07/31/03 14:49:23
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00007	.0081	.0007	.0064	.0001	-.0001	-.0010
SDev	.00066	.0016	.0028	.0003	.0000	.0000	.0006
%RSD	919.08	19.25	417.6	3.887	12.61	12.62	56.31
#1	-.00053	.0070	-.0013	.0066	.0001	-.0001	-.0006
#2	.00039	.0092	.0026	.0062	.0001	-.0001	-.0014
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0144	.0003	.0011	-.0002	.0005	.0048	.0007
SDev	.0028	.0002	.0004	.0001	.0003	.0010	.0045
%RSD	19.35	69.85	34.70	36.58	70.89	20.21	602.4
#1	.0124	.0005	.0008	-.0001	.0007	.0055	-.0024
#2	.0163	.0002	.0013	-.0002	.0002	.0041	.0039
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0001	.0025	.0000	.0006	-.0047	L-.0765
SDev	.0005	.0000	.0018	.0000	.0001	.0013	.0786
%RSD	268.4	8.084	72.93	196.2	19.31	27.55	102.8
#1	-.0002	.0001	.0012	.0000	.0007	-.0056	L-.1320
#2	.0005	.0001	.0038	-.0000	.0006	-.0037	-.0209
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	H.0107	-.0009	.0010	.0003	.0057	.0011
SDev	.0000	.0018	.0007	.0003	.0013	.0091	.0019
%RSD	4.133	16.92	77.15	28.77	455.9	161.5	177.7
#1	.0010	H.0120	-.0014	.0012	-.0006	-.0008	-.0003
#2	.0009	.0094	-.0004	.0008	.0012	H.0121	.0025
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	97.33	-.0007	.0006	.0048	.0004	.0002	-.0044
SDev	.14	.0076	.0028	.0007	.0000	.0044	.0009
%RSD	.1486	1028.	431.7	14.02	11.69	2251.	19.51
#1	97.23	-.0061	-.0013	.0043	.0003	-.0029	-.0038
#2	97.44	.0046	.0026	.0052	.0004	.0033	-.0050
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0003	.0001	-.0050	.0478	.0001	-.0015
SDev	.0000	.0002	.0000	.0007	.0014	.0000	.0020
%RSD	120.8	66.69	50.71	13.38	2.970	.1864	127.1
#1	.0000	.0002	.0000	-.0055	.0488	.0001	-.0002
#2	.0000	.0005	.0001	-.0045	.0468	.0001	-.0029
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0001	.0004
SDev	.0000	.0007	.0003
%RSD	74.72	672.0	70.51
#1	.0000	-.0004	.0007
#2	.0000	.0006	.0002
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

010113

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	680290	10000	--	--	--	--	--
SDev	949.6444	.0000000	--	--	--	--	--
%RSD	.1395942	.0000000	--	--	--	--	--
#1	679618	10000	--	--	--	--	--
#2	680961	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: lcsw-G31W3 Operator:
Run Time: 07/31/03 14:54:52
Comment:
Mode: CONC Corr. Factor: 1

010114

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.05247	1.904	2.058	.0048	2.106	.0542	.0020
SDev	.00037	.005	.003	.0002	.016	.0000	.0002
%RSD	.70288	.2500	.1284	3.620	.7544	.0201	8.530
#1	.05221	1.907	2.060	.0050	2.117	.0542	.0019
#2	.05273	1.900	2.056	.0047	2.095	.0543	.0021

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.01	.0527	.5166	.2059	.2621	1.022	15.98
SDev	.03	.0003	.0010	.0007	.0003	.003	.03
%RSD	.1401	.6106	.1972	.3546	.1093	.2871	.2044
#1	20.03	.0529	.5173	.2064	.2623	1.024	16.00
#2	19.99	.0525	.5158	.2054	.2619	1.020	15.96

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0024	19.75	.5304	-.0004	29.15	16.23
SDev	.0004	.0001	.08	.0009	.0001	.06	.14
%RSD	60.89	2.075	.3977	.1696	29.81	.2042	.8351
#1	.0003	.0023	19.81	.5311	-.0005	29.19	16.13
#2	.0008	.0024	19.70	.5298	-.0003	29.11	16.32

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5156	.0003	.5063	.5084	-.0003	.0101	.5058
SDev	.0025	.0089	.0048	.0083	.0005	.0014	.0021
%RSD	.4893	2752.	.9502	1.629	159.3	14.32	.4077
#1	.5174	.0066	.5097	.5143	.0000	.0111	.5043
#2	.5138	-.0060	.5029	.5026	-.0007	.0091	.5072

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.65	2.089	2.080	4.108	.5072	2.081	-.0023
SDev	.25	.002	.030	.010	.0071	.019	.0023
%RSD	.2658	.0786	1.436	.2477	1.403	.9293	97.76
#1	94.47	2.088	2.101	4.115	.5122	2.094	-.0007
#2	94.83	2.090	2.059	4.101	.5022	2.067	-.0039

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0066	.0003	2.132	.0460	.5168	.0011
SDev	.0000	.0000	.0002	.006	.0133	.0015	.0018
%RSD	8.130	.4600	61.51	.2746	28.94	.2873	157.6
#1	.0002	-.0065	.0002	2.127	.0366	.5179	-.0001
#2	.0002	-.0066	.0004	2.136	.0555	.5158	.0023

010115

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.5277	.0019
SDev	.0000	.0021	.0008
%RSD	52.67	.3930	41.52
#1	.0000	.5292	.0014
#2	.0001	.5263	.0025

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	661588	10000	--	--	--	--	--
SDev	1726.755	.0000000	--	--	--	--	--
%RSD	.2610015	.0000000	--	--	--	--	--
#1	660367	10000	--	--	--	--	--
#2	662809	10000	--	--	--	--	--

Method: DAILY1 Sample Name: 230742 Operator:
Run Time: 07/31/03 15:00:23
Comment:
Mode: CONC Corr. Factor: 1

010116

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00036	.0202	.0005	.0037	.0012	-.0002	-.0017
SDev	.00038	.0006	.0001	.0004	.0003	.0002	.0017
%RSD	107.33	3.123	14.61	9.972	24.67	69.83	99.98
#1	-.00063	.0206	.0004	.0039	.0014	-.0001	-.0005
#2	-.00009	.0197	.0006	.0034	.0010	-.0004	-.0029

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0100	.0001	.0012	-.0013	.0009	-.0005	.2713
SDev	.0005	.0001	.0001	.0010	.0001	.0109	.0149
%RSD	5.069	82.12	10.15	78.63	15.47	2197.	5.506
#1	.0103	.0001	.0012	-.0006	.0010	.0072	.2818
#2	.0096	.0002	.0013	-.0020	.0008	-.0082	.2607

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0022	64.79	.0065	.0001	.0022	S45.30	1356.
SDev	.0002	.29	.0019	.0001	.0004	1.06	6.
%RSD	11.01	.4466	28.68	81.59	18.65	2.338	.4152
#1	.0020	64.58	.0078	.0001	.0019	S44.56	1352.
#2	.0024	64.99	.0052	.0000	.0025	S46.05	1360.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0139	-.0030	.0011	.0001	.0381	-.0015
SDev	.0005	.0097	.0013	.0008	.0005	.0021	.0035
%RSD	84.71	69.82	41.36	70.27	564.1	5.427	230.4
#1	.0002	.0208	-.0039	.0017	.0004	.0396	.0010
#2	.0009	.0070	-.0021	.0006	-.0003	.0366	-.0040

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.27	.0015	-.0026	2.029	-.0003	-.0012	-.0023
SDev	.92	.0029	.0002	.005	.0001	.0008	.0012
%RSD	.9795	192.6	8.049	.2522	38.60	71.22	52.26
#1	94.92	-.0006	-.0024	2.026	-.0002	-.0018	-.0015
#2	93.62	.0036	-.0027	2.033	-.0003	-.0006	-.0032

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0013	-.0004	-.0082	.0028	.0004	-.0082
SDev	.0000	.0011	.0005	.0001	.0064	.0004	.0026
%RSD	605.1	81.45	110.0	1.416	229.2	115.8	31.55
#1	.0000	.0021	-.0001	-.0081	-.0017	.0007	-.0064
#2	-.0000	.0006	-.0008	-.0083	.0073	.0001	-.0101

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.0007	-.0002
SDev	.0001	.0003	.0006
%RSD	640.5	47.26	333.4
#1	.0000	.0009	.0002
#2	-.0001	.0005	-.0006

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	658934	10000	--	--	--	--	--
SDev	6385.881	.0000000	--	--	--	--	--
%RSD	.9691238	.0000000	--	--	--	--	--
#1	663449	10000	--	--	--	--	--
#2	654418	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230743 Operator:
Run Time: 07/31/03 15:05:54 **010118**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00102	.0898	-.0028	.0050	.0005	-.0004	-.0017
SDev	.00079	.0060	.0025	.0004	.0000	.0002	.0024
%RSD	78.020	6.632	89.92	7.476	4.114	48.51	144.2
#1	-.00046	.0941	-.0010	.0053	.0005	-.0002	.0000
#2	-.00158	.0856	-.0045	.0047	.0004	-.0005	-.0033

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0058	-.0000	.0003	-.0016	.0017	.1916	.2054
SDev	.0009	.0001	.0001	.0003	.0002	.0091	.0123
%RSD	16.51	404.4	46.47	16.36	11.26	4.767	6.000
#1	.0064	-.0001	.0002	-.0014	.0018	.1981	.1967
#2	.0051	.0001	.0003	-.0018	.0016	.1851	.2142

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0021	S16.58	.0533	.0014	.0151	S87.53	421.5
SDev	.0007	.47	.0025	.0000	.0000	1.17	2.4
%RSD	34.39	2.823	4.690	2.829	.0319	1.335	.5804
#1	.0026	S16.25	.0551	.0014	.0151	S86.70	423.2
#2	.0016	S16.91	.0515	.0014	.0151	S88.36	419.8

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	.0030	.0002	.0002	-.0004	.0172	-.0012
SDev	.0008	.0007	.0027	.0016	.0016	.0077	.0019
%RSD	66.58	23.32	1076.	944.8	354.6	44.86	156.2
#1	.0018	.0025	.0021	.0013	.0007	.0227	-.0026
#2	.0006	.0034	-.0016	-.0009	-.0015	.0118	.0001

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	90.38	.0026	-.0032	2.405	.0002	-.0013	-.0011
SDev	.84	.0020	.0008	.005	.0019	.0012	.0007
%RSD	.9303	77.49	24.93	.1963	1001.	95.80	66.18
#1	90.97	.0040	-.0027	2.408	.0016	-.0004	-.0016
#2	89.78	.0012	-.0038	2.402	-.0012	-.0021	-.0006

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0019	.0061	.0004	-.0915	.0005	-.0020
SDev	.0000	.0004	.0005	.0028	.0066	.0003	.0019
%RSD	65.96	18.75	8.132	704.8	7.160	56.78	95.87
#1	-.0000	.0022	.0064	.0024	-.0868	.0007	-.0033
#2	-.0001	.0017	.0057	-.0016	-.0961	.0003	-.0006

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.0011	-.0005
SDev	.0001	.0003	.0005
%RSD	191.0	31.15	111.8
#1	.0000	.0014	-.0001
#2	-.0002	.0009	-.0008

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	631758	10000	--	--	--	--	--
SDev	5905.049	.0000000	--	--	--	--	--
%RSD	.9347003	.0000000	--	--	--	--	--
#1	635934	10000	--	--	--	--	--
#2	627583	10000	--	--	--	--	--

010120

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Method: DAILY1 Sample Name: 234743d Operator:
Run Time: 07/31/03 15:11:23
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00062	.0928	-.0006	.0324	.0005	-.0004	.0040
SDev	.00078	.0011	.0050	.0005	.0000	.0001	.0047
%RSD	126.22	1.187	860.6	1.670	7.802	23.60	117.6
#1	-.00007	.0920	.0030	.0328	.0005	-.0003	.0073
#2	-.00117	.0936	-.0041	.0320	.0004	-.0005	.0007

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0027	.0001	.0011	-.0015	.0016	.1951	.2004
SDev	.0005	.0000	.0005	.0003	.0001	.0107	.0026
%RSD	19.35	17.76	48.11	17.79	4.697	5.482	1.275
#1	.0031	.0001	.0015	-.0013	.0015	.2026	.1986
#2	.0023	.0001	.0007	-.0016	.0016	.1875	.2022

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0025	S46.87	.0602	.0014	.0158	S87.28	420.2
SDev	.0005	43.05	.0077	.0000	.0003	1.15	.5
%RSD	19.91	91.84	12.76	1.154	1.900	1.322	.1119
#1	.0029	S16.43	.0656	.0014	.0160	S86.46	419.9
#2	.0022	77.31	.0548	.0014	.0156	S88.09	420.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	.0159	.0003	-.0018	.0016	.0196	-.0007
SDev	.0007	.0046	.0001	.0011	.0023	.0073	.0026
%RSD	67.52	29.24	28.88	60.24	138.9	36.95	367.9
#1	.0005	.0126	.0003	-.0026	.0033	.0145	.0011
#2	.0015	.0192	.0004	-.0011	.0000	.0247	-.0026

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	90.93	.0060	-.0036	2.397	-.0011	-.0004	-.0006
SDev	.99	.0036	.0043	.003	.0008	.0040	.0002
%RSD	1.092	60.72	116.6	.1395	68.90	952.3	24.61
#1	91.63	.0085	-.0006	2.400	-.0017	.0024	-.0005
#2	90.23	.0034	-.0067	2.395	-.0006	-.0033	-.0007

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0008	.0070	-.0138	-.0778	.0006	-.0035
SDev	.0000	.0009	.0006	.0131	.0038	.0001	.0077
%RSD	107.9	116.1	8.740	94.71	4.934	23.70	218.3
#1	-.0000	.0001	.0074	-.0230	-.0751	.0008	.0019
#2	-.0001	.0015	.0065	-.0046	-.0805	.0005	-.0089

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.0014	-.0003
SDev	.0000	.0001	.0004
%RSD	81.70	6.528	138.3
#1	-.0000	.0015	-.0000
#2	-.0000	.0014	-.0006

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	635646	10000	--	--	--	--	--
SDev	6863.886	.0000000	--	--	--	--	--
%RSD	1.079827	.0000000	--	--	--	--	--
#1	640500	10000	--	--	--	--	--
#2	630793	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230744 Operator:
Run Time: 07/31/03 15:16:55 **010122**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00091	.0638	.0009	.0032	.0006	-.0002	-.0046
SDev	.00046	.0031	.0001	.0008	.0001	.0001	.0041
%RSD	50.519	4.820	12.32	26.74	23.74	53.40	89.36
#1	-.00124	.0660	.0009	.0038	.0005	-.0003	-.0075
#2	-.00059	.0617	.0008	.0026	.0007	-.0001	-.0017

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0016	-.0000	.0006	-.0007	.0022	.1587	.1567
SDev	.0006	.0001	.0007	.0004	.0008	.0040	.0169
%RSD	38.60	1290.	102.0	61.54	34.75	2.496	10.78
#1	.0012	-.0001	.0002	-.0010	.0017	.1559	.1448
#2	.0020	.0001	.0011	-.0004	.0027	.1615	.1687

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0021	S15.48	.0376	.0010	.0159	S90.15	315.0
SDev	.0001	.35	.0004	.0001	.0007	1.52	.7
%RSD	3.104	2.270	1.172	6.066	4.355	1.687	.2233
#1	.0021	S15.72	.0379	.0010	.0155	S91.23	315.5
#2	.0020	S15.23	.0373	.0011	.0164	S89.08	314.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0020	.0038	-.0025	-.0010	-.0006	.0185	-.0018
SDev	.0006	.0057	.0031	.0015	.0025	.0009	.0009
%RSD	33.48	150.8	128.0	149.9	438.5	5.120	52.22
#1	.0015	-.0003	-.0047	.0001	-.0023	.0179	-.0024
#2	.0024	.0078	-.0002	-.0021	.0012	.0192	-.0011

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.17	.0074	-.0020	1.846	-.0015	.0011	-.0011
SDev	1.36	.0006	.0010	.009	.0000	.0005	.0001
%RSD	1.473	8.014	48.47	.4982	1.463	41.39	12.97
#1	91.21	.0069	-.0013	1.853	-.0015	.0014	-.0010
#2	93.13	.0078	-.0027	1.840	-.0015	.0008	-.0012

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0017	.0044	.0051	-.0804	.0013	-.0008
SDev	.0000	.0034	.0003	.0045	.0053	.0007	.0033
%RSD	.8171	202.5	6.855	86.95	6.633	57.38	405.1
#1	-.0001	-.0007	.0042	.0020	-.0841	.0007	-.0031
#2	-.0001	.0041	.0046	.0083	-.0766	.0018	.0015

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0021	.0082
SDev	.0001	.0001	.0067
%RSD	66.20	3.675	81.77
#1	.0001	.0020	.0035
#2	.0002	.0021	.0129

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	644264	10000	--	--	--	--	--
SDev	9458.968	.0000000	--	--	--	--	--
%RSD	1.468183	.0000000	--	--	--	--	--
#1	637575	10000	--	--	--	--	--
#2	650952	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230744s Operator:
Run Time: 07/31/03 15:22:26 **010124**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.05793	2.373	2.150	.0041	2.173	.0488	.0017
SDev	.00017	.010	.016	.0008	.002	.0005	.0057
%RSD	.29630	.4172	.7313	19.63	.0711	1.056	336.3
#1	.05781	2.366	2.161	.0047	2.172	.0491	.0057
#2	.05806	2.380	2.139	.0036	2.174	.0484	-.0023

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.52	.0489	.5080	.2003	.2929	1.153	46.52
SDev	.13	.0008	.0036	.0018	.0018	.017	.55
%RSD	.6815	1.584	.7079	.9124	.6033	1.487	1.181
#1	19.61	.0494	.5105	.2016	.2917	1.165	46.13
#2	19.42	.0483	.5054	.1990	.2942	1.141	46.91

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0031	S47.04	20.42	.5164	.0196	S92.27	353.5
SDev	.0001	42.72	.07	.0024	.0004	.47	2.1
%RSD	3.214	90.83	.3622	.4747	1.810	.5077	.6008
#1	.0031	77.25	20.47	.5181	.0199	S91.94	352.0
#2	.0032	S16.83	20.37	.5146	.0194	S92.60	355.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5052	.0067	.5147	.5236	.0022	.0209	.5243
SDev	.0047	.0050	.0047	.0073	.0001	.0053	.0007
%RSD	.9317	74.29	.9120	1.401	2.944	25.38	.1274
#1	.5085	.0103	.5114	.5288	.0021	.0171	.5247
#2	.5019	.0032	.5180	.5184	.0022	.0246	.5238

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	88.84	2.111	2.155	6.131	.5201	2.138	-.0002
SDev	.25	.017	.014	.001	.0033	.015	.0031
%RSD	.2786	.8212	.6340	.0185	.6387	.6955	1657.
#1	89.02	2.123	2.165	6.132	.5225	2.149	.0020
#2	88.67	2.099	2.145	6.130	.5178	2.128	-.0024

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0020	.0055	2.415	-.0877	.5119	-.0012
SDev	.0000	.0062	.0001	.005	.0163	.0014	.0039
%RSD	2.239	307.6	1.566	.2118	18.59	.2837	319.2
#1	.0001	.0024	.0056	2.418	-.0761	.5130	.0015
#2	.0001	-.0064	.0055	2.411	-.0992	.5109	-.0039

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.5248	.0027
SDev	.0001	.0052	.0015
%RSD	123.7	.9891	53.66
#1	-.0000	.5285	.0037
#2	-.0001	.5212	.0017

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	621049	10000	--	--	--	--	--
SDev	1711.198	.0000000	--	--	--	--	--
%RSD	.2755336	.0000000	--	--	--	--	--
#1	622259	10000	--	--	--	--	--
#2	619839	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230745 Operator:
Run Time: 07/31/03 15:27:56
Comment:
Mode: CONC Corr. Factor: 1

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Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00014	.0568	.0003	.0029	.0006	-.0002	-.0011
SDev	.00015	.0216	.0018	.0008	.0003	.0000	.0050
%RSD	107.23	38.13	590.6	27.89	51.93	22.28	450.5
#1	-.00025	.0721	.0016	.0035	.0008	-.0003	-.0047
#2	-.00003	.0415	-.0010	.0023	.0004	-.0002	.0024

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	.0003	.0001	-.0008	.0011	.1085	.1510
SDev	.0013	.0000	.0009	.0000	.0000	.0127	.0090
%RSD	111.0	5.465	1466.	.1969	1.298	11.71	5.969
#1	.0020	.0003	-.0006	-.0008	.0011	.1174	.1574
#2	.0002	.0003	.0007	-.0008	.0011	.0995	.1446

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0027	S15.16	.0369	.0010	.0163	S92.98	258.6
SDev	.0001	.04	.0010	.0002	.0007	1.46	.9
%RSD	3.485	.2885	2.745	17.11	4.439	1.574	.3656
#1	.0026	S15.19	.0376	.0011	.0158	S94.02	257.9
#2	.0027	S15.13	.0361	.0009	.0168	S91.95	259.2

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0009	.0015	-.0021	-.0005	.0008	.1197	.0006
SDev	.0005	.0151	.0033	.0020	.0019	.0074	.0013
%RSD	54.03	1022.	153.6	374.4	254.2	6.171	229.2
#1	.0012	-.0092	-.0044	.0009	-.0006	.1145	.0015
#2	.0005	.0122	.0002	-.0020	.0021	.1249	-.0004

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	91.81	.0046	-.0053	1.519	-.0011	-.0020	-.0016
SDev	1.57	.0012	.0017	.015	.0003	.0015	.0036
%RSD	1.706	26.46	31.64	.9639	23.80	75.94	227.7
#1	90.70	.0037	-.0065	1.529	-.0009	-.0031	-.0042
#2	92.91	.0054	-.0041	1.508	-.0012	-.0009	.0010

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0038	.0034	-.0014	-.0410	.0007	-.0027
SDev	.0000	.0034	.0004	.0258	.0056	.0007	.0017
%RSD	32.77	90.98	11.40	1886.	13.76	108.0	63.04
#1	-.0000	.0013	.0031	.0169	-.0370	.0012	-.0040
#2	-.0000	.0062	.0037	-.0196	-.0450	.0002	-.0015

010127

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.1519	-.0004
SDev	.0000	.0000	.0001
%RSD	61.07	.0064	14.24
#1	-.0000	.1519	-.0003
#2	-.0001	.1519	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	641760	10000	--	--	--	--	--
SDev	10962.98	.0000000	--	--	--	--	--
%RSD	1.708268	.0000000	--	--	--	--	--
#1	634008	10000	--	--	--	--	--
#2	649512	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230746 Operator: **010128**
Run Time: 07/31/03 15:33:27
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00113	.0628	-.0006	.0022	.0006	-.0002	-.0031
SDev	.00007	.0188	.0003	.0014	.0005	.0001	.0045
%RSD	6.1493	29.89	44.48	62.27	78.30	61.90	144.7
#1	-.00118	.0495	-.0008	.0032	.0009	-.0001	-.0062
#2	-.00108	.0761	-.0004	.0012	.0003	-.0003	.0001

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0044	-.0002	-.0005	.0005	.0029	.1320	.1271
SDev	.0003	.0001	.0009	.0024	.0016	.0569	.0105
%RSD	7.785	48.25	174.7	480.5	55.53	43.08	8.270
#1	.0047	-.0001	-.0012	.0022	.0040	.1722	.1197
#2	.0042	-.0002	.0001	-.0012	.0017	.0918	.1346

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0025	S15.18	.0243	.0009	.0182	312.5	210.4
SDev	.0000	.92	.0021	.0003	.0016	4.8	3.3
%RSD	.8161	6.058	8.511	35.99	8.683	1.534	1.580
#1	.0025	S14.53	.0258	.0011	.0193	309.1	208.1
#2	.0026	S15.84	.0228	.0007	.0171	315.9	212.8

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0032	.0012	-.0151	.0075	-.0009	.0122	-.0021
SDev	.0029	.0017	.0262	.0147	.0017	.0001	.0001
%RSD	91.45	143.0	174.2	194.9	192.7	.9888	6.814
#1	.0053	-.0000	-.0336	.0179	-.0021	.0121	-.0020
#2	.0011	.0024	.0035	-.0028	.0003	.0123	-.0022

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	90.02	-.0116	.0062	1.255	-.0000	.0003	-.0045
SDev	2.27	.0213	.0219	.004	.0010	.0075	.0012
%RSD	2.516	184.3	351.3	.3489	165800.	2445.	27.18
#1	91.62	-.0267	.0217	1.252	.0007	.0056	-.0054
#2	88.42	.0035	-.0092	1.258	-.0007	-.0050	-.0036

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0099	.0024	-.0040	-.0582	.0024	-.0161
SDev	.0000	.0118	.0001	.0019	.0145	.0021	.0011
%RSD	9.381	119.5	5.668	49.09	24.95	84.50	7.053
#1	-.0001	.0183	.0023	-.0053	-.0479	.0039	-.0169
#2	-.0001	.0015	.0025	-.0026	-.0685	.0010	-.0153

010129

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0005	-.0003	.0019
SDev	.0005	.0000	.0026
%RSD	114.5	3.738	134.7
#1	.0008	-.0003	.0037
#2	.0001	-.0003	.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	629302	10000	--	--	--	--	--
SDev	15794.65	.0000000	--	--	--	--	--
%RSD	2.509865	.0000000	--	--	--	--	--
#1	640471	10000	--	--	--	--	--
#2	618134	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230747 Operator:
Run Time: 07/31/03 15:38:59
Comment:
Mode: CONC Corr. Factor: 1

010130

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00113	.0686	.0030	.0030	.0002	-.0002	.0015
SDev	.00028	.0076	.0020	.0001	.0000	.0001	.0045
%RSD	24.782	11.06	67.00	2.128	13.80	38.89	299.0
#1	.00132	.0632	.0044	.0031	.0002	-.0002	-.0017
#2	.00093	.0739	.0016	.0030	.0003	-.0001	.0047

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	.0003	.0003	-.0009	.0017	.0879	.1534
SDev	.0013	.0001	.0003	.0004	.0003	.0052	.0036
%RSD	136.7	47.85	88.57	44.89	19.95	5.894	2.338
#1	-.0019	.0002	.0001	-.0006	.0019	.0916	.1560
#2	-.0000	.0003	.0005	-.0012	.0014	.0842	.1509

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0036	S15.16	.0325	.0006	.0158	S181.0	147.8
SDev	.0007	.26	.0024	.0000	.0003	116.1	.5
%RSD	19.39	1.737	7.323	3.067	1.871	64.14	.3356
#1	.0031	S14.98	.0309	.0006	.0156	S98.89	148.1
#2	.0041	S15.35	.0342	.0006	.0161	263.0	147.4

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0022	.0026	.0005	-.0007	.0026	.0182	.0009
SDev	.0007	.0037	.0008	.0010	.0006	.0010	.0006
%RSD	33.86	145.2	155.9	143.7	21.36	5.477	62.23
#1	.0027	.0052	.0011	-.0014	.0022	.0189	.0005
#2	.0017	-.0001	-.0001	.0000	.0030	.0175	.0013

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	89.77	.0050	-.0056	.8992	-.0003	-.0021	.0015
SDev	1.33	.0035	.0052	.0012	.0004	.0046	.0003
%RSD	1.482	69.61	91.32	.1377	135.7	220.3	22.00
#1	90.71	.0025	-.0093	.8983	-.0005	-.0053	.0018
#2	88.83	.0074	-.0020	.9001	-.0000	.0012	.0013

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0032	.0032	.0041	-.0086	.0003	.0017
SDev	.0000	.0008	.0000	.0064	.0123	.0003	.0048
%RSD	237.9	24.52	.7297	155.4	143.7	85.39	281.5
#1	-.0001	.0037	.0032	-.0004	-.0173	.0001	-.0017
#2	.0000	.0026	.0032	.0086	.0001	.0006	.0051

010131

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0005	.0115
SDev	.0000	.0003	.0161
%RSD	10.24	49.93	139.9
#1	.0001	.0003	.0228
#2	.0001	.0007	.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	627494	10000	--	--	--	--	--
SDev	9289.969	.0000000	--	--	--	--	--
%RSD	1.480487	.0000000	--	--	--	--	--
#1	634063	10000	--	--	--	--	--
#2	620925	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccv2 Operator:
Run Time: 07/31/03 15:49:46 **010132**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0115	9.585	4.939	4.825	10.03	1.041	4.891
SDev	.0036	.054	.023	.037	.06	.004	.020
%RSD	.35186	.5676	.4646	.7573	.5912	.3907	.4125
#1	1.0090	9.547	4.923	4.799	9.993	1.038	4.877
#2	1.0141	9.624	4.955	4.851	10.08	1.044	4.905
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.1000	11.00	5.500	5.500	11.00	1.100	5.500
Low	.90000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.83	1.019	4.993	1.982	2.053	9.970	L17.59
SDev	.07	.005	.009	.008	.010	.041	.11
%RSD	.3347	.4669	.1895	.3846	.5073	.4147	.6066
#1	19.78	1.015	4.986	1.977	2.045	9.941	L17.51
#2	19.87	1.022	4.999	1.988	2.060	9.999	L17.66
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.952	4.695	19.48	1.037	5.083	H46.14	L25.79
SDev	.008	.035	.09	.006	.018	.30	.08
%RSD	.1675	.7407	.4691	.6094	.3491	.6509	.3276
#1	4.946	4.671	19.42	1.032	5.071	H45.93	L25.73
#2	4.958	4.720	19.55	1.041	5.096	H46.36	L25.85
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Low
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.923	5.031	4.867	4.933	1.010	1.015	.9828
SDev	.024	.043	.020	.017	.002	.011	.0033
%RSD	.4911	.8507	.4085	.3345	.1827	1.062	.3396
#1	4.906	5.061	4.853	4.921	1.009	1.023	.9805
#2	4.940	5.000	4.881	4.944	1.011	1.008	.9852
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	98.92	5.121	5.081	5.037	4.906	5.089	4.984
SDev	.45	.004	.017	.034	.018	.013	.003
%RSD	.4532	.0804	.3338	.6763	.3590	.2489	.0595
#1	99.24	5.118	5.069	5.012	4.893	5.080	4.982
#2	98.60	5.124	5.093	5.061	4.918	5.098	4.986
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.274	.9800	4.940	5.264	1.047	5.008	H1.649
SDev	.011	.0065	.008	.050	.003	.023	.017
%RSD	.2127	.6579	.1609	.9474	.2810	.4632	1.037
#1	5.267	.9754	4.934	5.229	1.045	4.992	H1.637
#2	5.282	.9846	4.945	5.299	1.050	5.024	H1.661
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	5.002	1.027	4.856
SDev	.001	.000	.016
%RSD	.0117	.0119	.3339
#1	5.002	1.027	4.844
#2	5.001	1.027	4.867
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	691338	10000	--	--	--	--	--
SDev	3133.190	.0000000	--	--	--	--	--
%RSD	.4532070	.0000000	--	--	--	--	--
#1	693553	10000	--	--	--	--	--
#2	689122	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccb2 Operator:
Run Time: 07/31/03 15:57:57
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00025	.0180	-.0006	.0120	.0000	-.0005	-.0033
SDev	.00023	.0021	.0014	.0025	.0001	.0002	.0062
%RSD	89.334	11.65	226.0	20.66	443.9	43.42	189.2
#1	-.00009	.0195	-.0016	.0138	-.0000	-.0003	.0011
#2	-.00041	.0166	.0004	.0103	.0001	-.0007	L-.0077
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0052	.0000	.0005	-.0002	.0013	.0009	-.0099
SDev	.0033	.0001	.0003	.0010	.0001	.0080	.0006
%RSD	63.74	312.2	71.92	625.2	4.565	911.5	5.717
#1	.0029	.0001	.0007	-.0009	.0013	-.0048	-.0103
#2	.0076	-.0000	.0002	.0006	.0013	.0065	-.0095
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0003	H.0055	.0015	.0003	.0013	.0238	L-.1269
SDev	.0002	.0003	.0004	.0005	.0001	.0004	.1064
%RSD	53.73	4.716	27.86	157.7	9.352	1.583	83.86
#1	-.0002	H.0056	.0018	-.0000	.0012	.0240	L-.2022
#2	-.0005	H.0053	.0012	.0007	.0013	.0235	L-.0517
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0001	.0028	-.0014	-.0009	.0053	.0017
SDev	.0007	.0048	.0026	.0002	.0006	.0023	.0000
%RSD	110.9	3235.	92.93	13.71	63.50	43.40	1.152
#1	.0001	.0035	.0010	-.0013	-.0005	.0037	.0018
#2	.0011	-.0032	.0046	-.0016	-.0013	.0070	.0017
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	97.83	-.0008	-.0014	.0097	-.0000	-.0012	-.0010
SDev	.79	.0014	.0043	.0006	.0007	.0024	.0011
%RSD	.8047	161.7	306.3	5.628	2804.	200.2	101.3
#1	97.28	.0001	-.0044	H.0101	-.0005	-.0029	-.0018
#2	98.39	-.0018	.0016	.0093	.0005	.0005	-.0003
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	-.0010	.0002	.0069	.0138	-.0000	-.0003
SDev	.0000	.0001	.0002	.0194	.0031	.0004	.0016
%RSD	125.5	12.39	136.0	280.9	22.15	6687.	478.9
#1	.0000	-.0009	.0000	-.0068	.0159	-.0003	-.0015
#2	.0000	-.0011	.0004	H.0207	.0116	.0003	.0008
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	-.0003	-.0001
SDev	.0000	.0003	.0001
%RSD	30.34	108.9	112.5
#1	.0000	-.0005	-.0002
#2	.0000	-.0001	-.0000
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	683818	10000	--	--	--	--	--
SDev	5473.006	.0000000	--	--	--	--	--
%RSD	.8003601	.0000000	--	--	--	--	--
#1	679948	10000	--	--	--	--	--
#2	687688	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230748 Operator:
Run Time: 07/31/03 16:03:31
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00009	.0556	.0018	.0080	.0001	-.0006	.0028
SDev	.00046	.0040	.0013	.0015	.0001	.0001	.0019
%RSD	520.26	7.121	74.69	19.02	62.47	18.77	68.37
#1	.00041	.0584	.0027	.0091	.0002	-.0006	.0041
#2	-.00024	.0528	.0008	.0069	.0001	-.0005	.0014

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0001	.0010	-.0010	.0033	.0362	.0994
SDev	.0003	.0001	.0000	.0003	.0000	.0013	.0027
%RSD	136.1	46.01	4.025	32.94	.3228	3.601	2.759
#1	.0000	.0001	.0009	-.0008	.0033	.0371	.1013
#2	.0004	.0001	.0010	-.0012	.0033	.0353	.0974

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0030	S14.61	.0127	.0003	.0159	205.1	105.4
SDev	.0004	.07	.0006	.0000	.0002	.6	.8
%RSD	14.73	.5030	4.331	8.695	1.237	.3032	.7198
#1	.0033	S14.66	.0131	.0003	.0158	205.5	104.9
#2	.0027	S14.56	.0123	.0003	.0161	204.7	105.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0023	.0081	-.0006	.0018	.0001	.0106	.0015
SDev	.0000	.0117	.0008	.0010	.0001	.0087	.0014
%RSD	.8433	145.2	138.5	53.02	109.6	81.94	92.05
#1	.0023	.0164	-.0011	.0011	.0002	.0168	.0025
#2	.0023	-.0002	-.0000	.0025	.0000	.0045	.0005

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	89.18	.0057	-.0031	.6068	.0010	-.0002	-.0027
SDev	.43	.0048	.0036	.0065	.0009	.0008	.0006
%RSD	.4861	84.41	116.4	1.069	88.09	513.5	21.63
#1	88.87	.0091	-.0057	.6022	.0004	-.0007	-.0023
#2	89.49	.0023	-.0006	.6114	.0017	.0004	-.0031

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0025	.0008	-.0034	-.0580	.0007	-.0015
SDev	.0000	.0003	.0002	.0213	.0104	.0001	.0043
%RSD	34.24	12.13	26.10	625.4	17.97	22.75	281.7
#1	-.0001	.0027	.0006	.0117	-.0506	.0008	.0015
#2	-.0001	.0023	.0009	-.0185	-.0654	.0005	-.0045

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0005	-.0003
SDev	.0000	.0006	.0001
%RSD	95.46	136.5	36.22
#1	.0000	.0009	-.0002
#2	.0000	.0000	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	623377	10000	--	--	--	--	--
SDev	3016.518	.0000000	--	--	--	--	--
%RSD	.4838994	.0000000	--	--	--	--	--
#1	621244	10000	--	--	--	--	--
#2	625510	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230749 Operator:
Run Time: 07/31/03 16:09:02
Comment:
Mode: CONC Corr. Factor: 1

010140

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00011	.0604	-.0016	.0042	.0001	-.0006	.0001
SDev	.00036	.0017	.0002	.0012	.0001	.0001	.0044
%RSD	325.71	2.788	12.51	28.81	47.21	20.91	3793.
#1	.00014	.0592	-.0015	.0051	.0002	-.0005	.0032
#2	-.00036	.0616	-.0017	.0034	.0001	-.0006	-.0030

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0011	.0001	.0001	-.0010	.0024	.0196	.1026
SDev	.0000	.0003	.0001	.0005	.0003	.0043	.0098
%RSD	1.987	466.2	64.03	46.95	12.75	21.81	9.507
#1	-.0011	.0003	.0001	-.0013	.0026	.0165	.1095
#2	-.0011	-.0001	.0002	-.0007	.0022	.0226	.0957

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0031	S14.40	.0068	.0005	.0166	160.4	78.80
SDev	.0008	.33	.0030	.0000	.0004	.9	.27
%RSD	25.99	2.304	43.91	6.273	2.700	.5347	.3451
#1	.0036	S14.17	.0089	.0004	.0163	161.0	78.99
#2	.0025	S14.64	.0047	.0005	.0169	159.8	78.61

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0022	.0026	.0008	-.0009	-.0004	.1207	-.0045
SDev	.0005	.0010	.0006	.0006	.0007	.0034	.0016
%RSD	24.60	39.83	74.88	70.95	186.9	2.803	36.21
#1	.0018	.0018	.0004	-.0004	-.0009	.1231	-.0057
#2	.0026	.0033	.0012	-.0013	.0001	.1184	-.0034

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	89.29	.0045	-.0015	.4783	-.0003	.0005	-.0047
SDev	.21	.0005	.0008	.0005	.0002	.0007	.0000
%RSD	.2359	11.40	56.20	.0970	67.78	140.7	.0077
#1	89.44	.0048	-.0009	.4779	-.0002	.0010	-.0047
#2	89.14	.0041	-.0021	.4786	-.0005	.0000	-.0047

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0019	.0000	-.0009	-.0537	.0006	-.0045
SDev	.0000	.0002	.0000	.0099	.0027	.0003	.0033
%RSD	24.51	10.40	599.1	1103.	5.065	54.62	72.01
#1	-.0001	.0020	.0000	-.0079	-.0517	.0003	-.0022
#2	-.0001	.0017	-.0000	.0061	-.0556	.0008	-.0068

010141

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.2226	.0044
SDev	.0000	.0004	.0062
%RSD	70.08	.1907	140.6
#1	.0000	.2223	.0088
#2	.0001	.2229	.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	624162	10000	--	--	--	--	--
SDev	1528.058	.0000000	--	--	--	--	--
%RSD	.2448177	.0000000	--	--	--	--	--
#1	625242	10000	--	--	--	--	--
#2	623081	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230750 Operator: **010142**
Run Time: 07/31/03 16:14:32
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00046	.0550	.0017	.0030	.0000	-.0006	.0018
SDev	.00165	.0145	.0058	.0004	.0000	.0001	.0050
%RSD	359.44	26.31	343.2	12.67	6.916	20.36	275.7
#1	-.00071	.0448	.0058	.0027	.0000	-.0007	-.0017
#2	.00162	.0653	-.0024	.0033	.0000	-.0005	.0053

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0018	.0002	.0001	-.0012	.0022	.0181	.0784
SDev	.0007	.0002	.0005	.0000	.0003	.0024	.0160
%RSD	40.08	87.23	384.3	3.510	15.44	13.08	20.36
#1	-.0024	.0001	.0005	-.0012	.0024	.0198	.0671
#2	-.0013	.0003	-.0002	-.0013	.0019	.0164	.0897

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0036	S14.21	.0096	.0001	.0158	119.8	57.23
SDev	.0003	.09	.0039	.0001	.0011	.9	.01
%RSD	9.257	.6035	41.00	41.87	6.817	.7366	.0229
#1	.0033	S14.15	.0068	.0001	.0150	119.2	57.22
#2	.0038	S14.27	.0123	.0002	.0166	120.5	57.24

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0024	.0107	.0008	-.0026	.0012	.0165	.0013
SDev	.0008	.0044	.0006	.0005	.0003	.0056	.0011
%RSD	33.96	41.31	77.50	19.34	29.10	34.15	85.83
#1	.0030	.0076	.0013	-.0030	.0015	.0125	.0005
#2	.0018	.0138	.0004	-.0023	.0010	.0205	.0021

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	90.41	.0086	-.0066	.3762	-.0015	-.0016	-.0016
SDev	.41	.0034	.0014	.0101	.0001	.0021	.0009
%RSD	.4510	39.59	21.24	2.676	8.414	133.1	53.77
#1	90.70	.0062	-.0076	.3691	-.0016	-.0030	-.0022
#2	90.12	.0110	-.0056	.3833	-.0014	-.0001	-.0010

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0004	.0004	-.0090	-.0459	.0001	-.0026
SDev	.0000	.0019	.0003	.0038	.0021	.0000	.0020
%RSD	20.79	459.4	91.03	42.18	4.529	4.904	76.19
#1	-.0001	.0017	.0001	-.0117	-.0474	.0001	-.0040
#2	-.0001	-.0009	.0006	-.0063	-.0444	.0001	-.0012

010143

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0002	.0077
SDev	.0000	.0003	.0112
%RSD	91.93	139.8	145.1
#1	.0000	.0000	-.0002
#2	.0000	.0004	.0156

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	631946	10000	--	--	--	--	--
SDev	2842.569	.0000000	--	--	--	--	--
%RSD	.4498121	.0000000	--	--	--	--	--
#1	633956	10000	--	--	--	--	--
#2	629936	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230751 Operator:
Run Time: 07/31/03 16:20:03 **010144**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00079	.0472	-.0000	.0014	.0001	-.0005	-.0013
SDev	.00049	.0145	.0005	.0003	.0000	.0001	.0011
%RSD	61.709	30.69	4580.	18.99	56.69	32.04	89.91
#1	-.00113	.0574	-.0003	.0015	.0000	-.0004	-.0005
#2	-.00044	.0369	.0003	.0012	.0001	-.0006	-.0021

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0021	.0002	.0001	-.0013	.0035	-.0028	.0572
SDev	.0004	.0001	.0001	.0004	.0001	.0022	.0182
%RSD	16.82	32.51	124.8	33.81	2.981	80.12	31.73
#1	-.0024	.0003	.0000	-.0016	.0034	-.0043	.0444
#2	-.0019	.0002	.0002	-.0010	.0035	-.0012	.0701

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0030	S46.22	.0045	.0000	.0166	68.87	30.68
SDev	.0003	45.84	.0005	.0000	.0006	.31	.15
%RSD	9.092	99.18	11.40	94.71	3.584	.4558	.4905
#1	.0032	78.63	.0041	.0000	.0162	69.09	30.78
#2	.0028	S13.81	.0049	.0000	.0170	68.65	30.57

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0040	.0031	.0006	.0005	.0012	.0128	.0003
SDev	.0011	.0024	.0010	.0008	.0013	.0060	.0003
%RSD	28.28	75.91	164.3	150.7	107.1	46.54	83.28
#1	.0032	.0014	.0014	.0011	.0003	.0170	.0001
#2	.0048	.0048	-.0001	-.0000	.0022	.0086	.0005

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	91.13	.0070	.0001	.2311	.0006	.0024	-.0016
SDev	.02	.0019	.0062	.0002	.0009	.0035	.0013
%RSD	.0260	27.05	5692.	.0915	155.8	144.8	81.54
#1	91.12	.0057	.0045	.2312	.0012	.0049	-.0007
#2	91.15	.0083	-.0043	.2309	-.0001	-.0001	-.0025

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0002	-.0001	.0007	-.0106	.0003	-.0014
SDev	.0000	.0003	.0001	.0083	.0099	.0001	.0081
%RSD	8.058	136.1	129.2	1144.	93.38	58.84	586.7
#1	-.0001	-.0000	-.0001	.0066	-.0176	.0002	-.0071
#2	-.0001	-.0005	-.0000	-.0052	-.0036	.0004	.0044

010145

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0001	.0001
SDev	.0001	.0001	.0002
%RSD	328.6	142.9	181.7
#1	-.0000	-.0000	-.0000
#2	.0001	.0002	.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	637020	10000	--	--	--	--	--
SDev	171.1198	.0000000	--	--	--	--	--
%RSD	.0268625	.0000000	--	--	--	--	--
#1	636899	10000	--	--	--	--	--
#2	637141	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230752 Operator: **010146**
Run Time: 07/31/03 16:25:32
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00023	.0588	.0007	.0011	.0001	-.0006	-.0013
SDev	.00004	.0083	.0040	.0008	.0000	.0002	.0039
%RSD	16.092	14.14	596.7	69.84	52.85	32.47	300.2
#1	-.00021	.0647	.0035	.0017	.0001	-.0005	.0015
#2	-.00026	.0530	-.0022	.0006	.0000	-.0008	-.0040

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0066	.0001	.0028	-.0013	.0030	.0030	.0640
SDev	.0006	.0001	.0002	.0000	.0005	.0072	.0003
%RSD	8.610	180.1	6.532	3.041	17.57	240.6	.3917
#1	.0070	-.0000	.0030	-.0013	.0026	.0080	.0638
#2	.0062	.0002	.0027	-.0013	.0034	-.0021	.0642

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0028	S13.66	.0048	.0001	.0166	41.19	17.23
SDev	.0007	.13	.0010	.0000	.0003	.14	.17
%RSD	25.59	.9803	20.43	24.62	2.097	.3403	1.015
#1	.0033	S13.76	.0041	.0001	.0168	41.29	17.11
#2	.0023	S13.57	.0055	.0001	.0163	41.09	17.35

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0064	.0040	-.0004	-.0001	.0004	.0144	-.0023
SDev	.0004	.0054	.0006	.0026	.0002	.0003	.0022
%RSD	6.621	137.2	165.8	2365.	50.95	1.979	94.54
#1	.0067	.0078	-.0008	-.0020	.0006	.0142	-.0008
#2	.0061	.0001	.0001	.0017	.0003	.0146	-.0038

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	90.46	.0100	-.0054	.1371	-.0002	-.0003	.0015
SDev	.82	.0061	.0007	.0034	.0020	.0016	.0024
%RSD	.9032	61.10	13.35	2.505	963.6	600.3	158.2
#1	89.88	.0144	-.0059	.1396	-.0016	.0008	-.0002
#2	91.04	.0057	-.0049	.1347	.0012	-.0014	.0032

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0008	-.0006	.0059	-.0079	.0004	.0002
SDev	.0000	.0000	.0004	.0067	.0004	.0000	.0022
%RSD	48.25	1.284	69.07	112.5	5.578	.7175	1321.
#1	-.0000	.0008	-.0008	.0106	-.0076	.0004	-.0014
#2	-.0001	.0008	-.0003	.0012	-.0082	.0004	.0017

010147

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0005	-.0002
SDev	.0000	.0003	.0003
%RSD	102.1	49.94	167.2
#1	.0001	.0007	.0000
#2	.0000	.0003	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	632342	10000	--	--	--	--	--
SDev	5739.586	.0000000	--	--	--	--	--
%RSD	.9076704	.0000000	--	--	--	--	--
#1	628284	10000	--	--	--	--	--
#2	636401	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230753 Operator:
Run Time: 07/31/03 16:31:03 **010148**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00076	.0788	-.0002	.0041	.0011	-.0006	-.0018
SDev	.00132	.0095	.0014	.0004	.0003	.0002	.0032
%RSD	174.24	12.05	897.0	10.44	24.78	27.49	178.4
#1	-.00170	.0721	-.0011	.0038	.0009	-.0005	-.0040
#2	.00018	.0855	.0008	.0044	.0013	-.0008	.0005

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0461	.0002	.0005	-.0002	.0050	.0225	.2419
SDev	.0023	.0003	.0007	.0019	.0011	.0325	.0384
%RSD	5.040	203.4	137.3	952.7	22.92	144.0	15.86
#1	.0444	-.0001	.0000	-.0016	.0042	-.0004	.2148
#2	.0477	.0004	.0010	.0012	.0058	.0455	.2691

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0026	79.52	.0051	.0009	.0041	S57.32	1162.
SDev	.0014	1.30	.0039	.0003	.0005	1.42	9.
%RSD	54.23	1.636	76.80	28.19	12.69	2.475	.7462
#1	.0016	78.60	.0023	.0007	.0037	S56.32	1156.
#2	.0036	80.44	.0078	.0011	.0045	S58.33	1168.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0029	.0109	-.0004	-.0002	-.0005	.0329	-.0013
SDev	.0008	.0064	.0001	.0030	.0032	.0030	.0005
%RSD	26.80	58.97	19.95	1210.	719.5	9.215	40.90
#1	.0023	.0154	-.0004	.0019	-.0027	.0307	-.0016
#2	.0034	.0063	-.0005	-.0024	.0018	.0350	-.0009

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	91.21	.0062	-.0030	2.786	-.0003	.0001	-.0017
SDev	1.27	.0010	.0001	.016	.0020	.0004	.0005
%RSD	1.390	16.03	4.272	.5636	670.4	453.7	26.55
#1	92.10	.0055	-.0031	2.775	.0011	-.0002	-.0014
#2	90.31	.0069	-.0029	2.797	-.0017	.0004	-.0020

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0006	-.0006	-.0003	.0292	.0018	-.0024
SDev	.0000	.0007	.0003	.0001	.0157	.0016	.0033
%RSD	28.65	105.2	51.55	41.34	53.63	88.97	140.2
#1	.0001	.0011	-.0009	-.0002	.0181	.0007	-.0047
#2	.0002	.0002	-.0004	-.0004	.0403	.0030	-.0000

010149

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0003	.0029	.0013
SDev	.0003	.0002	.0019
%RSD	136.0	6.474	148.9
#1	.0000	.0030	-.0001
#2	.0005	.0027	.0026

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	637532	10000	--	--	--	--	--
SDev	8823.278	.0000000	--	--	--	--	--
%RSD	1.383974	.0000000	--	--	--	--	--
#1	643771	10000	--	--	--	--	--
#2	631293	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230754 Operator:
Run Time: 07/31/03 16:36:33 **010150**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00071	.0562	-.0006	.0399	.0003	-.0006	.0000
SDev	.00130	.0017	.0007	.0005	.0001	.0002	.0038
%RSD	183.64	2.990	111.1	1.172	40.78	24.47	33070.
#1	.00163	.0573	-.0011	.0402	.0003	-.0007	.0027
#2	-.00021	.0550	-.0001	.0395	.0002	-.0005	-.0027

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.1432	.0001	.0019	-.0002	.0043	.0071	.0721
SDev	.0001	.0001	.0002	.0006	.0003	.0127	.0082
%RSD	.0497	89.94	12.23	391.4	5.907	178.3	11.35
#1	.1432	.0002	.0017	.0003	.0045	.0161	.0779
#2	.1433	.0000	.0020	-.0006	.0042	-.0019	.0663

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0034	S14.05	.0062	.0363	.0159	28.03	11.53
SDev	.0001	.25	.0000	.0000	.0006	.23	.02
%RSD	3.690	1.796	.0271	.1082	3.622	.8344	.1835
#1	.0033	S14.23	.0062	.0362	.0155	28.20	11.54
#2	.0035	S13.88	.0062	.0363	.0164	27.87	11.51

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0394	.0144	-.0008	-.0006	.0013	.0202	.0006
SDev	.0014	.0009	.0060	.0026	.0015	.0005	.0008
%RSD	3.655	6.478	762.8	461.4	110.6	2.508	142.8
#1	.0404	.0151	-.0050	.0013	.0003	.0198	-.0000
#2	.0384	.0138	.0034	-.0024	.0024	.0205	.0012

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	89.91	.0017	.0003	.1705	-.0006	.0008	-.0044
SDev	.56	.0063	.0015	.0085	.0003	.0011	.0025
%RSD	.6275	371.7	534.1	4.966	42.70	146.5	57.01
#1	89.51	-.0028	.0013	.1645	-.0008	-.0000	-.0062
#2	90.31	.0062	-.0008	.1765	-.0004	.0016	-.0026

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0008	-.0004	-.0006	-.0263	.0007	.0005
SDev	.0000	.0022	.0001	.0025	.0048	.0004	.0013
%RSD	70.36	259.9	20.89	407.2	18.10	65.94	262.2
#1	.0000	.0024	-.0004	-.0024	-.0297	.0010	-.0004
#2	.0001	-.0007	-.0005	.0012	-.0230	.0004	.0014

010151

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0005	.0003
SDev	.0001	.0002	.0005
%RSD	108.5	44.25	160.4
#1	.0002	.0004	.0007
#2	.0000	.0007	-.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	628487	10000	--	--	--	--	--
SDev	3959.798	.0000000	--	--	--	--	--
%RSD	.6300525	.0000000	--	--	--	--	--
#1	625687	10000	--	--	--	--	--
#2	631287	10000	--	--	--	--	--

Method: DAILY1 Sample Name: 230755 Operator:
Run Time: 07/31/03 16:42:05
Comment:
Mode: CONC Corr. Factor: 1

010152

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00005	.0782	.0009	-.0000	.0030	-.0009	.0004
SDev	.00004	.0001	.0004	.0007	.0003	.0001	.0009
%RSD	87.102	.0755	42.39	17490.	9.322	11.27	247.4
#1	-.00008	.0782	.0006	.0005	.0031	-.0008	-.0003
#2	-.00002	.0783	.0011	-.0005	.0028	-.0010	.0010

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0062	.0002	.0004	-.0008	.0050	.0073	.0699
SDev	.0005	.0002	.0003	.0000	.0002	.0018	.0111
%RSD	7.374	104.6	68.47	.9431	4.235	25.02	15.90
#1	.0066	.0004	.0002	-.0008	.0052	.0060	.0778
#2	.0059	.0001	.0005	-.0008	.0049	.0085	.0621

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0036	546.58	.0041	.0002	.0157	11.56	4.310
SDev	.0001	45.63	.0030	.0000	.0004	.07	.008
%RSD	1.607	97.96	73.77	13.17	2.297	.6135	.1948
#1	.0036	514.32	.0062	.0003	.0154	11.61	4.316
#2	.0036	78.85	.0019	.0002	.0159	11.51	4.304

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0148	.0096	-.0011	.0008	.0029	.0096	-.0003
SDev	.0006	.0043	.0022	.0032	.0016	.0083	.0000
%RSD	4.334	44.92	199.3	411.2	54.86	87.03	1.380
#1	.0143	.0066	-.0027	.0030	.0018	.0037	-.0003
#2	.0152	.0127	.0005	-.0015	.0040	.0155	-.0003

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	87.50	.0036	.0000	.1027	.0001	.0012	-.0035
SDev	.32	.0008	.0010	.0025	.0014	.0010	.0003
%RSD	.3705	23.49	6214.	2.448	976.6	78.77	8.513
#1	87.28	.0030	-.0007	.1009	.0011	.0005	-.0037
#2	87.73	.0042	.0007	.1044	-.0008	.0019	-.0033

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0024	-.0006	-.0085	-.0221	.0007	-.0072
SDev	.0000	.0001	.0001	.0149	.0086	.0002	.0020
%RSD	1.087	2.519	14.45	176.0	38.95	24.39	27.10
#1	-.0000	.0025	-.0007	-.0190	-.0282	.0005	-.0059
#2	-.0000	.0024	-.0005	.0021	-.0160	.0008	-.0086

010153

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0008	-.0002
SDev	.0001	.0001	.0005
%RSD	120.9	14.44	249.0
#1	.0001	.0007	.0001
#2	.0000	.0009	-.0005

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	611706	10000	--	--	--	--	--
SDev	2249.307	.0000000	--	--	--	--	--
%RSD	.3677107	.0000000	--	--	--	--	--
#1	610115	10000	--	--	--	--	--
#2	613296	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230756 Operator:
Run Time: 07/31/03 16:47:34 **010154**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00016	.0782	-.0017	.0000	.0007	-.0008	.0001
SDev	.00094	.0003	.0030	.0006	.0000	.0001	.0018
%RSD	577.59	.3138	173.4	2659.	2.656	12.19	1710.
#1	-.00082	.0783	.0004	.0005	.0007	-.0008	.0014
#2	.00050	.0780	-.0038	-.0004	.0007	-.0009	-.0012

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0086	.0000	.0002	-.0010	.0048	.0035	.0401
SDev	.0003	.0001	.0007	.0004	.0005	.0005	.0186
%RSD	4.048	340.4	314.9	37.40	10.93	15.39	46.45
#1	.0084	.0001	-.0003	-.0007	.0051	.0031	.0269
#2	.0089	-.0001	.0007	-.0013	.0044	.0038	.0533

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0033	S47.77	.0059	.0002	.0155	7.229	2.460
SDev	.0001	47.24	.0035	.0000	.0005	.006	.001
%RSD	3.585	98.90	58.62	14.80	3.271	.0807	.0428
#1	.0034	S14.36	.0084	.0002	.0151	7.225	2.459
#2	.0033	81.17	.0035	.0002	.0158	7.233	2.461

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0194	.0025	-.0012	.0005	.0011	.0128	-.0003
SDev	.0001	.0095	.0016	.0014	.0009	.0039	.0024
%RSD	.4031	381.1	141.0	302.2	81.94	30.29	914.6
#1	.0195	.0092	-.0000	.0014	.0018	.0101	-.0020
#2	.0194	-.0042	-.0023	-.0005	.0005	.0156	.0014

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	88.91	.0093	-.0082	.0735	-.0001	-.0023	-.0042
SDev	.24	.0019	.0007	.0029	.0015	.0011	.0010
%RSD	.2749	20.39	8.350	3.943	1673.	46.36	23.64
#1	88.74	.0079	-.0086	.0715	.0009	-.0031	-.0035
#2	89.08	.0106	-.0077	.0756	-.0011	-.0016	-.0049

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0005	-.0005	.0011	.0184	.0003	-.0013
SDev	.0000	.0013	.0003	.0064	.0085	.0000	.0042
%RSD	13.34	239.2	61.08	566.7	45.97	1.061	332.6
#1	-.0001	-.0004	-.0008	.0057	.0244	.0003	.0017
#2	-.0001	.0014	-.0003	-.0034	.0124	.0003	-.0043

010155

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0006	.0001
SDev	.0001	.0004	.0004
%RSD	121.7	59.43	281.5
#1	.0001	.0009	.0004
#2	.0000	.0004	-.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	621489	10000	--	--	--	--	--
SDev	1715.441	.0000000	--	--	--	--	--
%RSD	.2760211	.0000000	--	--	--	--	--
#1	620276	10000	--	--	--	--	--
#2	622702	10000	--	--	--	--	--

Method: DAILY1 Sample Name: 230757 Operator:
Run Time: 07/31/03 16:53:08
Comment:
Mode: CONC Corr. Factor: 1

010156

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00000	.1161	.0010	.0031	.0005	-.0008	.0028
SDev	.00012	.0019	.0006	.0001	.0001	.0003	.0024
%RSD	6829.2	1.674	61.62	2.734	14.66	31.12	87.21
#1	-.00009	.1175	.0015	.0031	.0005	-.0006	.0011
#2	.00008	.1147	.0006	.0032	.0006	-.0010	.0045

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0065	.0002	.0004	-.0010	.0051	.0463	.2396
SDev	.0012	.0002	.0008	.0005	.0004	.0131	.0089
%RSD	19.08	92.68	200.2	50.01	8.216	28.22	3.713
#1	.0056	.0001	-.0002	-.0014	.0054	.0370	.2333
#2	.0073	.0003	.0010	-.0006	.0048	.0555	.2459

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0030	S18.14	.0226	.0004	.0154	S81.92	724.5
SDev	.0005	.23	.0042	.0001	.0004	.51	5.0
%RSD	17.49	1.276	18.39	15.15	2.347	.6246	.6946
#1	.0026	S17.98	.0196	.0003	.0151	S81.56	721.0
#2	.0034	S18.31	.0255	.0004	.0157	S82.29	728.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0023	.0175	.0001	-.0006	.0012	.0290	-.0000
SDev	.0007	.0015	.0018	.0003	.0020	.0029	.0023
%RSD	31.99	8.438	2447.	40.01	172.1	10.13	67650.
#1	.0018	.0186	.0014	-.0008	-.0003	.0270	-.0016
#2	.0028	.0165	-.0012	-.0005	.0026	.0311	.0016

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.03	.0046	-.0032	2.005	-.0004	-.0006	-.0006
SDev	.05	.0015	.0008	.000	.0004	.0000	.0016
%RSD	.0558	31.99	24.10	.0206	107.8	5.115	245.7
#1	86.06	.0035	-.0027	2.005	-.0001	-.0006	-.0018
#2	85.99	.0056	-.0038	2.004	-.0007	-.0006	.0005

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0006	.0014	-.0056	.0004	.0008	-.0089
SDev	.0000	.0007	.0003	.0011	.0108	.0003	.0077
%RSD	77.09	119.2	23.97	20.13	2853.	41.44	85.90
#1	-.0001	.0001	.0011	-.0048	-.0073	.0005	-.0143
#2	-.0000	.0011	.0016	-.0064	.0080	.0010	-.0035

010157

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0003	.0082
SDev	.0001	.0001	.0108
%RSD	302.3	40.12	132.7
#1	-.0000	.0004	.0158
#2	.0001	.0002	.0005

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	601420	10000	--	--	--	--	--
SDev	324.5620	.0000000	--	--	--	--	--
%RSD	.0539659	.0000000	--	--	--	--	--
#1	601650	10000	--	--	--	--	--
#2	601191	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccv3 Operator:
Run Time: 07/31/03 17:03:54
Comment:
Mode: CONC Corr. Factor: 1

010158

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0463	9.728	5.116	4.999	9.923	1.069	4.922
SDev	.0076	.017	.016	.029	.064	.003	.002
%RSD	.72246	.1790	.3045	.5895	.6453	.3078	.0461
#1	1.0410	9.716	5.105	4.978	9.968	1.067	4.920
#2	1.0517	9.741	5.127	5.020	9.878	1.071	4.924
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.1000	11.00	5.500	5.500	11.00	1.100	5.500
Low	.90000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.07	1.036	5.062	2.005	2.104	10.14	L16.05
SDev	.17	.001	.017	.011	.004	.05	.14
%RSD	.8480	.1169	.3306	.5306	.1734	.4489	.8470
#1	19.95	1.035	5.050	1.997	2.102	10.11	L16.14
#2	20.19	1.037	5.073	2.012	2.107	10.17	L15.95
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.869	L4.413	19.89	1.047	5.183	H43.58	L25.30
SDev	.002	.026	.08	.006	.052	.11	.02
%RSD	.0405	.5876	.4160	.5726	.9997	.2579	.0772
#1	4.871	L4.431	19.83	1.043	5.147	H43.66	L25.31
#2	4.868	L4.395	19.95	1.052	5.220	H43.50	L25.28
Errors	LC Pass	LC Low	LC Pass	LC Pass	LC Pass	LC High	LC Low
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.984	5.251	4.933	4.981	1.032	1.049	1.008
SDev	.003	.182	.002	.065	.000	.021	.008
%RSD	.0686	3.474	.0344	1.310	.0118	2.036	.8363
#1	4.987	5.122	4.934	4.935	1.032	1.064	1.002
#2	4.982	5.380	4.932	5.027	1.032	1.034	1.014
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.05	5.207	5.182	5.344	4.960	5.185	5.049
SDev	.25	.012	.054	.011	.043	.040	.006
%RSD	.2721	.2327	1.044	.2135	.8646	.7729	.1259
#1	92.22	5.199	5.144	5.335	4.930	5.157	5.054
#2	91.87	5.216	5.220	5.352	4.991	5.214	5.045
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.210	.9854	4.967	5.336	1.061	5.064	H1.683
SDev	.019	.0042	.014	.067	.014	.016	.006
%RSD	.3577	.4208	.2794	1.247	1.289	.3103	.3740
#1	5.223	.9824	4.958	5.289	1.052	5.053	H1.679
#2	5.197	.9883	4.977	5.383	1.071	5.075	H1.688
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.976	1.060	4.866
SDev	.004	.005	.006
%RSD	.0780	.4799	.1132
#1	4.979	1.056	4.870
#2	4.973	1.063	4.862
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	643413	10000	--	--	--	--	--
SDev	1791.809	.0000000	--	--	--	--	--
%RSD	.2784850	.0000000	--	--	--	--	--
#1	644680	10000	--	--	--	--	--
#2	642146	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccb3 Operator:
Run Time: 07/31/03 17:12:09
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00013	H.0836	-.0007	.0147	-.0000	-.0009	-.0028
SDev	.00006	.0054	.0002	.0014	.0000	.0000	.0018
%RSD	44.132	6.437	28.26	9.443	143.6	5.202	65.11
#1	-.00017	H.0798	-.0006	.0157	.0000	-.0008	-.0015
#2	-.00009	H.0874	-.0009	.0137	-.0001	-.0009	-.0041
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0017	.0000	-.0000	-.0010	.0037	-.0052	.0091
SDev	.0000	.0001	.0002	.0003	.0002	.0036	.0000
%RSD	1.508	1521.	482.6	27.00	4.748	68.59	.1575
#1	.0017	.0001	.0001	-.0012	.0039	-.0077	.0091
#2	.0017	-.0001	-.0002	-.0008	.0036	-.0027	.0091
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	H.0133	.0017	-.0001	.0009	.0230	L-.2767
SDev	.0004	.0004	.0010	.0000	.0001	.0012	.2009
%RSD	185.5	3.060	59.54	40.43	7.098	5.111	72.62
#1	.0001	H.0136	.0024	-.0000	.0009	.0238	L-.1346
#2	-.0004	H.0130	.0010	-.0001	.0008	.0222	L-.4187
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	H.0109	-.0014	-.0001	.0000	.0031	-.0006
SDev	.0006	.0002	.0015	.0031	.0001	.0004	.0018
%RSD	97.43	1.924	106.0	4422.	314.1	14.67	272.6
#1	-.0010	H.0107	-.0025	.0021	-.0000	.0028	-.0019
#2	-.0002	H.0110	-.0004	-.0023	.0001	.0034	.0006
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.76	.0009	-.0019	H.0272	-.0005	-.0009	-.0036
SDev	.63	.0020	.0015	.0029	.0016	.0016	.0003
%RSD	.6819	212.6	79.59	10.72	306.5	179.2	8.114
#1	93.21	-.0005	-.0029	H.0251	.0006	-.0021	-.0034
#2	92.31	.0023	-.0008	H.0293	-.0016	.0002	-.0038
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0006	.0002	.0018	.0848	-.0000	-.0003
SDev	.0000	.0019	.0001	.0020	.0092	.0004	.0000
%RSD	682.9	331.2	76.29	111.5	10.92	1039.	8.417
#1	.0000	.0008	.0003	.0004	.0913	-.0003	-.0003
#2	-.0000	-.0019	.0001	.0032	.0782	.0003	-.0003
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	-.0005	.0030
SDev	.0000	.0002	.0041
%RSD	22.68	44.65	136.1
#1	-.0001	-.0004	.0001
#2	-.0000	-.0007	H.0059
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	648383	10000	--	--	--	--	--
SDev	4416.589	.0000000	--	--	--	--	--
%RSD	.6811698	.0000000	--	--	--	--	--
#1	651506	10000	--	--	--	--	--
#2	645260	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230758 Operator:
Run Time: 07/31/03 17:17:44
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00036	.1153	.0002	.0092	.0000	-.0012	-.0000
SDev	.00008	.0197	.0023	.0015	.0000	.0002	.0016
%RSD	22.616	17.10	977.8	15.80	110.7	13.02	7281.
#1	-.00041	.1013	.0019	.0103	.0000	-.0013	-.0011
#2	-.00030	.1292	-.0014	.0082	.0001	-.0011	.0011

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0129	.0001	.0004	-.0012	.0047	.0021	.0285
SDev	.0004	.0001	.0003	.0002	.0003	.0089	.0623
%RSD	2.896	82.18	76.67	19.04	7.098	421.0	218.3
#1	.0131	.0002	.0002	-.0014	.0049	-.0042	-.0155
#2	.0126	.0000	.0006	-.0011	.0045	.0084	.0726

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0037	S15.56	.0059	.0022	.0159	41.47	17.28
SDev	.0005	.33	.0026	.0001	.0009	.32	.54
%RSD	12.88	2.143	43.81	4.037	5.488	.7638	3.099
#1	.0033	S15.33	.0041	.0021	.0153	41.24	16.90
#2	.0040	S15.80	.0077	.0022	.0166	41.69	17.66

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0095	.0085	.0025	-.0008	.0011	.0134	-.0006
SDev	.0004	.0061	.0002	.0026	.0006	.0073	.0012
%RSD	3.868	71.24	6.448	340.7	52.50	54.15	206.4
#1	.0097	.0042	.0026	.0011	.0007	.0083	.0003
#2	.0092	.0128	.0024	-.0026	.0015	.0185	-.0015

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.50	.0040	-.0027	.1529	.0003	-.0005	-.0019
SDev	.12	.0007	.0004	.0036	.0018	.0001	.0024
%RSD	.1377	18.26	16.33	2.364	542.2	11.41	129.0
#1	85.58	.0035	-.0024	.1503	.0016	-.0004	-.0002
#2	85.42	.0045	-.0031	.1554	-.0009	-.0005	-.0036

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0001	-.0004	.0025	.0185	-.0000	.0024
SDev	.0000	.0004	.0004	.0000	.0070	.0008	.0025
%RSD	23.70	407.8	88.25	.5535	37.97	8214.	103.2
#1	-.0000	.0004	-.0007	.0025	.0135	-.0006	.0042
#2	-.0000	-.0002	-.0002	.0025	.0234	.0005	.0006

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0000	-.0001
SDev	.0000	.0003	.0002
%RSD	.1764	515.9	166.3
#1	.0000	.0002	-.0003
#2	.0000	-.0001	.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	597720	10000	--	--	--	--	--
SDev	856.3063	.0000000	--	--	--	--	--
%RSD	.1432620	.0000000	--	--	--	--	--
#1	598326	10000	--	--	--	--	--
#2	597115	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230759 Operator:
Run Time: 07/31/03 17:23:16
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00029	.1109	.0023	.0021	.0002	-.0012	-.0020
SDev	.00008	.0059	.0015	.0006	.0000	.0001	.0009
%RSD	28.086	5.327	66.82	30.43	7.725	10.20	44.40
#1	-.00023	.1068	.0033	.0025	.0002	-.0013	-.0014
#2	-.00034	.1151	.0012	.0016	.0002	-.0011	-.0026

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0068	.0001	.0010	-.0015	.0050	.0064	.0107
SDev	.0004	.0000	.0004	.0007	.0003	.0088	.0201
%RSD	6.202	34.55	41.90	48.40	6.623	139.1	188.1
#1	.0071	.0000	.0013	-.0010	.0053	.0126	-.0035
#2	.0065	.0001	.0007	-.0020	.0048	.0001	.0249

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0384	.0044	.0001	.0007	.0070	-.4546
SDev	.0001	.0285	.0020	.0001	.0002	.0037	.1759
%RSD	32.67	74.24	45.31	85.34	29.11	53.04	38.68
#1	.0003	.0585	.0030	.0001	.0008	.0096	-.5790
#2	.0002	.0182	.0058	.0000	.0006	.0044	-.3303

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0095	-.0005	-.0017	.0003	-.0003	-.0025
SDev	.0004	.0141	.0009	.0012	.0011	.0058	.0004
%RSD	49.48	149.1	182.7	74.03	454.9	2166.	17.67
#1	.0005	-.0005	.0001	-.0008	.0011	-.0044	-.0022
#2	.0011	.0194	-.0011	-.0025	-.0006	.0038	-.0029

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	89.45	.0065	-.0051	.0689	-.0013	-.0012	-.0021
SDev	.25	.0021	.0006	.0034	.0011	.0003	.0034
%RSD	.2837	32.73	12.01	4.967	87.44	25.75	161.1
#1	89.27	.0080	-.0055	.0665	-.0005	-.0010	.0003
#2	89.63	.0050	-.0046	.0714	-.0020	-.0014	-.0045

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0042	-.0002	.0072	.1272	.0000	-.0004
SDev	.0000	.0004	.0003	.0035	.0063	.0003	.0031
%RSD	18.67	10.22	195.4	49.16	4.959	766.3	777.1
#1	-.0000	-.0045	-.0004	.0097	.1228	.0002	.0018
#2	-.0000	-.0039	.0001	.0047	.1317	-.0002	-.0026

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0004	.0004
SDev	.0001	.0001	.0005
%RSD	163.1	28.75	115.8
#1	.0001	.0005	.0008
#2	-.0000	.0003	.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	625331	10000	--	--	--	--	--
SDev	1730.997	.0000000	--	--	--	--	--
%RSD	.2768130	.0000000	--	--	--	--	--
#1	624107	10000	--	--	--	--	--
#2	626555	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: pbw-G31W4 pg54-132 Operator:
Run Time: 07/31/03 17:34:02
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00090	H.1249	-.0023	.0031	.0000	-.0014	.0011
SDev	.00011	.0005	.0055	.0001	.0001	.0001	.0014
%RSD	12.327	.3764	233.0	3.859	281.5	4.389	130.7
#1	.00082	H.1246	L-.0062	.0031	-.0000	-.0014	.0001
#2	.00097	H.1252	.0015	.0032	.0001	-.0013	.0020
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0138	.0001	-.0001	-.0008	H.0058	.0068	.0282
SDev	.0003	.0001	.0000	.0009	.0003	.0196	.0090
%RSD	2.350	40.66	3.690	111.2	5.730	289.5	31.95
#1	.0135	.0001	-.0001	-.0015	H.0055	-.0071	.0219
#2	.0140	.0001	-.0001	-.0002	H.0060	.0206	.0346
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	H.0148	.0076	.0000	.0006	.0190	L-.1446
SDev	.0000	.0006	.0006	.0001	.0013	.0024	.0848
%RSD	3.283	3.745	7.281	370.5	217.7	12.61	58.66
#1	.0011	H.0152	.0072	-.0000	-.0003	.0207	L-.2045
#2	.0011	H.0144	.0080	.0001	.0016	.0173	L-.0846
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0045	.0016	-.0019	.0012	.0063	.0018
SDev	.0006	.0024	.0005	.0007	.0007	.0004	.0012
%RSD	818.9	54.21	28.92	36.13	59.54	6.644	68.60
#1	-.0004	-.0062	.0013	-.0024	.0007	.0060	.0027
#2	.0005	-.0028	.0020	-.0014	.0017	.0066	.0009
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.58	.0020	-.0024	H.0457	-.0007	-.0009	.0007
SDev	.32	.0007	.0004	.0022	.0006	.0005	.0000
%RSD	.3656	33.56	18.08	4.773	84.98	55.66	2.610
#1	86.36	.0015	-.0027	H.0472	-.0012	-.0013	.0007
#2	86.80	.0024	-.0021	H.0442	-.0003	-.0006	.0007
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0017	.0006	-.0078	H.1376	.0004	.0007
SDev	.0000	.0006	.0000	.0052	.0166	.0006	.0064
%RSD	13.30	37.06	2.866	66.38	12.05	142.0	979.4
#1	.0000	-.0021	.0006	L-.0114	H.1259	-.0000	-.0039
#2	.0001	-.0012	.0006	-.0041	H.1494	.0009	.0052
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	-.0001	.0034
SDev	.0001	.0003	.0048
%RSD	643.7	181.3	138.7
#1	-.0001	.0000	.0001
#2	.0001	-.0003	H.0068
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

010170

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	605280	10000	--	--	--	--	--
SDev	2165.161	.0000000	--	--	--	--	--
%RSD	.3577123	.0000000	--	--	--	--	--
#1	603749	10000	--	--	--	--	--
#2	606811	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: lcsw-631W4 Operator:
Run Time: 07/31/03 17:39:37
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.05535	2.020	2.215	.0037	2.058	.0575	.0003
SDev	.00153	.004	.024	.0008	.004	.0002	.0019
%RSD	2.7676	.1828	1.101	22.00	.2152	.3024	610.5
#1	.05427	2.022	2.198	.0031	2.061	.0573	.0017
#2	.05643	2.017	2.233	.0043	2.055	.0576	-.0011

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	21.03	.0563	.5402	.2132	.2726	1.070	13.46
SDev	.17	.0008	.0045	.0024	.0002	.021	.06
%RSD	.8253	1.477	.8257	1.138	.0768	1.921	.4288
#1	20.90	.0558	.5370	.2115	.2725	1.056	13.51
#2	21.15	.0569	.5433	.2149	.2728	1.085	13.42

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0175	20.84	.5484	-.0005	25.94	15.17
SDev	.0018	.0003	.13	.0039	.0003	.17	.12
%RSD	303.8	1.598	.6420	.7188	51.58	.6724	.7899
#1	-.0007	.0177	20.74	.5456	-.0007	26.06	15.09
#2	.0019	.0173	20.93	.5512	-.0003	25.81	15.25

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5424	.0210	.5314	.5290	-.0001	.0028	.5266
SDev	.0077	.0035	.0010	.0026	.0012	.0021	.0061
%RSD	1.428	16.66	.1890	.4994	802.1	74.16	1.166
#1	.5369	.0234	.5307	.5272	-.0010	.0013	.5222
#2	.5479	.0185	.5322	.5309	.0007	.0042	.5309

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.13	2.208	2.182	4.658	.5293	2.188	-.0005
SDev	.09	.018	.022	.010	.0021	.021	.0037
%RSD	.1098	.8345	1.007	.2076	.3956	.9492	750.6
#1	85.20	2.195	2.166	4.651	.5278	2.174	-.0031
#2	85.07	2.221	2.197	4.665	.5308	2.203	.0021

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0080	.0007	2.213	.1350	.5305	-.0013
SDev	.0001	.0018	.0003	.009	.0286	.0028	.0053
%RSD	38.05	22.69	48.65	.3998	21.17	.5220	393.3
#1	.0001	-.0093	.0005	2.219	.1148	.5286	-.0051
#2	.0002	-.0067	.0009	2.207	.1552	.5325	.0024

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.5826	.0092
SDev	.0003	.0097	.0082
%RSD	696.0	1.670	89.15
#1	-.0001	.5757	.0150
#2	.0002	.5895	.0034

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	595216	10000	--	--	--	--	--
SDev	635.6890	.0000000	--	--	--	--	--
%RSD	.1067996	.0000000	--	--	--	--	--
#1	595666	10000	--	--	--	--	--
#2	594767	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230760 Operator:
Run Time: 07/31/03 17:45:08
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00044	.1336	.0022	.0074	.0020	-.0010	.0036
SDev	.00062	.0132	.0034	.0003	.0000	.0000	.0033
%RSD	139.03	9.898	155.5	3.384	1.879	2.409	93.55
#1	.00001	.1242	-.0002	.0072	.0021	-.0010	.0012
#2	.00088	.1429	.0046	.0076	.0020	-.0010	.0059

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0341	.0003	.0006	-.0004	.0066	.0207	.4603
SDev	.0001	.0003	.0004	.0009	.0010	.0197	.0133
%RSD	.3777	113.1	70.04	222.1	15.33	95.09	2.884
#1	.0340	.0001	.0003	-.0011	.0059	.0068	.4509
#2	.0342	.0006	.0009	.0002	.0074	.0347	.4697

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0038	S58.32	.0139	.0006	.0102	S25.26	2214.
SDev	.0015	43.73	.0031	.0001	.0010	.73	4.
%RSD	40.25	74.99	22.30	9.240	9.654	2.906	.1940
#1	.0027	89.25	.0117	.0006	.0095	S24.74	2217.
#2	.0049	S27.40	.0161	.0006	.0109	S25.78	2211.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0039	.0045	-.0015	.0000	.0029	.0519	.0024
SDev	.0010	.0017	.0004	.0012	.0010	.0002	.0001
%RSD	24.62	38.98	26.61	5788.	36.21	.4124	3.637
#1	.0033	.0032	-.0012	-.0008	.0022	.0520	.0025
#2	.0046	.0057	-.0018	.0009	.0037	.0517	.0024

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.62	.0046	.0002	1.854	-.0005	.0017	.0015
SDev	.02	.0017	.0000	.002	.0007	.0006	.0008
%RSD	.0250	37.69	8.461	.1136	137.8	33.99	57.62
#1	86.63	.0058	.0002	1.852	-.0010	.0021	.0009
#2	86.60	.0034	.0002	1.855	-.0000	.0013	.0020

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0030	.0000	-.0011	.0555	.0016	-.0024
SDev	.0001	.0031	.0006	.0030	.0146	.0006	.0041
%RSD	45.62	101.0	2002.	277.3	26.37	39.10	166.4
#1	.0001	.0009	-.0004	.0010	.0452	.0012	-.0053
#2	.0002	.0052	.0004	-.0032	.0659	.0020	.0004

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0003	.0035	.0012
SDev	.0002	.0004	.0009
%RSD	92.16	10.71	72.25
#1	.0001	.0038	.0006
#2	.0004	.0033	.0019

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	605511	10000	--	--	--	--	--
SDev	145.6640	.0000000	--	--	--	--	--
%RSD	.0240564	.0000000	--	--	--	--	--
#1	605614	10000	--	--	--	--	--
#2	605408	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230761 Operator:
Run Time: 07/31/03 17:50:37
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00004	.1457	.0061	.0050	.0007	-.0013	.0014
SDev	.00056	.0059	.0005	.0004	.0000	.0004	.0035
%RSD	1588.7	4.052	8.318	7.446	3.265	27.83	249.5
#1	.00043	.1416	.0065	.0047	.0007	-.0011	.0039
#2	-.00036	.1499	.0057	.0052	.0008	-.0016	-.0011

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0290	.0003	.0023	-.0011	.0068	.0192	.1619
SDev	.0006	.0001	.0011	.0001	.0006	.0034	.0593
%RSD	2.218	28.41	48.23	8.902	8.756	17.96	36.64
#1	.0286	.0003	.0015	-.0012	.0064	.0216	.2039
#2	.0295	.0002	.0030	-.0010	.0072	.0167	.1200

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0033	S32.97	.0146	.0005	.0059	S77.18	857.2
SDev	.0003	.96	.0029	.0000	.0004	2.58	5.7
%RSD	10.42	2.924	19.77	7.669	7.081	3.340	.6595
#1	.0030	S32.29	.0166	.0005	.0062	S75.36	853.2
#2	.0035	S33.65	.0126	.0005	.0056	S79.01	861.2

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	.0057	.0089	-.0063	.0052	.0222	-.0004
SDev	.0000	.0140	.0109	.0037	.0057	.0019	.0050
%RSD	3.237	245.9	122.1	58.32	110.6	8.449	1392.
#1	.0011	.0156	.0012	-.0037	.0011	.0235	.0032
#2	.0011	-.0042	.0166	-.0089	.0093	.0208	-.0039

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.62	.0158	-.0047	2.684	-.0012	.0022	-.0028
SDev	2.12	.0009	.0002	.005	.0012	.0002	.0001
%RSD	2.445	5.725	4.359	.2007	94.00	7.625	2.577
#1	88.12	.0164	-.0048	2.688	-.0021	.0023	-.0027
#2	85.13	.0152	-.0045	2.680	-.0004	.0021	-.0029

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0025	.0004	-.0032	.1461	.0008	-.0002
SDev	.0000	.0009	.0011	.0097	.0212	.0002	.0023
%RSD	16.08	36.14	264.3	301.1	14.49	19.99	1120.
#1	.0001	-.0019	.0012	.0037	.1610	.0009	-.0019
#2	.0001	-.0031	-.0004	-.0101	.1311	.0007	.0014

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0117	.0010
SDev	.0001	.0004	.0003
%RSD	103.5	3.676	35.59
#1	.0001	.0114	.0012
#2	.0000	.0120	.0007

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	605574	10000	--	--	--	--	--
SDev	14787.72	.0000000	--	--	--	--	--
%RSD	2.441933	.0000000	--	--	--	--	--
#1	616031	10000	--	--	--	--	--
#2	595118	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230761d Operator:
Run Time: 07/31/03 17:56:09
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00067	.1476	.0028	.0040	.0008	-.0015	-.0006
SDev	.00304	.0126	.0031	.0021	.0001	.0002	.0061
%RSD	454.83	8.542	109.8	52.52	12.16	14.32	970.3
#1	-.00282	.1387	.0006	.0025	.0007	-.0014	-.0049
#2	.00148	.1565	.0049	.0055	.0009	-.0017	.0037

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0087	.0001	.0001	-.0008	.0067	.0320	.1522
SDev	.0041	.0007	.0011	.0005	.0009	.0080	.1127
%RSD	46.77	1213.	1018.	59.16	14.31	25.08	74.07
#1	.0058	-.0004	-.0007	-.0011	.0060	.0263	.0725
#2	.0116	.0006	.0009	-.0004	.0073	.0377	.2319

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0023	S33.50	.0100	.0002	.0063	S79.42	840.4
SDev	.0032	.05	.0129	.0001	.0016	.12	6.3
%RSD	134.6	.1513	129.3	37.67	25.46	.1484	.7449
#1	.0001	S33.54	.0009	.0001	.0052	S79.50	844.8
#2	.0046	S33.47	.0191	.0003	.0074	S79.34	836.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	.0164	-.0034	.0011	-.0005	.0136	-.0020
SDev	.0013	.0115	.0024	.0010	.0047	.0045	.0095
%RSD	137.5	70.53	69.58	96.04	976.0	33.23	479.0
#1	.0000	.0245	-.0017	.0003	-.0038	.0168	-.0087
#2	.0019	.0082	-.0051	.0018	.0029	.0104	.0047

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.33	.0031	-.0040	2.719	-.0004	-.0016	-.0009
SDev	.19	.0001	.0041	.009	.0001	.0027	.0037
%RSD	.2162	1.787	103.1	.3473	23.36	172.4	415.4
#1	86.20	.0032	-.0069	2.712	-.0003	-.0035	-.0035
#2	86.47	.0031	-.0011	2.726	-.0005	.0003	.0017

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0031	.0003	-.0120	.1662	.0010	-.0001
SDev	.0001	.0029	.0022	.0081	.0543	.0005	.0093
%RSD	247.9	94.74	842.8	67.82	32.68	46.23	6854.
#1	-.0002	-.0052	-.0013	-.0177	.1278	.0007	-.0067
#2	.0000	-.0010	.0019	-.0062	.2046	.0014	.0065

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0033	.0089
SDev	.0001	.0006	.0116
%RSD	82.54	18.55	130.6
#1	.0001	.0029	.0007
#2	.0003	.0038	.0171

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	603556	10000	--	--	--	--	--
SDev	1349.867	.0000000	--	--	--	--	--
%RSD	.2236525	.0000000	--	--	--	--	--
#1	602601	10000	--	--	--	--	--
#2	604510	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230762 Operator:
Run Time: 07/31/03 18:01:38
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00086	.1409	-.0003	.0021	.0007	-.0016	-.0018
SDev	.00117	.0203	.0042	.0005	.0000	.0000	.0016
%RSD	136.03	14.40	1360.	22.45	3.012	2.101	85.04
#1	-.00169	.1266	-.0033	.0018	.0007	-.0015	-.0007
#2	-.00003	.1553	.0027	.0025	.0008	-.0016	-.0029

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0146	-.0001	.0001	-.0011	.0067	-.0011	.2705
SDev	.0022	.0002	.0007	.0001	.0001	.0006	.0219
%RSD	15.33	327.0	1121.	5.372	1.930	58.70	8.087
#1	.0130	-.0002	-.0004	-.0010	.0068	-.0016	.2550
#2	.0162	.0001	.0005	-.0011	.0066	-.0006	.2859

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0028	S53.87	.0027	.0002	.0115	S60.76	1320.
SDev	.0010	44.08	.0102	.0000	.0003	.79	12.
%RSD	35.43	81.82	377.5	16.00	2.395	1.298	.8818
#1	.0021	85.04	-.0045	.0002	.0117	S60.20	1312.
#2	.0035	S22.70	.0099	.0002	.0113	S61.32	1328.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0053	.0139	-.0002	.0024	.0008	.0292	-.0006
SDev	.0001	.0054	.0111	.0072	.0049	.0073	.0002
%RSD	1.961	39.09	6507.	293.8	609.7	25.08	31.92
#1	.0053	.0100	-.0080	.0075	-.0027	.0241	-.0007
#2	.0052	.0177	.0077	-.0026	.0043	.0344	-.0004

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.46	.0012	-.0040	1.019	.0016	-.0022	-.0040
SDev	1.15	.0086	.0063	.007	.0011	.0013	.0012
%RSD	1.333	716.8	156.9	.6674	68.81	58.10	29.10
#1	87.28	-.0049	.0004	1.014	.0023	-.0013	-.0032
#2	85.65	.0073	-.0084	1.024	.0008	-.0032	-.0049

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0004	-.0007	.0039	.0942	.0006	-.0004
SDev	.0001	.0036	.0002	.0062	.0179	.0002	.0062
%RSD	419.4	855.2	23.91	158.1	19.01	24.62	1455.
#1	-.0001	.0030	-.0008	-.0005	.0815	.0007	-.0048
#2	.0000	-.0021	-.0006	.0083	.1068	.0005	.0039

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0019	.0006
SDev	.0001	.0004	.0003
%RSD	65.86	21.45	45.13
#1	.0001	.0016	.0008
#2	.0000	.0022	.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	604446	10000	--	--	--	--	--
SDev	8012.934	.0000000	--	--	--	--	--
%RSD	1.325666	.0000000	--	--	--	--	--
#1	610112	10000	--	--	--	--	--
#2	598780	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230762s Operator:
Run Time: 07/31/03 18:07:11
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.06149	2.582	2.295	.0030	2.154	.0531	-.0002
SDev	.00136	.002	.006	.0003	.001	.0001	.0024
%RSD	2.2173	.0950	.2689	9.750	.0385	.1556	1273.
#1	.06053	2.580	2.291	.0028	2.154	.0530	-.0019
#2	.06246	2.584	2.299	.0032	2.155	.0531	.0015

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	21.10	.0531	.5321	.2113	.3203	1.080	42.04
SDev	.11	.0007	.0035	.0026	.0014	.025	.54
%RSD	.5143	1.312	.6555	1.231	.4236	2.284	1.275
#1	21.02	.0526	.5296	.2095	.3213	1.063	41.66
#2	21.18	.0536	.5346	.2132	.3193	1.097	42.42

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0036	S56.99	22.79	.5381	.0141	S64.37	1386.
SDev	.0017	46.61	.05	.0021	.0001	1.19	3.
%RSD	47.66	81.79	.1986	.3834	.5810	1.845	.1892
#1	.0024	89.95	22.76	.5367	.0140	S65.21	1384.
#2	.0049	S24.03	22.83	.5396	.0141	S63.53	1388.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5439	.0081	.5452	.5527	.0032	.0367	.5425
SDev	.0032	.0087	.0099	.0029	.0005	.0022	.0067
%RSD	.5815	107.5	1.819	.5242	14.39	6.095	1.238
#1	.5416	.0020	.5522	.5507	.0029	.0351	.5377
#2	.5461	.0143	.5382	.5548	.0036	.0383	.5472

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	82.09	2.230	2.271	5.810	.5496	2.255	-.0023
SDev	1.23	.006	.001	.007	.0014	.002	.0039
%RSD	1.493	.2499	.0327	.1124	.2496	.1042	174.7
#1	81.22	2.234	2.272	5.805	.5506	2.257	-.0050
#2	82.96	2.226	2.271	5.814	.5487	2.253	.0005

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0008	-.0004	2.474	.0702	.5300	.0044
SDev	.0001	.0031	.0008	.021	.0237	.0009	.0029
%RSD	44.24	410.5	195.4	.8616	33.74	.1645	65.95
#1	.0001	-.0030	-.0010	2.459	.0535	.5294	.0023
#2	.0002	.0015	.0002	2.489	.0870	.5306	.0064

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.5946	.0058
SDev	.0001	.0046	.0002
%RSD	88.59	.7819	3.253
#1	.0000	.5914	.0057
#2	.0002	.5979	.0059

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	573956	10000	--	--	--	--	--
SDev	8596.297	.0000000	--	--	--	--	--
%RSD	1.497729	.0000000	--	--	--	--	--
#1	567877	10000	--	--	--	--	--
#2	580034	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230763 Operator:
Run Time: 07/31/03 18:12:42
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00072	.1250	.0047	.0056	.0009	-.0013	.0030
SDev	.00051	.0063	.0010	.0009	.0003	.0002	.0028
%RSD	70.457	5.073	21.75	16.93	28.81	14.76	94.07
#1	-.00036	.1295	.0055	.0063	.0011	-.0012	.0050
#2	-.00108	.1205	.0040	.0050	.0007	-.0015	.0010

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0039	.0001	.0036	-.0012	.0064	.0068	.2720
SDev	.0030	.0001	.0001	.0001	.0001	.0053	.0095
%RSD	78.43	148.0	1.295	8.074	1.727	78.43	3.511
#1	.0060	.0002	.0036	-.0013	.0063	.0030	.2788
#2	.0017	-.0000	.0036	-.0012	.0065	.0105	.2653

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0024	S22.27	.0093	.0002	.0127	S71.16	1110.
SDev	.0012	.28	.0079	.0001	.0000	1.00	7.
%RSD	49.32	1.273	84.64	57.38	.3262	1.398	.5873
#1	.0032	S22.48	.0149	.0003	.0128	S71.86	1115.
#2	.0015	S22.07	.0037	.0001	.0127	S70.46	1106.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0021	.0197	.0013	-.0021	.0025	.0461	-.0003
SDev	.0007	.0057	.0060	.0029	.0002	.0023	.0004
%RSD	34.04	28.86	456.7	139.3	7.719	5.010	130.7
#1	.0026	.0237	.0055	-.0041	.0024	.0477	-.0000
#2	.0016	.0157	-.0029	-.0000	.0026	.0444	-.0006

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	84.57	.0079	-.0028	2.312	-.0010	.0008	-.0030
SDev	1.27	.0034	.0042	.007	.0001	.0017	.0074
%RSD	1.502	42.69	152.2	.3061	6.102	211.5	244.9
#1	83.67	.0103	-.0058	2.317	-.0009	-.0004	.0022
#2	85.47	.0055	.0002	2.307	-.0010	.0020	-.0083

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0025	.0003	-.0025	.0882	.0008	.0009
SDev	.0000	.0025	.0008	.0093	.0160	.0003	.0061
%RSD	15.37	101.1	270.6	377.6	18.10	42.16	668.7
#1	.0002	-.0043	.0008	.0041	.0995	.0010	.0052
#2	.0002	-.0007	-.0003	-.0090	.0769	.0005	-.0034

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0007	.0028
SDev	.0001	.0004	.0034
%RSD	96.03	58.25	119.7
#1	.0000	.0010	.0004
#2	.0001	.0004	.0052

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	591263	10000	--	--	--	--	--
SDev	8810.551	.0000000	--	--	--	--	--
%RSD	1.490124	.0000000	--	--	--	--	--
#1	585033	10000	--	--	--	--	--
#2	597493	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccv4 Operator:
Run Time: 07/31/03 18:22:54
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0623	9.722	5.426	5.325	9.878	H1.154	5.046
SDev	.0048	.008	.019	.041	.051	.013	.002
%RSD	.45501	.0818	.3538	.7715	.5175	1.155	.0341
#1	1.0589	9.728	5.412	5.296	9.914	H1.145	5.045
#2	1.0657	9.716	5.439	5.354	9.842	H1.164	5.047
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass
High	1.1000	11.00	5.500	5.500	11.00	1.100	5.500
Low	.90000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.62	H1.100	5.245	2.066	2.152	10.55	L13.65
SDev	.23	.013	.045	.016	.009	.06	.20
%RSD	1.112	1.192	.8536	.7797	.4177	.5272	1.450
#1	20.45	1.091	5.214	2.054	2.158	10.51	L13.79
#2	20.78	H1.110	5.277	2.077	2.146	10.59	L13.51
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.817	L3.975	20.56	1.077	5.380	H39.26	L23.82
SDev	.006	.035	.11	.008	.035	.34	.57
%RSD	.1230	.8705	.5524	.7236	.6489	.8684	2.404
#1	4.822	L4.000	20.48	1.071	5.355	H39.50	L24.22
#2	4.813	L3.951	20.64	1.082	5.404	H39.02	L23.41
Errors	LC Pass	LC Low	LC Pass	LC Pass	LC Pass	LC High	LC Low
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.232	H5.703	5.071	5.174	1.058	H1.130	1.039
SDev	.043	.042	.026	.086	.001	.011	.001
%RSD	.8158	.7341	.5207	1.658	.0779	1.005	.1293
#1	5.202	H5.673	5.052	5.113	1.057	H1.122	1.038
#2	5.262	H5.732	5.090	5.235	1.059	H1.138	1.040
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC High	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	88.93	5.411	5.447	H5.680	5.135	5.429	5.283
SDev	.26	.008	.072	.021	.066	.045	.029
%RSD	.2932	.1448	1.317	.3756	1.284	.8319	.5511
#1	88.75	5.417	5.396	H5.665	5.088	5.398	5.262
#2	89.12	5.405	5.498	H5.695	5.181	5.461	5.303
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.161	.9954	4.997	5.489	H1.118	5.182	H1.759
SDev	.009	.0030	.009	.062	.021	.033	.030
%RSD	.1751	.3029	.1871	1.122	1.898	.6299	1.725
#1	5.168	.9975	4.990	5.445	H1.103	5.159	H1.738
#2	5.155	.9933	5.003	H5.532	H1.133	5.206	H1.781
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC High
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.974	H1.151	4.896
SDev	.005	.013	.002
%RSD	.0931	1.150	.0422
#1	4.977	H1.142	4.897
#2	4.971	H1.160	4.894
Errors	LC Pass	LC High	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	621706	10000	--	--	--	--	--
SDev	1810.900	.0000000	--	--	--	--	--
%RSD	.2912790	.0000000	--	--	--	--	--
#1	620426	10000	--	--	--	--	--
#2	622987	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccb4 Operator:
Run Time: 07/31/03 18:30:22
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00046	H.1305	H.0061	.0174	.0001	-.0013	-.0024
SDev	.00041	.0110	.0020	.0026	.0000	.0001	.0013
%RSD	87.812	8.458	32.63	14.70	29.58	11.08	53.51
#1	-.00075	H.1383	.0047	.0192	.0001	-.0012	-.0033
#2	-.00018	H.1227	H.0075	.0156	.0001	-.0014	-.0015
Errors	LC Pass	LC High	LC High	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0062	.0001	.0005	-.0015	H.0063	-.0024	.0175
SDev	.0007	.0001	.0002	.0001	.0006	.0013	.0118
%RSD	11.67	202.1	53.02	3.951	9.167	56.60	67.42
#1	.0057	.0001	.0003	-.0015	H.0059	-.0033	.0091
#2	.0067	-.0000	.0006	-.0014	H.0067	-.0014	.0258
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	H.0174	-.0005	-.0000	.0007	.0467	L-.2862
SDev	.0010	.0007	.0020	.0001	.0007	.0014	.1841
%RSD	230.7	3.973	378.8	438.7	103.8	3.077	64.31
#1	-.0003	H.0179	-.0020	-.0000	.0011	.0478	L-.4163
#2	.0011	H.0170	.0009	.0000	.0002	.0457	L-.1560
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0034	.0044	-.0005	.0029	.0024	-.0005
SDev	.0002	.0083	.0001	.0017	.0009	.0087	.0021
%RSD	124.4	244.3	3.211	357.6	30.51	367.4	447.2
#1	.0002	.0092	.0045	-.0016	.0023	.0085	.0010
#2	.0000	-.0025	.0043	.0007	.0036	-.0038	-.0020
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	88.71	.0064	-.0033	H.0397	.0012	-.0000	-.0011
SDev	.17	.0051	.0029	.0014	.0011	.0002	.0013
%RSD	.1861	79.16	89.54	3.535	91.56	1828.	117.3
#1	88.59	.0100	-.0053	H.0387	.0004	-.0002	-.0002
#2	88.82	.0028	-.0012	H.0407	.0019	.0002	-.0020
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	-.0032	.0005	L-.0105	H.1341	-.0002	-.0001
SDev	.0000	.0008	.0003	.0021	.0203	.0003	.0002
%RSD	2.265	25.89	56.81	20.19	15.11	165.6	184.0
#1	.0000	-.0026	.0003	-.0090	H.1198	-.0004	-.0002
#2	.0000	-.0038	.0007	L-.0120	H.1485	.0000	.0000
Errors	LC Pass	LC Pass	LC Pass	LC Low	LC High	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	-.0005	.0005
SDev	.0001	.0000	.0006
%RSD	292.2	.0838	117.2
#1	-.0000	-.0005	.0001
#2	.0001	-.0005	.0010
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	620129	10000	--	--	--	--	--
SDev	1098.844	.0000000	--	--	--	--	--
%RSD	.1771960	.0000000	--	--	--	--	--
#1	619352	10000	--	--	--	--	--
#2	620906	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230764 Operator:
Run Time: 07/31/03 18:35:31
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00078	.1427	.0008	.0141	.0006	-.0013	-.0010
SDev	.00073	.0030	.0027	.0015	.0000	.0001	.0012
%RSD	93.298	2.133	320.6	10.78	6.489	4.194	113.6
#1	-.00027	.1405	.0028	.0151	.0006	-.0013	-.0002
#2	-.00129	.1448	-.0011	.0130	.0007	-.0014	-.0019

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0001	.0022	-.0012	.0064	.0658	.2241
SDev	.0000	.0002	.0001	.0002	.0007	.0194	.0239
%RSD	127.4	294.9	6.273	17.95	11.54	29.50	10.66
#1	-.0000	.0001	.0021	-.0014	.0059	.0521	.2073
#2	-.0001	-.0002	.0023	-.0011	.0069	.0795	.2410

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0028	S20.34	.0247	.0005	.0150	S79.57	832.8
SDev	.0011	.83	.0046	.0001	.0007	2.54	2.5
%RSD	40.50	4.058	18.76	21.06	4.407	3.193	.2977
#1	.0036	S19.76	.0280	.0004	.0145	S77.77	834.6
#2	.0020	S20.92	.0214	.0005	.0154	S81.37	831.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0019	.0088	-.0028	-.0002	-.0017	.0293	.0026
SDev	.0005	.0072	.0008	.0009	.0007	.0035	.0064
%RSD	24.47	82.14	28.03	578.5	38.92	11.92	245.8
#1	.0023	.0037	-.0022	.0005	-.0012	.0268	.0071
#2	.0016	.0139	-.0033	-.0008	-.0022	.0317	-.0019

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.97	.0090	-.0057	2.917	-.0010	-.0008	.0008
SDev	2.20	.0085	.0050	.016	.0009	.0005	.0005
%RSD	2.564	94.29	87.24	.5513	86.19	63.12	69.35
#1	87.53	.0150	-.0093	2.905	-.0004	-.0012	.0012
#2	84.41	.0030	-.0022	2.928	-.0016	-.0005	.0004

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0025	.0021	.0039	.1012	.0011	-.0042
SDev	.0001	.0010	.0011	.0104	.0139	.0001	.0024
%RSD	117.4	39.51	50.58	264.8	13.75	13.06	56.95
#1	-.0000	-.0018	.0029	.0113	.0914	.0012	-.0025
#2	-.0001	-.0032	.0014	-.0034	.1111	.0010	-.0058

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	-.0001	.0008
SDev	.0001	.0002	.0004
%RSD	166.6	169.6	55.64
#1	-.0000	.0000	.0005
#2	.0001	-.0003	.0011

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	601031	10000	--	--	--	--	--
SDev	15366.84	.0000000	--	--	--	--	--
%RSD	2.556747	.0000000	--	--	--	--	--
#1	611897	10000	--	--	--	--	--
#2	590165	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230765 Operator:
Run Time: 07/31/03 18:40:40
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00068	.1457	.0017	.0082	.0003	-.0014	.0004
SDev	.00097	.0028	.0004	.0018	.0001	.0003	.0026
%RSD	142.49	1.951	25.78	22.06	34.39	24.07	632.0
#1	.00001	.1437	.0021	.0095	.0004	-.0012	.0022
#2	-.00136	.1477	.0014	.0070	.0003	-.0017	-.0014

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0021	.0002	-.0000	-.0020	.0053	.0311	.1630
SDev	.0010	.0002	.0004	.0008	.0007	.0141	.0014
%RSD	47.01	108.3	4882.	37.62	13.76	45.16	.8790
#1	.0028	.0003	.0003	-.0015	.0058	.0411	.1620
#2	.0014	.0000	-.0003	-.0025	.0048	.0212	.1640

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0020	S19.94	.0198	.0003	.0138	S85.15	709.0
SDev	.0008	.22	.0063	.0001	.0008	.49	3.9
%RSD	42.66	1.110	31.62	35.17	5.747	.5748	.5550
#1	.0026	S20.10	.0243	.0004	.0144	S85.49	706.2
#2	.0014	S19.78	.0154	.0002	.0133	S84.80	711.8

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0019	.0217	.0039	-.0031	-.0016	.0242	-.0018
SDev	.0002	.0013	.0031	.0019	.0025	.0004	.0004
%RSD	12.49	5.983	80.32	60.75	156.4	1.739	21.88
#1	.0018	.0227	.0017	-.0018	.0002	.0239	-.0015
#2	.0021	.0208	.0061	-.0044	-.0034	.0245	-.0020

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.75	.0108	-.0059	2.101	-.0008	-.0003	-.0037
SDev	.09	.0039	.0042	.001	.0002	.0015	.0030
%RSD	.1106	35.67	70.18	.0338	27.74	448.3	82.88
#1	85.69	.0081	-.0030	2.101	-.0006	.0007	-.0015
#2	85.82	.0135	-.0089	2.100	-.0009	-.0014	-.0058

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0077	.0014	.0075	.1000	.0004	-.0042
SDev	.0000	.0035	.0011	.0048	.0307	.0005	.0071
%RSD	49.11	44.95	78.84	64.19	30.66	108.7	169.4
#1	-.0000	-.0053	.0022	.0041	.1217	.0008	.0008
#2	-.0001	-.0102	.0006	.0109	.0783	.0001	-.0092

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.0009	-.0005
SDev	.0001	.0001	.0006
%RSD	64.82	14.88	107.1
#1	-.0001	.0008	-.0001
#2	-.0002	.0009	-.0009

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	599486	10000	--	--	--	--	--
SDev	687.3078	.0000000	--	--	--	--	--
%RSD	.1146495	.0000000	--	--	--	--	--
#1	599000	10000	--	--	--	--	--
#2	599972	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230766 Operator:
Run Time: 07/31/03 18:45:49
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00182	.1681	.0066	.0064	.0003	-.0013	.0077
SDev	.00161	.0005	.0041	.0019	.0000	.0002	.0063
%RSD	88.190	.2876	61.73	30.73	6.093	12.32	82.07
#1	.00296	.1678	.0095	.0077	.0004	-.0014	.0122
#2	.00069	.1685	.0037	.0050	.0003	-.0012	.0032

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	.0004	.0068	-.0010	.0065	.0235	.2060
SDev	.0028	.0004	.0015	.0003	.0007	.0034	.0346
%RSD	1865.	95.79	22.48	24.59	10.83	14.28	16.79
#1	.0018	.0007	.0079	-.0008	.0060	.0211	.2305
#2	-.0021	.0001	.0058	-.0012	.0070	.0259	.1816

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0049	S52.31	.0233	.0002	.0154	S92.19	554.8
SDev	.0035	46.90	.0136	.0001	.0002	.94	3.1
%RSD	72.51	89.66	58.26	21.73	1.039	1.021	.5524
#1	.0074	S19.15	.0329	.0003	.0153	S91.52	552.6
#2	.0024	85.47	.0137	.0002	.0155	S92.85	556.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0028	.0172	.0084	-.0079	.0065	.0246	.0070
SDev	.0007	.0049	.0093	.0107	.0054	.0021	.0060
%RSD	26.08	28.41	110.5	134.5	83.43	8.641	85.51
#1	.0034	.0206	.0150	-.0155	.0103	.0261	.0112
#2	.0023	.0137	.0018	-.0004	.0026	.0231	.0028

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	84.36	.0139	-.0083	1.165	-.0025	-.0009	.0028
SDev	.49	.0097	.0029	.002	.0040	.0013	.0045
%RSD	.5816	69.65	34.68	.1739	161.8	141.3	164.0
#1	84.71	.0207	-.0104	1.164	-.0053	-.0000	.0060
#2	84.01	.0070	-.0063	1.167	.0004	-.0018	-.0004

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0005	.0016	.0132	.1376	.0006	.0020
SDev	.0001	.0009	.0012	.0113	.0329	.0000	.0016
%RSD	3092.	183.2	71.82	85.98	23.94	1.018	81.07
#1	.0001	.0011	.0024	.0052	.1609	.0006	.0032
#2	-.0001	-.0001	.0008	.0212	.1143	.0005	.0009

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0012	.0083
SDev	.0000	.0009	.0102
%RSD	.7138	71.72	123.0
#1	.0000	.0019	.0011
#2	.0000	.0006	.0155

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	589830	10000	--	--	--	--	--
SDev	3429.468	.0000000	--	--	--	--	--
%RSD	.5814333	.0000000	--	--	--	--	--
#1	592255	10000	--	--	--	--	--
#2	587405	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230767 Operator:
Run Time: 07/31/03 18:50:58
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00259	.1195	-.0005	.0025	.0011	-.0013	-.0064
SDev	.00473	.0234	.0070	.0027	.0001	.0001	.0125
%RSD	182.69	19.57	1459.	109.0	10.67	6.276	194.7
#1	-.00594	.1030	.0045	.0006	.0011	-.0014	-.0152
#2	.00076	.1361	-.0055	.0045	.0010	-.0013	.0024

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0596	-.0001	.0017	-.0019	.0063	-.0066	.1461
SDev	.0076	.0009	.0009	.0010	.0003	.0141	.0777
%RSD	12.81	1147.	52.33	52.27	5.456	212.8	53.18
#1	.0542	-.0007	.0023	-.0012	.0066	.0034	.0912
#2	.0650	.0005	.0011	-.0026	.0061	-.0166	.2011

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	90.56	-.0027	.0002	.0062	S1.194	2922.
SDev	.0056	1.26	.0277	.0001	.0005	2.593	23.
%RSD	515.7	1.394	1009.	39.06	8.629	217.2	.7806
#1	-.0028	89.67	-.0224	.0002	.0065	S-.6394	2905.
#2	.0050	91.46	.0169	.0001	.0058	S3.027	2938.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0068	.0104	-.0015	-.0006	.0012	.0530	-.0055
SDev	.0006	.0046	.0135	.0102	.0046	.0087	.0125
%RSD	8.671	43.98	875.3	1765.	390.3	16.37	228.4
#1	.0072	.0137	.0080	-.0078	.0044	.0469	-.0143
#2	.0064	.0072	-.0111	.0066	-.0021	.0592	.0034

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	84.59	.0075	-.0024	.0674	-.0009	.0009	-.0040
SDev	.70	.0073	.0091	.0137	.0023	.0036	.0030
%RSD	.8282	96.42	384.0	20.37	253.9	385.4	74.18
#1	85.09	.0127	-.0088	.0577	-.0025	-.0016	-.0061
#2	84.10	.0024	.0041	.0771	.0007	.0035	-.0019

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0022	.0019	-.0014	.0079	.0622	-.0003	-.0078
SDev	.0002	.0024	.0026	.0196	.0731	.0005	.0098
%RSD	10.13	124.1	179.5	247.4	117.4	151.0	125.7
#1	.0020	.0002	-.0033	-.0059	.0106	.0000	-.0147
#2	.0023	.0036	.0004	.0218	.1139	-.0007	-.0009

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.0032	-.0003
SDev	.0001	.0007	.0002
%RSD	151.1	23.53	58.28
#1	.0000	.0037	-.0002
#2	-.0001	.0026	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	591420	10000	--	--	--	--	--
SDev	4841.560	.0000000	--	--	--	--	--
%RSD	.8186324	.0000000	--	--	--	--	--
#1	594844	10000	--	--	--	--	--
#2	587997	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230768 Operator:
Run Time: 07/31/03 18:56:06
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00100	.1204	.0054	.0031	.0018	-.0011	.0028
SDev	.00026	.0214	.0024	.0004	.0001	.0003	.0012
%RSD	25.534	17.80	45.24	13.58	3.937	21.93	41.81
#1	.00082	.1052	.0037	.0028	.0018	-.0013	.0036
#2	.00118	.1356	.0071	.0034	.0019	-.0010	.0020

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0462	.0004	.0041	-.0002	.0074	.0306	.1262
SDev	.0015	.0001	.0012	.0006	.0005	.0066	.0433
%RSD	3.166	35.28	29.62	299.2	6.741	21.67	34.34
#1	.0451	.0005	.0032	-.0006	.0077	.0259	.0955
#2	.0472	.0003	.0050	.0002	.0070	.0353	.1568

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0040	S27.74	.0149	.0004	.0104	S36.18	2073.
SDev	.0004	.24	.0006	.0001	.0001	.98	8.
%RSD	9.889	.8664	3.860	13.06	.9183	2.711	.3687
#1	.0038	S27.91	.0153	.0004	.0103	S36.87	2079.
#2	.0043	S27.57	.0145	.0004	.0104	S35.48	2068.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0129	.0134	.0127	-.0080	.0075	.0387	.0022
SDev	.0012	.0108	.0233	.0123	.0035	.0041	.0039
%RSD	9.515	80.63	184.0	153.3	47.00	10.65	180.6
#1	.0120	.0210	-.0038	.0007	.0050	.0358	-.0006
#2	.0137	.0058	.0291	-.0167	.0100	.0416	.0050

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	84.98	.0186	-.0143	.0890	-.0011	-.0033	.0036
SDev	.40	.0215	.0090	.0059	.0004	.0011	.0012
%RSD	.4758	115.4	63.35	6.583	39.55	33.72	33.18
#1	84.69	.0034	-.0079	.0849	-.0008	-.0041	.0044
#2	85.26	.0337	-.0207	.0932	-.0015	-.0025	.0027

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0016	.0003	.0004	.0139	.1218	.0014	-.0032
SDev	.0000	.0071	.0002	.0019	.0023	.0006	.0055
%RSD	1.963	2441.	44.57	13.89	1.924	45.28	171.5
#1	.0016	.0053	.0005	.0152	.1202	.0010	.0007
#2	.0017	-.0048	.0003	.0125	.1235	.0018	-.0071

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0004	.0036	.0017
SDev	.0001	.0004	.0004
%RSD	16.43	10.20	23.28
#1	.0003	.0033	.0014
#2	.0004	.0039	.0020

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	594070	10000	--	--	--	--	--
SDev	2822.770	.0000000	--	--	--	--	--
%RSD	.4751579	.0000000	--	--	--	--	--
#1	592074	10000	--	--	--	--	--
#2	596066	10000	--	--	--	--	--

010201

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Method: DAILY1 Sample Name: 230769 Operator:
Run Time: 07/31/03 19:01:15
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00101	.1207	.0027	.0002	.0020	-.0012	.0024
SDev	.00360	.0270	.0051	.0023	.0001	.0002	.0121
%RSD	354.59	22.37	188.6	1068.	2.933	12.85	511.8
#1	-.00356	.1016	-.0009	-.0014	.0020	-.0011	-.0062
#2	.00153	.1398	.0063	.0018	.0020	-.0014	.0110

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0343	.0003	.0001	-.0011	.0076	-.0031	.0718
SDev	.0064	.0007	.0000	.0000	.0003	.0008	.0931
%RSD	18.78	274.3	21.25	1.786	4.181	27.02	129.7
#1	.0297	-.0003	.0001	-.0011	.0078	-.0025	.0060
#2	.0388	.0008	.0000	-.0010	.0074	-.0037	.1377

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0025	S22.61	.0042	.0003	.0115	S67.17	1197.
SDev	.0046	.09	.0252	.0000	.0016	.40	2.
%RSD	182.4	.4122	601.9	3.464	13.71	.5983	.1366
#1	-.0007	S22.68	-.0137	.0003	.0104	S67.45	1196.
#2	.0058	S22.55	.0220	.0003	.0126	S66.88	1198.

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0168	.0066	-.0029	.0005	.0003	.0317	-.0012
SDev	.0003	.0033	.0038	.0031	.0020	.0055	.0129
%RSD	1.596	50.10	131.5	669.4	753.3	17.21	1066.
#1	.0166	.0042	-.0056	.0027	-.0012	.0279	-.0104
#2	.0170	.0089	-.0002	-.0017	.0017	.0356	.0079

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	84.37	.0020	.0026	.0936	-.0007	.0024	-.0025
SDev	.07	.0004	.0056	.0181	.0008	.0039	.0110
%RSD	.0787	18.62	219.2	19.36	125.1	161.1	435.4
#1	84.33	.0018	-.0014	.0808	-.0001	-.0003	-.0103
#2	84.42	.0023	.0065	.1065	-.0012	.0051	.0052

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0009	.0003	-.0004	.0052	.0892	.0001	-.0017
SDev	.0002	.0015	.0024	.0173	.0642	.0000	.0045
%RSD	19.81	510.1	574.8	334.1	71.96	37.53	268.7
#1	.0008	.0014	-.0021	-.0071	.0438	.0000	-.0049
#2	.0011	-.0008	.0013	.0174	.1346	.0001	.0015

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0019	.0001
SDev	.0001	.0008	.0006
%RSD	1788.	41.04	447.3
#1	-.0000	.0013	-.0003
#2	.0001	.0024	.0006

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	589891	10000	--	--	--	--	--
SDev	516.1879	.0000000	--	--	--	--	--
%RSD	.0875057	.0000000	--	--	--	--	--
#1	589526	10000	--	--	--	--	--
#2	590256	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230770 Operator:
Run Time: 07/31/03 19:06:24
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00137	.1280	.0025	.0039	.0030	-.0014	-.0010
SDev	.00148	.0310	.0013	.0010	.0000	.0001	.0107
%RSD	107.87	24.19	53.86	24.81	.7988	4.182	1035.
#1	-.00241	.1061	.0015	.0032	.0030	-.0013	-.0086
#2	-.00032	.1499	.0034	.0046	.0030	-.0014	.0065

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0641	-.0000	.0019	-.0009	.0079	.0024	.1361
SDev	.0039	.0002	.0007	.0002	.0001	.0021	.0436
%RSD	6.113	475.1	33.79	21.36	.8687	87.63	32.03
#1	.0613	-.0002	.0015	-.0008	.0078	.0039	.1053
#2	.0669	.0001	.0024	-.0010	.0079	.0009	.1670

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0023	S51.30	.0032	.0018	.0131	S82.27	802.6
SDev	.0022	44.24	.0088	.0000	.0005	1.61	10.9
%RSD	96.58	86.25	275.8	1.549	4.081	1.953	1.356
#1	.0007	S20.01	-.0030	.0019	.0127	S81.13	794.9
#2	.0038	82.58	.0094	.0018	.0135	S83.40	810.3

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0203	.0068	.0001	-.0002	.0015	.0536	-.0029
SDev	.0009	.0004	.0014	.0018	.0023	.0026	.0031
%RSD	4.575	5.546	1288.	752.3	154.2	4.852	107.4
#1	.0210	.0066	-.0009	.0010	-.0001	.0517	-.0051
#2	.0197	.0071	.0011	-.0015	.0031	.0554	-.0007

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.24	.0035	-.0024	.1014	-.0001	-.0004	-.0015
SDev	1.22	.0023	.0054	.0135	.0007	.0044	.0055
%RSD	1.428	65.86	223.6	13.35	595.7	1058.	362.6
#1	86.10	.0052	.0014	.0919	.0004	.0027	-.0054
#2	84.38	.0019	-.0062	.1110	-.0007	-.0035	.0024

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	-.0003	-.0008	-.0022	.0803	.0005	-.0002
SDev	.0001	.0000	.0013	.0076	.0031	.0000	.0038
%RSD	11.29	3.235	163.2	335.7	3.912	.7017	2015.
#1	.0007	-.0003	-.0017	.0031	.0825	.0005	-.0029
#2	.0008	-.0003	.0001	-.0076	.0781	.0005	.0025

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0042	.0015
SDev	.0001	.0004	.0019
%RSD	170.5	10.36	121.5
#1	.0001	.0045	.0028
#2	-.0000	.0039	.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	595871	10000	--	--	--	--	--
SDev	8488.109	.0000000	--	--	--	--	--
%RSD	1.424488	.0000000	--	--	--	--	--
#1	601873	10000	--	--	--	--	--
#2	589869	10000	--	--	--	--	--

010205

Analysis Report 230771 07/31/03 07:16:31 PM page 1

Method: DAILY1 Sample Name: ~~223771~~ Operator:
Run Time: 07/31/03 19:11:32
Comment:
Mode: CONC Corr. Factor: 1

SB 8/4/03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00073	.0828	.0039	-.0007	.0029	-.0009	-.0025
SDev	.00031	.0078	.0003	.0008	.0000	.0000	.0020
%RSD	42.433	9.427	8.985	100.5	1.023	4.841	76.75
#1	-.00051	.0773	.0036	-.0002	.0029	-.0009	-.0012
#2	-.00095	.0883	.0041	-.0013	.0029	-.0009	-.0039

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0403	.0002	.0008	-.0017	.0048	-.0078	.0377
SDev	.0008	.0000	.0004	.0002	.0006	.0037	.0050
%RSD	2.039	18.08	54.03	10.28	12.29	47.33	13.24
#1	.0409	.0001	.0005	-.0019	.0044	-.0052	.0341
#2	.0397	.0002	.0011	-.0016	.0052	-.0105	.0412

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0027	S15.80	.0032	.0002	.0149	S87.18	349.5
SDev	.0002	.58	.0001	.0000	.0003	1.75	.4
%RSD	6.424	3.687	2.647	21.13	1.801	2.006	.1191
#1	.0025	S15.39	.0032	.0002	.0150	S85.95	349.8
#2	.0028	S16.21	.0031	.0002	.0147	S88.42	349.2

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0191	.0076	-.0024	.0008	.0004	.0261	-.0020
SDev	.0008	.0120	.0003	.0004	.0019	.0022	.0013
%RSD	4.262	159.0	12.73	44.57	481.0	8.369	65.70
#1	.0197	-.0009	-.0026	.0005	-.0009	.0277	-.0011
#2	.0185	.0161	-.0022	.0011	.0017	.0246	-.0030

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.97	.0054	-.0039	.0568	-.0003	-.0008	-.0012
SDev	1.62	.0000	.0033	.0052	.0003	.0022	.0016
%RSD	1.707	.7297	85.59	9.166	128.1	280.6	128.3
#1	96.12	.0054	-.0063	.0531	-.0005	-.0024	-.0001
#2	93.83	.0054	-.0015	.0605	-.0000	.0008	-.0023

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0001	-.0007	-.0069	.0962	.0001	-.0048
SDev	.0000	.0019	.0003	.0019	.0139	.0002	.0018
%RSD	1.605	1697.	40.99	27.32	14.50	172.2	38.54
#1	.0004	-.0012	-.0005	-.0055	.1060	.0002	-.0061
#2	.0004	.0014	-.0008	-.0082	.0863	-.0000	-.0035

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.0022	-.0001
SDev	.0001	.0002	.0000
%RSD	102.7	7.646	35.34
#1	-.0000	.0020	-.0001
#2	-.0001	.0023	-.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	663829	10000	--	--	--	--	--
SDev	11291.08	.0000000	--	--	--	--	--
%RSD	1.700902	.0000000	--	--	--	--	--
#1	671813	10000	--	--	--	--	--
#2	655845	10000	--	--	--	--	--

010207

Analysis Report 07/31/03 07:22:02 PM page 1

Method: DAILY1 Sample Name: 230772 Operator:
Run Time: 07/31/03 19:16:41
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00057	.1135	.0004	-.0002	.0028	-.0014	-.0006
SDev	.00103	.0102	.0031	.0008	.0001	.0002	.0011
%RSD	182.34	9.003	717.6	348.7	2.855	13.06	197.4
#1	-.00130	.1062	.0026	-.0008	.0028	-.0015	-.0014
#2	.00016	.1207	-.0018	.0003	.0029	-.0012	.0002

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0274	-.0001	.0007	-.0011	.0076	.0029	.0248
SDev	.0020	.0002	.0005	.0008	.0009	.0088	.0211
%RSD	7.391	284.1	69.03	74.05	11.83	299.3	84.92
#1	.0260	-.0002	.0003	-.0017	.0069	-.0033	.0099
#2	.0288	.0001	.0010	-.0005	.0082	.0091	.0397

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0032	S16.78	.0043	.0003	.0166	.3476	-.5331
SDev	.0014	.52	.0072	.0001	.0000	.0731	.0363
%RSD	45.29	3.125	167.6	29.89	.0555	21.02	6.800
#1	.0022	S16.41	-.0008	.0002	.0166	.3993	-.5587
#2	.0042	S17.16	.0094	.0004	.0166	.2960	-.5075

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0228	.0015	.0002	-.0016	.0022	.0105	-.0016
SDev	.0004	.0021	.0001	.0012	.0016	.0002	.0021
%RSD	1.638	141.7	89.04	73.52	69.89	2.230	130.4
#1	.0225	-.0000	.0003	-.0008	.0011	.0106	-.0030
#2	.0230	.0030	.0001	-.0025	.0033	.0103	-.0001

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.89	.0043	-.0011	.0936	-.0010	.0007	-.0018
SDev	1.57	.0006	.0079	.0132	.0008	.0050	.0005
%RSD	1.828	13.61	707.4	14.12	81.96	723.8	26.95
#1	87.00	.0039	.0044	.0843	-.0004	.0043	-.0022
#2	84.77	.0047	-.0067	.1029	-.0016	-.0029	-.0015

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0022	-.0004	.0090	.0751	.0008	.0044
SDev	.0000	.0014	.0000	.0163	.0164	.0000	.0014
%RSD	166.0	64.93	5.210	181.6	21.82	.3172	32.25
#1	-.0001	-.0032	-.0003	-.0026	.0635	.0008	.0034
#2	.0000	-.0012	-.0004	.0205	.0867	.0008	.0054

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0016	.0007
SDev	.0000	.0009	.0005
%RSD	43.14	59.22	72.37
#1	.0001	.0009	.0003
#2	.0000	.0022	.0011

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	600444	10000	--	--	--	--	--
SDev	10954.50	.0000000	--	--	--	--	--
%RSD	1.824400	.0000000	--	--	--	--	--
#1	608190	10000	--	--	--	--	--
#2	592698	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230773 Operator:
Run Time: 07/31/03 19:22:12
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00075	.1547	.0024	.0009	.0002	-.0014	-.0007
SDev	.00018	.0061	.0001	.0003	.0000	.0001	.0033
%RSD	24.110	3.920	4.682	31.22	15.94	5.049	487.1
#1	.00062	.1504	.0023	.0007	.0002	-.0014	.0016
#2	.00088	.1590	.0025	.0010	.0003	-.0013	-.0030

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0143	.0003	.0007	-.0019	.0067	-.0011	77.14
SDev	.0011	.0001	.0003	.0004	.0004	.0071	.08
%RSD	7.888	25.62	40.26	22.03	6.457	675.3	.1081
#1	.0135	.0003	.0009	-.0022	.0070	-.0061	77.08
#2	.0151	.0004	.0005	-.0016	.0064	.0040	77.20

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0015	.0704	.0155	-.0000	.0003	71.88	45.09
SDev	.0008	.0394	.0015	.0000	.0003	.03	.39
%RSD	52.15	55.91	9.787	307.9	109.6	.0359	.8686
#1	.0009	.0982	.0145	-.0000	.0001	71.86	44.82
#2	.0020	.0426	.0166	.0000	.0006	71.90	45.37

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0105	.0018	-.0009	.0025	.0088	.0020
SDev	.0000	.0049	.0016	.0011	.0020	.0086	.0006
%RSD	74.12	46.83	90.35	124.1	79.04	97.70	28.73
#1	-.0000	.0139	.0006	-.0001	.0039	.0148	.0023
#2	-.0001	.0070	.0029	-.0017	.0011	.0027	.0016

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	88.04	.0064	-.0044	.0763	-.0000	-.0008	-.0045
SDev	.05	.0041	.0041	.0051	.0002	.0014	.0009
%RSD	.0574	63.82	92.80	6.699	74250.	171.9	19.82
#1	88.00	.0035	-.0015	.0727	.0001	.0002	-.0039
#2	88.07	.0092	-.0073	.0799	-.0001	-.0018	-.0051

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0019	-.0071	.0001	-.0006	.2370	-.0002	-.0050
SDev	.0000	.0009	.0000	.0054	.0126	.0003	.0049
%RSD	1.562	13.11	37.61	857.6	5.328	182.3	96.43
#1	.0019	-.0064	.0001	.0032	.2281	-.0004	-.0016
#2	.0019	-.0078	.0001	-.0045	.2459	.0000	-.0085

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.0061	.0053
SDev	.0001	.0004	.0071
%RSD	522.2	6.180	135.2
#1	-.0001	.0063	.0002
#2	.0001	.0058	.0103

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	615490	10000	--	--	--	--	--
SDev	340.1184	.0000000	--	--	--	--	--
%RSD	.0552598	.0000000	--	--	--	--	--
#1	615249	10000	--	--	--	--	--
#2	615730	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccv5 Operator:
Run Time: 07/31/03 19:33:04
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0693	9.729	5.447	5.348	9.772	H1.161	5.081
SDev	.0060	.023	.011	.023	.011	.000	.011
%RSD	.56336	.2409	.1963	.4270	.1157	.0292	.2219
#1	1.0651	9.712	5.455	5.332	9.780	H1.161	5.073
#2	1.0736	9.745	5.439	5.364	9.764	H1.160	5.089
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass
High	1.1000	11.00	5.500	5.500	11.00	1.100	5.500
Low	.90000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.70	H1.108	5.292	2.075	2.158	10.57	L13.74
SDev	.04	.004	.026	.009	.006	.03	.03
%RSD	.1822	.3358	.4893	.4576	.2978	.2425	.2073
#1	20.73	H1.110	5.311	2.081	2.153	10.59	L13.76
#2	20.67	H1.105	5.274	2.068	2.162	10.55	L13.72
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.790	L3.995	20.67	1.081	5.419	H39.76	L23.76
SDev	.014	.002	.02	.004	.035	.03	.10
%RSD	.2834	.0414	.1015	.4008	.6486	.0767	.4249
#1	4.780	L3.996	20.68	1.084	5.395	H39.73	L23.69
#2	4.799	L3.994	20.65	1.078	5.444	H39.78	L23.83
Errors	LC Pass	LC Low	LC Pass	LC Pass	LC Pass	LC High	LC Low
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.239	H5.772	5.147	5.210	1.058	H1.164	1.043
SDev	.012	.025	.001	.018	.002	.013	.006
%RSD	.2359	.4282	.0180	.3474	.2234	1.133	.6053
#1	5.248	H5.790	5.148	5.197	1.056	H1.173	1.039
#2	5.230	H5.755	5.146	5.223	1.060	H1.155	1.048
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC High	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.97	5.476	5.481	H5.723	5.184	5.474	5.331
SDev	.32	.002	.014	.006	.012	.010	.020
%RSD	.3677	.0418	.2638	.1108	.2266	.1898	.3783
#1	86.19	5.474	5.471	H5.718	5.176	5.467	5.345
#2	85.74	5.478	5.491	H5.727	5.192	5.481	5.316
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.139	.9917	4.983	5.494	1.094	5.189	H1.778
SDev	.008	.0028	.006	.001	.005	.003	.012
%RSD	.1605	.2829	.1129	.0113	.4171	.0578	.6716
#1	5.133	.9897	4.979	5.494	1.098	5.191	H1.769
#2	5.145	.9936	4.987	5.493	1.091	5.187	H1.786
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.957	H1.162	4.879
SDev	.006	.007	.002
%RSD	.1224	.6285	.0430
#1	4.962	H1.167	4.877
#2	4.953	H1.157	4.880
Errors	LC Pass	LC High	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	601024	10000	--	--	--	--	--
SDev	2212.537	.0000000	--	--	--	--	--
%RSD	.3681282	.0000000	--	--	--	--	--
#1	602588	10000	--	--	--	--	--
#2	599459	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: ccb5 Operator:
Run Time: 07/31/03 19:41:20
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00081	H.1393	-.0002	.0159	-.0000	-.0012	-.0021
SDev	.00037	.0110	.0021	.0020	.0000	.0002	.0034
%RSD	46.130	7.893	846.1	12.66	44.11	17.37	163.5
#1	-.00055	H.1315	.0012	.0173	-.0000	-.0014	.0003
#2	-.00107	H.1471	-.0017	.0145	-.0001	-.0011	-.0045
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0056	.0000	-.0009	-.0011	H.0056	-.0098	-.0037
SDev	.0005	.0001	.0002	.0016	.0009	.0190	.0097
%RSD	8.729	205.7	24.12	146.5	15.39	194.8	263.4
#1	.0053	.0001	-.0007	-.0023	.0050	-.0232	.0032
#2	.0060	-.0000	-.0010	.0000	H.0062	.0037	-.0105
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	H.0252	-.0027	.0004	.0001	H.0536	L-.5378
SDev	.0004	.0003	.0041	.0009	.0001	.0031	.0836
%RSD	101.6	1.304	148.1	196.4	56.02	5.762	15.54
#1	-.0001	H.0255	.0001	-.0002	.0001	H.0558	L-.4787
#2	-.0008	H.0250	-.0056	.0010	.0002	H.0514	L-.5969
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC High	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0017	.0096	.0013	-.0013	-.0028	-.0001	.0008
SDev	.0037	.0040	.0005	.0012	.0002	.0071	.0006
%RSD	215.6	41.64	37.43	89.09	5.537	9707.	74.73
#1	-.0009	.0068	.0010	-.0005	-.0027	-.0051	.0012
#2	.0043	H.0124	.0017	-.0022	-.0029	.0049	.0004
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	87.62	.0087	-.0006	H.0412	-.0004	.0025	.0004
SDev	.19	.0063	.0010	.0013	.0006	.0015	.0002
%RSD	.2188	73.05	170.2	3.181	140.6	58.19	58.44
#1	87.75	.0132	-.0012	H.0421	-.0000	.0036	.0002
#2	87.48	.0042	.0001	H.0402	-.0009	.0015	.0006
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0041	.0002	-.0004	H.1498	-.0004	.0027
SDev	.0000	.0018	.0002	.0029	.0055	.0012	.0066
%RSD	453.0	44.28	119.5	698.8	3.661	296.3	239.3
#1	.0000	-.0053	.0004	-.0024	H.1537	-.0013	.0074
#2	-.0000	-.0028	.0000	.0016	H.1459	.0004	-.0019
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	-.0006	-.0001
SDev	.0001	.0009	.0007
%RSD	95.51	147.7	1246.
#1	-.0002	-.0012	-.0006
#2	-.0000	.0000	.0004
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	612530	10000	--	--	--	--	--
SDev	1288.349	.0000000	--	--	--	--	--
%RSD	.2103323	.0000000	--	--	--	--	--
#1	613441	10000	--	--	--	--	--
#2	611619	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230774 Operator:
Run Time: 07/31/03 19:46:56
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00039	.1466	.0018	.0078	.0004	-.0013	.0034
SDev	.00059	.0414	.0024	.0003	.0002	.0001	.0026
%RSD	153.34	28.22	134.9	4.519	48.20	8.889	76.07
#1	-.00081	.1174	.0001	.0081	.0005	-.0012	.0016
#2	.00003	.1759	.0035	.0076	.0003	-.0014	.0052

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0236	.0002	.0045	-.0011	.0075	.0115	78.07
SDev	.0003	.0000	.0002	.0016	.0002	.0251	.54
%RSD	1.358	7.196	3.527	151.4	2.122	217.5	.6882
#1	.0233	.0001	.0046	.0001	.0076	.0293	77.69
#2	.0238	.0002	.0044	-.0022	.0074	-.0062	78.45

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0023	.0228	.0092	.0001	.0000	73.08	45.30
SDev	.0003	.0013	.0045	.0002	.0003	1.17	.42
%RSD	10.91	5.881	49.18	232.0	1861.	1.603	.9356
#1	.0022	.0237	.0060	.0003	.0003	72.25	45.00
#2	.0025	.0219	.0124	-.0001	-.0002	73.90	45.60

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	.0127	.0030	-.0008	.0024	.0026	-.0004
SDev	.0011	.0042	.0089	.0029	.0021	.0033	.0038
%RSD	91.03	33.27	299.4	344.1	84.02	128.1	884.7
#1	.0020	.0097	-.0033	.0012	.0039	.0002	-.0031
#2	.0004	.0157	.0093	-.0029	.0010	.0049	.0022

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	87.10	.0034	-.0054	.0588	.0004	-.0024	.0007
SDev	.10	.0088	.0007	.0077	.0010	.0025	.0065
%RSD	.1187	254.0	12.53	13.15	241.6	101.2	912.6
#1	87.17	-.0027	-.0049	.0533	-.0003	-.0042	-.0039
#2	87.03	.0096	-.0059	.0643	.0012	-.0007	.0053

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0019	-.0038	.0005	-.0020	.2183	.0008	-.0000
SDev	.0001	.0028	.0005	.0153	.0161	.0011	.0056
%RSD	3.466	72.32	84.81	763.1	7.387	137.3	25870.
#1	.0018	-.0019	.0002	-.0128	.2297	.0015	.0039
#2	.0019	-.0058	.0009	.0088	.2069	.0000	-.0040

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0069	.0020
SDev	.0002	.0000	.0024
%RSD	121.2	.1590	120.8
#1	.0003	.0069	.0036
#2	.0000	.0070	.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	608896	10000	--	--	--	--	--
SDev	678.8225	.0000000	--	--	--	--	--
%RSD	.1114842	.0000000	--	--	--	--	--
#1	609376	10000	--	--	--	--	--
#2	608416	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230868 Operator:
Run Time: 07/31/03 19:52:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00103	.0263	-.0016	.0041	.0003	-.0004	-.0032
SDev	.00086	.0083	.0007	.0009	.0003	.0003	.0042
%RSD	83.412	31.64	42.16	22.99	115.1	80.89	132.2
#1	-.00164	.0204	-.0021	.0047	.0005	-.0006	-.0062
#2	-.00042	.0322	-.0011	.0034	.0001	-.0002	-.0002

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0204	.0002	.0019	-.0026	.0007	-.0175	.1483
SDev	.0012	.0000	.0006	.0015	.0013	.0277	.0135
%RSD	5.819	15.02	30.06	56.04	178.7	158.2	9.083
#1	.0196	.0002	.0015	-.0016	.0017	.0021	.1578
#2	.0212	.0002	.0023	-.0036	-.0002	-.0371	.1387

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0014	44.08	.0061	-.0001	.0021	S57.35	819.1
SDev	.0015	.16	.0053	.0002	.0007	.56	7.6
%RSD	107.8	.3557	87.72	172.1	33.58	.9830	.9265
#1	.0003	43.97	.0023	.0000	.0016	S56.95	813.8
#2	.0025	44.19	.0098	-.0003	.0025	S57.75	824.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0014	-.0006	-.0006	.0005	.0284	-.0032
SDev	.0013	.0010	.0046	.0011	.0029	.0097	.0013
%RSD	4294.	69.05	819.2	166.1	574.0	34.25	40.24
#1	.0010	.0022	.0027	-.0014	-.0016	.0353	-.0041
#2	-.0009	.0007	-.0038	.0001	.0026	.0215	-.0023

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	108.2	.0011	-.0031	1.533	-.0006	-.0017	-.0036
SDev	1.0	.0003	.0049	.003	.0008	.0031	.0005
%RSD	.9347	29.00	157.6	.1706	136.8	186.9	12.98
#1	108.9	.0013	-.0066	1.531	-.0000	-.0039	-.0039
#2	107.5	.0009	.0004	1.535	-.0012	.0005	-.0033

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0033	-.0010	-.0049	.2084	-.0008	-.0019
SDev	.0000	.0055	.0002	.0015	.0045	.0017	.0037
%RSD	184.6	168.9	18.67	30.89	2.167	206.1	189.5
#1	-.0000	-.0071	-.0009	-.0039	.2052	.0004	-.0045
#2	.0000	.0006	-.0012	-.0060	.2116	-.0021	.0007

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0003	.0044	-.0007
SDev	.0005	.0001	.0023
%RSD	155.6	3.497	320.1
#1	.0000	.0045	.0009
#2	-.0007	.0043	-.0023

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	756000	10000	--	--	--	--	--
SDev	6989.751	.0000000	--	--	--	--	--
%RSD	.9245695	.0000000	--	--	--	--	--
#1	760943	10000	--	--	--	--	--
#2	751058	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230869 Operator:
Run Time: 07/31/03 19:58:04
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00021	.1377	.0011	.0078	.0011	-.0012	-.0038
SDev	.00053	.0068	.0058	.0002	.0001	.0001	.0007
%RSD	246.07	4.947	513.5	2.135	8.835	10.32	19.68
#1	-.00059	.1425	.0052	.0080	.0010	-.0011	-.0043
#2	.00016	.1329	-.0030	.0077	.0011	-.0013	-.0033

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0087	.0002	-.0002	-.0017	.0060	.0020	.1908
SDev	.0015	.0002	.0003	.0002	.0003	.0095	.0034
%RSD	17.55	131.8	134.7	9.801	4.600	475.2	1.762
#1	.0076	.0000	-.0005	-.0018	.0062	-.0047	.1931
#2	.0097	.0004	-.0000	-.0015	.0058	.0087	.1884

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0026	70.85	.0090	.0000	.0032	S78.65	839.0
SDev	.0000	.14	.0031	.0001	.0010	.22	5.7
%RSD	1.629	.1956	33.85	219.8	32.23	.2801	.6809
#1	.0026	70.95	.0069	-.0000	.0025	S78.50	835.0
#2	.0027	70.75	.0112	.0001	.0040	S78.81	843.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0137	-.0009	.0011	-.0014	.0205	.0020
SDev	.0004	.0039	.0002	.0000	.0025	.0017	.0014
%RSD	55.06	28.35	24.79	1.920	178.9	8.275	72.97
#1	.0004	.0164	-.0011	.0011	-.0031	.0193	.0009
#2	.0010	.0109	-.0008	.0011	.0004	.0217	.0030

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.50	.0053	-.0060	2.500	.0004	-.0022	-.0054
SDev	.36	.0054	.0010	.007	.0001	.0024	.0014
%RSD	.4216	101.2	15.88	.2922	14.44	109.3	26.39
#1	86.24	.0091	-.0053	2.495	.0004	-.0005	-.0044
#2	86.75	.0015	-.0067	2.505	.0005	-.0039	-.0064

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	-.0060	-.0005	-.0135	.2043	.0005	-.0006
SDev	.0000	.0014	.0002	.0052	.0051	.0003	.0018
%RSD	1.044	22.97	39.24	38.63	2.501	65.73	293.4
#1	.0010	-.0070	-.0006	-.0171	.2079	.0003	-.0018
#2	.0011	-.0050	-.0004	-.0098	.2007	.0007	.0006

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0014	.0008
SDev	.0001	.0004	.0005
%RSD	1442.	28.31	60.37
#1	-.0000	.0016	.0005
#2	.0001	.0011	.0012

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	604722	10000	--	--	--	--	--
SDev	2559.019	.0000000	--	--	--	--	--
%RSD	.4231725	.0000000	--	--	--	--	--
#1	602913	10000	--	--	--	--	--
#2	606532	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230869d Operator:
Run Time: 07/31/03 20:03:36
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00075	.1271	-.0006	.0063	.0011	-.0013	-.0013
SDev	.00035	.0047	.0026	.0003	.0002	.0000	.0007
%RSD	47.389	3.696	414.2	5.234	14.03	.1399	53.16
#1	-.00100	.1304	-.0024	.0060	.0010	-.0013	-.0017
#2	-.00050	.1238	.0012	.0065	.0012	-.0013	-.0008

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0095	.0001	.0030	-.0007	.0062	.0183	2.000
SDev	.0009	.0002	.0003	.0008	.0019	.0187	.007
%RSD	9.362	442.6	9.668	119.5	30.67	102.4	.3466
#1	.0089	-.0001	.0028	-.0013	.0049	.0051	2.005
#2	.0102	.0002	.0033	-.0001	.0076	.0315	1.995

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0021	70.98	.0054	.0001	.0034	S78.94	839.8
SDev	.0002	.20	.0021	.0002	.0002	.79	4.8
%RSD	9.866	.2788	38.72	161.8	6.333	1.007	.5725
#1	.0019	70.84	.0039	-.0000	.0035	S78.38	843.2
#2	.0022	71.12	.0069	.0003	.0032	S79.50	836.4

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0070	.0020	-.0006	.0009	.0226	-.0024
SDev	.0001	.0080	.0078	.0050	.0009	.0045	.0014
%RSD	18.19	114.5	380.8	901.0	102.5	19.93	60.32
#1	.0006	.0013	.0075	-.0041	.0002	.0258	-.0034
#2	.0008	.0127	-.0034	.0030	.0015	.0194	-.0014

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.79	.0036	-.0031	2.507	.0003	-.0009	-.0019
SDev	.03	.0056	.0025	.008	.0007	.0002	.0019
%RSD	.0406	154.7	78.41	.3370	237.3	26.29	100.9
#1	85.82	.0076	-.0049	2.502	-.0002	-.0007	-.0006
#2	85.77	-.0003	-.0014	2.513	.0008	-.0010	-.0033

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	-.0027	-.0004	.0044	.2001	.0009	-.0028
SDev	.0000	.0023	.0002	.0018	.0151	.0013	.0022
%RSD	2.325	83.08	43.10	41.58	7.538	135.7	78.99
#1	.0010	-.0043	-.0005	.0031	.1894	.0000	-.0012
#2	.0011	-.0011	-.0002	.0057	.2107	.0018	-.0044

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0009	.0012
SDev	.0002	.0000	.0011
%RSD	123.8	.2813	94.14
#1	.0000	.0009	.0004
#2	.0003	.0009	.0019

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	599744	10000	--	--	--	--	--
SDev	243.2447	.0000000	--	--	--	--	--
%RSD	.0405581	.0000000	--	--	--	--	--
#1	599916	10000	--	--	--	--	--
#2	599572	10000	--	--	--	--	--

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Method: DAILY1 Sample Name: 230870 Operator:
Run Time: 07/31/03 20:09:08
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00020	.2008	-.0011	.0131	.0007	-.0015	.0018
SDev	.00190	.0175	.0003	.0012	.0002	.0004	.0097
%RSD	933.92	8.695	28.30	9.312	26.68	25.45	528.8
#1	-.00114	.1885	-.0013	.0122	.0009	-.0012	-.0050
#2	.00155	.2132	-.0008	.0140	.0006	-.0017	.0087

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0522	.0003	.0041	-.0010	.0085	.0276	.1499
SDev	.0037	.0004	.0004	.0007	.0003	.0134	.0221
%RSD	7.075	137.5	10.78	72.21	3.258	48.75	14.77
#1	.0496	.0000	.0038	-.0005	.0087	.0371	.1342
#2	.0548	.0006	.0044	-.0015	.0083	.0181	.1655

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0029	85.47	.0132	.0002	.0040	S89.84	576.0
SDev	.0030	.69	.0151	.0001	.0006	.90	8.6
%RSD	103.7	.8129	114.3	42.49	15.42	.9984	1.490
#1	.0008	84.98	.0025	.0003	.0044	S89.20	569.9
#2	.0050	85.96	.0239	.0001	.0036	S90.47	582.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0014	.0089	-.0017	.0021	-.0003	.0142	-.0023
SDev	.0006	.0072	.0013	.0019	.0017	.0026	.0073
%RSD	43.21	81.02	79.89	89.81	529.1	18.19	320.6
#1	.0019	.0038	-.0026	.0034	-.0015	.0124	-.0074
#2	.0010	.0140	-.0007	.0008	.0009	.0160	.0029

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.44	.0068	-.0031	2.184	.0008	.0002	-.0043
SDev	.54	.0056	.0001	.009	.0008	.0019	.0030
%RSD	.6370	82.05	3.893	.3927	96.29	1002.	68.83
#1	85.83	.0029	-.0032	2.178	.0014	-.0012	-.0064
#2	85.06	.0108	-.0031	2.190	.0003	.0016	-.0022

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0020	.0007	-.0006	.1982	.0007	-.0042
SDev	.0001	.0012	.0011	.0156	.0241	.0006	.0025
%RSD	55.26	59.11	148.2	2798.	12.14	90.19	59.50
#1	.0001	-.0028	-.0000	-.0116	.1812	.0011	-.0060
#2	.0003	-.0012	.0015	.0105	.2152	.0003	-.0024

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0069	.0063
SDev	.0001	.0006	.0078
%RSD	89.93	8.140	122.8
#1	.0002	.0065	.0119
#2	.0000	.0073	.0008

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	597302	10000	--	--	--	--	--
SDev	3809.184	.0000000	--	--	--	--	--
%RSD	.6377312	.0000000	--	--	--	--	--
#1	599996	10000	--	--	--	--	--
#2	594609	10000	--	--	--	--	--

Analysis Report 07/31/03 08:20:00 PM page 1

Method: DAILY1 Sample Name: 230870s Operator:
Run Time: 07/31/03 20:14:40
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.05929	2.465	2.316	.0127	2.108	.0559	.0040
SDev	.00118	.024	.017	.0001	.006	.0001	.0058
%RSD	1.9853	.9697	.7363	.6511	.2834	.1957	144.6
#1	.05846	2.482	2.328	.0128	2.112	.0559	-.0001
#2	.06012	2.448	2.304	.0127	2.103	.0558	.0081

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	21.50	.0559	.5474	.2138	.3064	1.096	33.62
SDev	.09	.0004	.0008	.0006	.0008	.016	.18
%RSD	.3959	.7027	.1399	.2607	.2755	1.469	.5486
#1	21.56	.0556	.5480	.2142	.3070	1.108	33.75
#2	21.44	.0562	.5469	.2134	.3058	1.085	33.49

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0017	85.93	22.58	.5460	.0053	S89.97	611.1
SDev	.0015	.66	.10	.0017	.0002	.91	1.5
%RSD	89.57	.7715	.4615	.3045	3.703	1.015	.2394
#1	.0006	86.40	22.65	.5472	.0054	S90.62	612.1
#2	.0027	85.46	22.50	.5448	.0052	S89.33	610.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5520	.0097	.5508	.5563	.0003	.0273	.5396
SDev	.0029	.0038	.0090	.0076	.0008	.0083	.0067
%RSD	.5186	38.95	1.630	1.365	247.2	30.29	1.251
#1	.5540	.0070	.5572	.5616	.0009	.0332	.5348
#2	.5500	.0123	.5445	.5509	-.0002	.0215	.5444

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	84.64	2.289	2.325	6.990	.5539	2.311	-.0007
SDev	.84	.032	.030	.033	.0080	.031	.0023
%RSD	.9919	1.401	1.285	.4668	1.452	1.323	332.5
#1	84.05	2.311	2.346	7.013	.5596	2.332	.0009
#2	85.24	2.266	2.304	6.967	.5482	2.289	-.0023

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	-.0130	.0012	2.396	.1727	.5334	.0048
SDev	.0001	.0010	.0004	.012	.0249	.0010	.0064
%RSD	18.45	7.879	35.22	.4819	14.40	.1894	132.0
#1	.0002	-.0138	.0009	2.388	.1551	.5341	.0003
#2	.0003	-.0123	.0015	2.405	.1903	.5327	.0093

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.6115	.0032
SDev	.0000	.0018	.0012
%RSD	9.374	.2961	36.48
#1	-.0001	.6128	.0041
#2	-.0001	.6103	.0024

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	591754	10000	--	--	--	--	--
SDev	5863.330	.0000000	--	--	--	--	--
%RSD	.9908390	.0000000	--	--	--	--	--
#1	587608	10000	--	--	--	--	--
#2	595900	10000	--	--	--	--	--

Analysis Report 07/31/03 08:30:54 PM page 1

Method: DAILY1 Sample Name: ccv6 Operator:
Run Time: 07/31/03 20:25:29
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0653	9.704	5.461	5.371	9.800	H1.153	5.084
SDev	.0051	.005	.015	.026	.067	.001	.010
%RSD	.47733	.0471	.2770	.4777	.6871	.0515	.1957
#1	1.0617	9.701	5.451	5.353	9.847	H1.152	5.091
#2	1.0689	9.708	5.472	5.389	9.752	H1.153	5.077
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass
High	1.1000	11.00	5.500	5.500	11.00	1.100	5.500
Low	.90000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.65	H1.111	5.273	2.070	2.161	10.54	L13.73
SDev	.06	.000	.012	.004	.002	.04	.09
%RSD	.2940	.0016	.2336	.2035	.1087	.3766	.6869
#1	20.61	H1.111	5.265	2.067	2.159	10.57	L13.80
#2	20.69	H1.111	5.282	2.073	2.163	10.51	L13.67
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.805	L3.997	20.67	1.082	5.434	H39.78	L23.91
SDev	.038	.021	.05	.005	.005	.01	.22
%RSD	.7923	.5260	.2559	.4945	.0866	.0144	.9165
#1	4.832	L4.012	20.63	1.079	5.430	H39.79	L23.76
#2	4.778	L3.982	20.71	1.086	5.437	H39.78	L24.07
Errors	LC Pass	LC Low	LC Pass	LC Pass	LC Pass	LC High	LC Low
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.255	H5.827	5.106	5.195	1.059	H1.158	1.050
SDev	.011	.079	.002	.046	.004	.024	.003
%RSD	.2033	1.354	.0314	.8848	.4164	2.041	.2856
#1	5.263	H5.883	5.105	5.162	1.056	H1.175	1.052
#2	5.248	H5.772	5.107	5.227	1.062	H1.141	1.048
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC High	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.93	5.437	5.442	H5.697	5.160	5.435	5.332
SDev	1.96	.038	.063	.015	.031	.055	.028
%RSD	2.254	.6976	1.156	.2703	.6036	1.003	.5164
#1	88.31	5.411	5.397	H5.686	5.138	5.396	5.313
#2	85.54	5.464	5.486	H5.708	5.182	5.473	5.351
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.151	.9975	4.989	5.498	1.094	5.184	H1.784
SDev	.030	.0052	.001	.015	.017	.000	.005
%RSD	.5796	.5234	.0183	.2670	1.546	.0051	.2821
#1	5.172	.9938	4.988	5.488	H1.106	5.184	H1.781
#2	5.129	1.001	4.990	H5.509	1.082	5.184	H1.788
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.963	H1.159	4.894
SDev	.014	.003	.020
%RSD	.2801	.2609	.4060
#1	4.973	H1.157	4.908
#2	4.954	H1.161	4.880
Errors	LC Pass	LC High	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	607718	10000	--	--	--	--	--
SDev	13681.10	.0000000	--	--	--	--	--
%RSD	2.251225	.0000000	--	--	--	--	--
#1	617392	10000	--	--	--	--	--
#2	598044	10000	--	--	--	--	--

Analysis Report 07/31/03 08:39:10 PM page 1

Method: DAILY1 Sample Name: ccb6 Operator:
Run Time: 07/31/03 20:33:43
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00043	H.1445	.0029	.0167	.0001	-.0013	-.0015
SDev	.00078	.0033	.0028	.0028	.0001	.0000	.0021
%RSD	182.14	2.303	95.19	16.55	153.8	2.426	136.9
#1	.00012	H.1469	.0049	.0186	-.0000	-.0013	-.0000
#2	-.00098	H.1422	.0010	.0147	.0002	-.0013	-.0029
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.00500	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.00500	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0059	.0001	.0001	-.0010	H.0064	.0060	-.0192
SDev	.0002	.0001	.0000	.0011	.0011	.0218	.0858
%RSD	3.195	106.5	30.96	114.2	17.43	361.5	446.3
#1	.0061	.0002	.0001	-.0018	H.0056	-.0094	.0415
#2	.0058	.0000	.0002	-.0002	H.0072	.0214	-.0799
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La4086	Li6707	Mg2790	Mn2576	Mo2020	Na5889	Na3302
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	H.0190	-.0008	.0001	.0009	.0385	L-.6568
SDev	.0014	.0011	.0073	.0001	.0009	.0147	.9181
%RSD	731.9	5.610	952.9	172.4	100.0	38.27	139.8
#1	.0008	H.0197	.0044	-.0000	.0016	.0489	-.0077
#2	-.0012	H.0182	-.0059	.0002	.0003	.0281	L-1.306
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Low
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0060	.0029	-.0031	.0011	-.0015	-.0012
SDev	.0008	.0056	.0019	.0003	.0022	.0052	.0026
%RSD	100.5	93.22	65.39	8.994	211.7	340.1	219.8
#1	.0002	.0020	.0016	-.0033	-.0005	.0021	.0007
#2	.0014	.0100	.0043	-.0029	.0026	-.0052	-.0030
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	86.34	.0010	-.0028	H.0408	-.0011	-.0015	L-.0053
SDev	1.20	.0064	.0002	.0013	.0008	.0023	.0063
%RSD	1.389	610.3	7.070	3.227	72.95	152.6	119.0
#1	87.19	.0056	-.0026	H.0417	-.0017	.0001	-.0008
#2	85.50	-.0035	-.0029	H.0399	-.0005	-.0031	L-.0098
Errors	NOCHECK	NOCHECK	NOCHECK	LC High	LC Pass	LC Pass	LC Low
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3372	Tl1908	U_3859	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	-.0038	.0002	L-.0111	H.1424	.0005	-.0028
SDev	.0001	.0007	.0007	.0052	.0311	.0012	.0062
%RSD	710.7	19.02	338.4	47.12	21.86	265.9	224.7
#1	.0000	-.0033	.0007	L-.0149	H.1644	-.0004	-.0072
#2	-.0000	-.0043	-.0003	-.0074	H.1204	.0013	.0016
Errors	LC Pass	LC Pass	LC Pass	LC Low	LC High	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0000	.0008
SDev	.0002	.0000	.0008
%RSD	153.7	26.94	99.95
#1	-.0000	.0000	.0002
#2	.0003	.0000	.0014
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	603588	10000	--	--	--	--	--
SDev	8370.023	.0000000	--	--	--	--	--
%RSD	1.386710	.0000000	--	--	--	--	--
#1	609507	10000	--	--	--	--	--
#2	597670	10000	--	--	--	--	--

ICP ANALYSIS

Na, K

GAR

PROJ. NO.	PROJECT	TO#	DATE	MATRIX	LOGBK PG
06002.01.141	Div 20	030722-12 030721-18	8-1-03	Water	S4 133 S4 134

INSTRUMENT: Spectro FILENAME: 030801

INSTRUMENT DL:

010235

EVOLUTION by Micro-Active Australia Pty Ltd 11:13:18 AM August 1, 2003

Starting run ...
Creating high priority queue entries ...
BACKGROUND CORRECTED INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 11:09:24 AM August 1, 2003

	K_766	Li670	Na589	Sc361
# 1	14.5	-11.5	39.5	4860.0
# 2	3.5	-8.5	34.5	4720.0
Mean	9.0	-10.0	37.0	4790.0
SD	7.8	2.1	3.5	99.0
%RSD	86.4	21.2	9.6	2.1

INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 11:09:24 AM August 1, 2003

	K_766	Li670	Na589	Sc361
# 1	0.0	-0.0	0.0	4860.0
# 2	0.0	-0.0	0.0	4720.0
Mean	0.0	-0.0	0.0	4790.0
SD	0.0	0.0	0.0	99.0
%RSD	85.1	19.2	7.5	2.1

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 11:12:32 AM August 1, 2003

	K_766	Li670	Na589
# 1	4572.0	37207.0	22291.5
# 2	4540.0	36904.0	22043.5
Mean	4556.0	37055.5	22167.5
SD	22.6	214.3	175.4
%RSD	0.5	0.6	0.8

INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 11:12:32 AM August 1, 2003

	K_766	Li670	Na589
# 1	0.9	7.7	4.6
# 2	0.9	7.7	4.6
Mean	0.9	7.7	4.6
SD	0.0	0.0	0.0
%RSD	0.3	0.2	0.0

8/4/03

SwRI 54 QA 4 Sept 03

8-1-03

EVOLUTION by Micro-Active Australia Pty Ltd 11:20:20 AM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 11:15:40 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1770.0	18482.5	13093.5	4925.0	4925.0
# 2	1761.0	18190.5	12945.5	4820.0	4820.0
Mean	1765.5	18336.5	13019.5	4872.5	4872.5
SD	6.4	206.5	104.7	74.2	74.2
%RSD	0.4	1.1	0.8	1.5	1.5

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 11:15:40 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	18.8998	4.8702	28.7930	4925.000 H	102.8222
# 2	19.2150	4.8976	29.0885	4820.000 H	100.6272
Mean	19.0574	4.8839	28.9408	4872.500 H	101.7247
SD	0.2229	0.0194	0.2090	74.246	1.5521
%RSD	1.1694	0.3976	0.7221	1.524	1.5258

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.057	22.000
Li670	4.500	4.884	5.500
Na589	27.000	28.941	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 11:19:54 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.0	-9.0	67.5	5001.0	5001.0
# 2	22.0	3.0	62.5	4949.0	4949.0
Mean	19.0	-3.0	65.0	4975.0	4975.0
SD	4.2	8.5	3.5	36.8	36.8
%RSD	22.3	282.8	5.4	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 11:19:54 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0698	0.0004	0.0627	5001.000 H	104.4110
# 2	0.1357	0.0035	0.0533	4949.000 H	103.3239
Mean	0.1027	0.0019	0.0580	4975.000 H	103.8675
SD	0.0466	0.0022	0.0067	36.770	0.7687
%RSD	45.3343	114.0997	11.5032	0.739	0.7401

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.103	Contaminated
Li670	0.010	0.002	
Na589	0.050	0.058	Contaminated

010237

EVOLUTION by Micro-Active Australia Pty Ltd 11:29:34 AM August 1, 2003

Sc361	0.000	103.867

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-H01W1 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:23:02 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	-4.5	50.5	4616.5	4616.5
# 2	16.5	-17.5	63.5	4571.5	4571.5
Mean	14.5	-11.0	57.0	4594.0	4594.0
SD	2.8	9.2	9.2	31.8	31.8
%RSD	19.5	83.6	16.1	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : pbw-H01W1 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:23:02 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0438	0.0014	0.0349	4616.500	96.3729
# 2	0.0915 L	-0.0023	0.0670	4571.500	95.4322
Mean	0.0676 L	-0.0004	0.0509	4594.000	95.9026
SD	0.0337	0.0026	0.0227	31.820	0.6652
%RSD	49.8252	643.0926	44.4950	0.693	0.6936

BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-H01W1 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:26:10 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1721.0	-6.5	8485.5	4708.0	4708.0
# 2	1691.0	-13.5	8453.5	4662.0	4662.0
Mean	1706.0	-10.0	8469.5	4685.0	4685.0
SD	21.2	4.9	22.6	32.5	32.5
%RSD	1.2	49.5	0.3	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : lcsw-H01W1 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:26:10 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.2253	0.0009	19.4929	4708.000	98.2858
# 2	19.0758 L	-0.0010	19.6115	4662.000	97.3241
Mean	19.1506 L	-0.0001	19.5522	4685.000	97.8050
SD	0.1057	0.0014	0.0839	32.527	0.6800
%RSD	0.5520	2121.1525	0.4290	0.694	0.6952

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:29:18 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	33.5	324536.0	402305.5	5084.5	5084.5
# 2	33.5	328212.0	405731.5	5142.5	5142.5

Mean	33.5	326374.0	404018.5	5113.5	5113.5
SD	0.0	2599.3	2422.5	41.0	41.0
%RSD	0.0	0.8	0.6	0.8	0.8

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APPARENT CONCENTRATIONS
EVOLUTION by Micro-Active Australia Pty Ltd 11:38:58 AM August 1, 2003

Identity 1 : 230742 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:29:18 AM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.2490 H	82.7900 H	859.3420	5084.500 H	106.1566
# 2	0.2451 H	82.7834 H	856.8852	5142.500 H	107.3691
Mean	0.2470 H	82.7867 H	858.1136	5113.500 H	106.7628
SD	0.0028	0.0046	1.7372	41.012	0.8574
%RSD	1.1245	0.0056	0.2024	0.802	0.8031

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230743 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:32:26 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	31.0	Over-range	124981.5	4877.0	4877.0
# 2	28.0	Over-range	125991.5	4910.0	4910.0
Mean	29.5	Over-range	125486.5	4893.5	4893.5
SD	2.1	n/a	714.2	23.3	23.3
%RSD	7.2	n/a	0.6	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230743 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:32:26 AM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.2367	Over-range H	278.2677	4877.000 H	101.8188
# 2	0.2021	Over-range H	278.6312	4910.000 H	102.5086
Mean	0.2194	Over-range H	278.4494	4893.500 H	102.1637
SD	0.0244	n/a	0.2570	23.335	0.4878
%RSD	11.1369	n/a	0.0923	0.477	0.4775

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230744 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:35:34 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	39.5	Over-range	96108.5	4915.0	4915.0
# 2	25.5	Over-range	95554.5	4879.0	4879.0
Mean	32.5	Over-range	95831.5	4897.0	4897.0
SD	9.9	n/a	391.7	25.5	25.5
%RSD	30.5	n/a	0.4	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230744 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:35:34 AM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.3255	Over-range H	212.3085	4915.000 H	102.6131
# 2	0.1770	Over-range H	212.6423	4879.000 H	101.8606
Mean	0.2512	Over-range H	212.4754	4897.000 H	102.2369

SD	0.1050	n/a	0.2360	25.456	0.5322
%RSD	41.8098	n/a	0.1111	0.520	0.5205

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230745 Identity 2 : pg53-133 Type : SAMPLE **010239**
EVOLUTION by Micro-Active Australia Pty Ltd 11:45:22 AM August 1, 2003

Weight : 1.0000 Volume : 1.00 Printed : 11:38:42 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.0	Over-range	79957.5	4892.5	4892.5
# 2	23.0	Over-range	79916.5	4854.5	4854.5
Mean	17.5	Over-range	79937.0	4873.5	4873.5
SD	7.8	n/a	29.0	26.9	26.9
%RSD	44.4	n/a	0.0	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230745 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:38:42 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0303	Over-range H	177.4287	4892.500 H	102.1428
# 2	0.1511	Over-range H	178.7265	4854.500 H	101.3484
Mean	0.0907	Over-range H	178.0776	4873.500 H	101.7456
SD	0.0854	n/a	0.9177	26.870	0.5617
%RSD	94.1417	n/a	0.5153	0.551	0.5521

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230746 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:41:50 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.5	Over-range	65547.5	4813.5	4813.5
# 2	15.5	Over-range	65910.5	4846.5	4846.5
Mean	18.0	Over-range	65729.0	4830.0	4830.0
SD	3.5	n/a	256.7	23.3	23.3
%RSD	19.6	n/a	0.4	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230746 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:41:50 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1258	Over-range H	147.8255	4813.500 H	100.4913
# 2	0.0697	Over-range H	147.6320	4846.500 H	101.1811
Mean	0.0978	Over-range H	147.7287	4830.000 H	100.8362
SD	0.0396	n/a	0.1369	23.335	0.4878
%RSD	40.5496	n/a	0.0927	0.483	0.4838

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230747 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:44:58 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	26.0	Over-range	47778.0	4874.0	4874.0
# 2	35.0	Over-range	47937.0	4854.0	4854.0
Mean	30.5	Over-range	47857.5	4864.0	4864.0
SD	6.4	n/a	112.4	14.1	14.1
%RSD	20.9	n/a	0.2	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230747 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:44:58 AM August 1, 2003

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EVOLUTION by Micro-Active Australia Pty Ltd 11:55:22 AM August 1, 2003

	K_766 ppm	Li670 ppm		Na589 ppm	Sc		Sc361 ppm
# 1	0.1827	Over-range	H	106.3900	4874.000	H	101.7560
# 2	0.2819	Over-range	H	107.1845	4854.000	H	101.3379
Mean	0.2323	Over-range	H	106.7872	4864.000	H	101.5470
SD	0.0701	n/a		0.5618	14.142		0.2956
%RSD	30.1945	n/a		0.5261	0.291		0.2911

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230748 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:48:06 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.5	Over-range	33441.0	4843.5	4843.5
# 2	27.5	Over-range	33500.0	4843.5	4843.5
Mean	24.0	Over-range	33470.5	4843.5	4843.5
SD	4.9	n/a	41.7	0.0	0.0
%RSD	20.6	n/a	0.1	0.0	0.0

APPARENT CONCENTRATIONS
Identity 1 : 230748 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:48:06 AM August 1, 2003

	K_766 ppm	Li670 ppm		Na589 ppm	Sc		Sc361 ppm
# 1	0.1244	Over-range	H	74.9091	4843.500	H	101.1184
# 2	0.2008	Over-range	H	75.0414	4843.500	H	101.1184
Mean	0.1626	Over-range	H	74.9752	4843.500	H	101.1184
SD	0.0540	n/a		0.0936	0.000		0.0000
%RSD	33.2209	n/a		0.1248	0.000		0.0000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230749 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:51:14 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	28.5	Over-range	25566.5	5000.5	5000.5
# 2	26.5	Over-range	25714.5	5009.5	5009.5
Mean	27.5	Over-range	25640.5	5005.0	5005.0
SD	1.4	n/a	104.7	6.4	6.4
%RSD	5.1	n/a	0.4	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230749 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:51:14 AM August 1, 2003

	K_766 ppm	Li670 ppm		Na589 ppm	Sc		Sc361 ppm
# 1	0.2020	Over-range	H	55.4500	5000.500	H	104.4005
# 2	0.1803	Over-range	H	55.6712	5009.500	H	104.5887
Mean	0.1911	Over-range	H	55.5606	5005.000	H	104.4946
SD	0.0153	n/a		0.1564	6.364		0.1330
%RSD	8.0079	n/a		0.2814	0.127		0.1273

EVOLUTION by Micro-Active Australia Pty Ltd 12:00:30 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 11:56:00 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1763.0	18823.0	12922.5	4897.0	4897.0
# 2	1738.0	18665.0	12701.5	4805.0	4805.0
Mean	1750.5	18744.0	12812.0	4851.0	4851.0
SD	17.7	111.7	156.3	65.1	65.1
%RSD	1.0	0.6	1.2	1.3	1.3

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 11:56:00 AM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	18.9329	4.9882	28.5788	4897.000 H	102.2369
# 2	19.0223	5.0410	28.6280	4805.000 H	100.3136
Mean	18.9776	5.0146	28.6034	4851.000 H	101.2752
SD	0.0632	0.0373	0.0348	65.054	1.3600
%RSD	0.3329	0.7446	0.1217	1.341	1.3428

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	18.978	22.000
Li670	4.500	5.015	5.500
Na589	27.000	28.603	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 12:00:14 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	19.5	122.0	29.5	4959.5	4959.5
# 2	13.5	147.0	39.5	4883.5	4883.5
Mean	16.5	134.5	34.5	4921.5	4921.5
SD	4.2	17.7	7.1	53.7	53.7
%RSD	25.7	13.1	20.5	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 12:00:14 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1085	0.0346 L	-0.0193	4959.500 H	103.5434
# 2	0.0468	0.0418	0.0040	4883.500 H	101.9546
Mean	0.0777	0.0382 L	-0.0077	4921.500 H	102.7490
SD	0.0436	0.0050	0.0164	53.740	1.1234
%RSD	56.1867	13.2162	214.3317	1.092	1.0934

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.078	
Li670	0.010	0.038	Contaminated
Na589	0.050	-0.008	
Sc361	0.000	102.749	

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EVOLUTION by Micro-Active Australia Pty Ltd 12:09:54 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230750 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:03:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.5	Over-range	18975.5	4961.5	4961.5
# 2	9.5	Over-range	18920.5	4940.5	4940.5
Mean	16.0	Over-range	18948.0	4951.0	4951.0
SD	9.2	n/a	38.9	14.8	14.8
%RSD	57.5	n/a	0.2	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230750 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:03:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1404	Over-range	41.4575	4961.500 H	103.5852
# 2	0.0023	Over-range	41.5131	4940.500 H	103.1462
Mean	0.0714	Over-range	41.4853	4951.000 H	103.3657
SD	0.0976	n/a	0.0394	14.849	0.3104
%RSD	136.8154	n/a	0.0949	0.300	0.3003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230751 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:06:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.5	Over-range	10581.0	4882.0	4882.0
# 2	16.5	Over-range	10686.0	4892.0	4892.0
Mean	19.5	Over-range	10633.5	4887.0	4887.0
SD	4.2	n/a	74.2	7.1	7.1
%RSD	21.8	n/a	0.7	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230751 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:06:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1443	Over-range	23.4574	4882.000 H	101.9233
# 2	0.0790	Over-range	23.6424	4892.000 H	102.1323
Mean	0.1116	Over-range	23.5499	4887.000 H	102.0278
SD	0.0462	n/a	0.1308	7.071	0.1478
%RSD	41.3810	n/a	0.5555	0.145	0.1449

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230752 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:09:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	Over-range	6139.5	4898.5	4898.5
# 2	9.5	Over-range	6145.5	4861.5	4861.5

Mean	11.0	Over-range	6142.5	4880.0	4880.0
SD	2.1	n/a	4.2	26.2	26.2
%RSD	19.3	n/a	0.1	0.5	0.5

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APPARENT CONCENTRATIONS
EVOLUTION by Micro-Active Australia Pty Ltd 12:19:24 PM August 1, 2003

Identity 1 : 230752 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:09:38 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0356	Over-range	13.5296	4898.500 H	102.2682
# 2	0.0040	Over-range	13.6466	4861.500 H	101.4947
Mean	0.0198	Over-range	13.5881	4880.000 H	101.8815
SD	0.0223	n/a	0.0827	26.163	0.5469
%RSD	112.9841	n/a	0.6089	0.536	0.5368

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230753 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:12:46 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	27.5	472381.5	330610.5	4976.5	4976.5
# 2	27.5	472135.5	329090.5	4968.5	4968.5
Mean	27.5	472258.5	329850.5	4972.5	4972.5
SD	0.0	173.9	1074.8	5.7	5.7
%RSD	0.0	0.0	0.3	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230753 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:12:46 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1928 H	123.1197 H	721.5108	4976.500 H	103.8988
# 2	0.1933 H	123.2537 H	719.3498	4968.500 H	103.7316
Mean	0.1930 H	123.1867 H	720.4303	4972.500 H	103.8152
SD	0.0003	0.0948	1.5281	5.657	0.1183
%RSD	0.1723	0.0769	0.2121	0.114	0.1139

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230754 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:15:54 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	24.0	Over-range	4332.5	4888.0	4888.0
# 2	17.0	Over-range	4420.5	4890.0	4890.0
Mean	20.5	Over-range	4376.5	4889.0	4889.0
SD	4.9	n/a	62.2	1.4	1.4
%RSD	24.1	n/a	1.4	0.0	0.0

APPARENT CONCENTRATIONS
Identity 1 : 230754 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:15:54 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1602	Over-range	9.5435	4888.000 H	102.0487
# 2	0.0845	Over-range	9.7350	4890.000 H	102.0905
Mean	0.1223	Over-range	9.6392	4889.000 H	102.0696

SD	0.0536	n/a	0.1354	1.414	0.0296
%RSD	43.7986	n/a	1.4050	0.029	0.0290

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BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230755 Identity 2 : pg53-133 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 12:25:34 PM August 1, 2003

Weight : 1.0000 Volume : 1.00 Printed : 12:19:02 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	6.5	Over-range	1771.5	4841.0	4841.0
# 2	22.5	Over-range	1797.5	4858.0	4858.0
Mean	14.5	Over-range	1784.5	4849.5	4849.5
SD	11.3	n/a	18.4	12.0	12.0
%RSD	78.0	n/a	1.0	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230755 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:19:02 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0283	Over-range	3.8908	4841.000 H	101.0662
# 2	0.1455	Over-range	3.9350	4858.000 H	101.4216
Mean	0.0586	Over-range	3.9129	4849.500 H	101.2439
SD	0.1229	n/a	0.0313	12.021	0.2513
%RSD	209.8497	n/a	0.7992	0.248	0.2482

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230756 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:22:10 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	40.0	Over-range	1204.5	4917.0	4917.0
# 2	34.0	Over-range	1187.5	4928.0	4928.0
Mean	37.0	Over-range	1196.0	4922.5	4922.5
SD	4.2	n/a	12.0	7.8	7.8
%RSD	11.5	n/a	1.0	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230756 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:22:10 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.3307	Over-range	2.5769	4917.000 H	102.6550
# 2	0.2654	Over-range	2.5335	4928.000 H	102.8849
Mean	0.2981	Over-range	2.5552	4922.500 H	102.7699
SD	0.0462	n/a	0.0307	7.778	0.1626
%RSD	15.4970	n/a	1.2013	0.158	0.1582

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230757 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:25:18 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	32.5	Over-range	196855.5	4884.0	4884.0
# 2	21.5	Over-range	197266.5	4891.0	4891.0
Mean	27.0	Over-range	197061.0	4887.5	4887.5
SD	7.8	n/a	290.6	4.9	4.9
%RSD	28.8	n/a	0.1	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230757 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:25:18 PM August 1, 2003

010245

EVOLUTION by Micro-Active Australia Pty Ltd 12:35:56 PM August 1, 2003

	K_766 ppm	Li670 ppm		Na589 ppm	Sc		Sc361 ppm
# 1	0.2525	Over-range	H	437.7129	4884.000	H	101.9651
# 2	0.1331	Over-range	H	437.9991	4891.000	H	102.1114
Mean	0.1928	Over-range	H	437.8560	4887.500	H	102.0383
SD	0.0844	n/a		0.2023	4.950		0.1035
%RSD	43.8002	n/a		0.0462	0.101		0.1014

Keep last result visible enabled ...
Keep last result visible enabled ...
Starting run ...
Creating high priority queue entries ...
BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230757d Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:32:04 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	21.0	Over-range	201457.0	4973.0	4973.0
# 2	30.0	Over-range	200020.0	4928.0	4928.0
Mean	25.5	Over-range	200738.5	4950.5	4950.5
SD	6.4	n/a	1016.1	31.8	31.8
%RSD	25.0	n/a	0.5	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230757d Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:32:04 PM August 1, 2003

	K_766 ppm	Li670 ppm		Na589 ppm	Sc		Sc361 ppm
# 1	0.1239	Over-range	H	439.9282	4973.000	H	103.8257
# 2	0.2225	Over-range	H	440.7789	4928.000	H	102.8849
Mean	0.1732	Over-range	H	440.3535	4950.500	H	103.3553
SD	0.0697	n/a		0.6015	31.820		0.6652
%RSD	40.2481	n/a		0.1366	0.643		0.6436

EVOLUTION by Micro-Active Australia Pty Ltd 12:45:56 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230758 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:38:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.0	Over-range	6183.0	4946.5	4946.5
# 2	15.0	Over-range	6236.0	4968.5	4968.5
Mean	18.5	Over-range	6209.5	4957.5	4957.5
SD	4.9	n/a	37.5	15.6	15.6
%RSD	26.8	n/a	0.6	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230758 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:38:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1358	Over-range	13.4930	4946.500 H	103.2717
# 2	0.0603	Over-range	13.5488	4968.500 H	103.7316
Mean	0.0980	Over-range	13.5209	4957.500 H	103.5016
SD	0.0534	n/a	0.0394	15.556	0.3252
%RSD	54.4735	n/a	0.2915	0.314	0.3142

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 12:43:16 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1746.5	18701.5	12929.5	4894.5	4894.5
# 2	1715.5	18637.5	12804.5	4806.5	4806.5
Mean	1731.0	18669.5	12867.0	4850.5	4850.5
SD	21.9	45.3	88.4	62.2	62.2
%RSD	1.3	0.2	0.7	1.3	1.3

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 12:43:16 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	18.7644	4.9585	28.6090	4894.500 H	102.1846
# 2	18.7688	5.0320	28.8518	4806.500 H	100.3449
Mean	18.7666	4.9953	28.7304	4850.500 H	101.2648
SD	0.0031	0.0519	0.1717	62.225	1.3008
%RSD	0.0166	1.0399	0.5977	1.283	1.2846

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	18.767	22.000
Li670	4.500	4.995	5.500
Na589	27.000	28.730	33.000

EVOLUTION by Micro-Active Australia Pty Ltd 12:53:58 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 12:47:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.5	103.5	79.5	4999.0	4999.0
# 2	20.5	144.5	58.5	4901.0	4901.0
Mean	17.0	124.0	69.0	4950.0	4950.0
SD	4.9	29.0	14.8	69.3	69.3
%RSD	29.1	23.4	21.5	1.4	1.4

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 12:47:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0434	0.0296	0.0888	4999.000 H	104.3692
# 2	0.1218	0.0409	0.0457	4901.000 H	102.3205
Mean	0.0826	0.0353	0.0673	4950.000 H	103.3448
SD	0.0554	0.0081	0.0305	69.296	1.4487
%RSD	67.0689	22.8395	45.2757	1.400	1.4018

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.083	
Li670	0.010	0.035	Contaminated
Na589	0.050	0.067	Contaminated
Sc361	0.000	103.345	

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230758s Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:50:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	2297.5	Over-range	15934.0	4789.5	4789.5
# 2	2300.5	Over-range	15941.0	4758.5	4758.5
Mean	2299.0	Over-range	15937.5	4774.0	4774.0
SD	2.1	n/a	4.9	21.9	21.9
%RSD	0.1	n/a	0.0	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230758s Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:50:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	25.2597	Over-range	36.0517	4789.500	99.9895
# 2	25.4582	Over-range	36.3031	4758.500	99.3415
Mean	25.3590	Over-range	36.1774	4774.000	99.6655
SD	0.1404	n/a	0.1778	21.920	0.4582
%RSD	0.5536	n/a	0.4914	0.459	0.4598

BACKGROUND CORRECTED INTENSITIES

Identity 1 : 230759 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:53:46 PM August 1, 2003

010248

	K_766	Li670	Na589	Sc	Sc361
# 1	25.5	1544.5	88.5	5242.0	5242.0

EVOLUTION by Micro-Active Australia Pty Ltd 1:01:58 PM August 1, 2003

# 2	25.5	1836.5	98.5	5268.0	5268.0
Mean	25.5	1690.5	93.5	5255.0	5255.0
SD	0.0	206.5	7.1	18.4	18.4
%RSD	0.0	12.2	7.6	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230759 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:53:46 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1578	0.3849	0.0995	5242.000 H	109.4491
# 2	0.1566	0.4549	0.1192	5268.000 H	109.9927
Mean	0.1572	0.4199	0.1093	5255.000 H	109.7209
SD	0.0009	0.0495	0.0139	18.385	0.3843
%RSD	0.5709	11.7900	12.7495	0.350	0.3503

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-H01W2 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:58:32 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	15.0	88.0	74.5	4662.5	4662.5
# 2	24.0	104.0	68.5	4560.5	4560.5
Mean	19.5	96.0	71.5	4611.5	4611.5
SD	6.4	11.3	4.2	72.1	72.1
%RSD	32.6	11.8	5.9	1.6	1.6

APPARENT CONCENTRATIONS
Identity 1 : pbw-H01W2 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 12:58:32 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0707	0.0272	0.0897	4662.500	97.3346
# 2	0.1789	0.0323	0.0792	4560.500	95.2023
Mean	0.1248	0.0297	0.0845	4611.500	96.2684
SD	0.0765	0.0036	0.0074	72.125	1.5078
%RSD	61.2605	12.1224	8.7151	1.564	1.5662

BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-H01W2 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:01:40 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1725.0	27.0	8487.5	4608.0	4608.0
# 2	1692.0	36.0	8374.5	4558.0	4558.0
Mean	1708.5	31.5	8431.0	4583.0	4583.0
SD	23.3	6.4	79.9	35.4	35.4
%RSD	1.4	20.2	0.9	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : lcsw-H01W2 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:01:40 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	19.6906	0.0103	19.9225	4608.000	96.1953
# 2	19.5249	0.0130	19.8726	4558.000	95.1500

010249

EVOLUTION by Micro-Active Australia Pty Ltd 1:11:28 PM August 1, 2003

Mean	19.6078	0.0116	19.8975	4583.000	95.6726
SD	0.1171	0.0019	0.0352	35.355	0.7391
%RSD	0.5974	16.0784	0.1770	0.771	0.7725

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:04:48 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	36.0	Over-range	556418.0	4930.0	4930.0
# 2	30.0	Over-range	554619.0	4901.0	4901.0
Mean	33.0	Over-range	555518.5	4915.5	4915.5
SD	4.2	n/a	1272.1	20.5	20.5
%RSD	12.9	n/a	0.2	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230760 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:04:48 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.2867	Over-range H	1225.8159	4930.000 H	102.9267
# 2	0.2243	Over-range H	1229.0827	4901.000 H	102.3205
Mean	0.2555	Over-range H	1227.4493	4915.500 H	102.6236
SD	0.0441	n/a	2.3100	20.506	0.4287
%RSD	17.2802	n/a	0.1882	0.417	0.4177

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230761 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:07:56 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	38.5	729406.5	251784.0	5003.5	5003.5
# 2	32.5	728988.5	250976.0	5002.5	5002.5
Mean	35.5	729197.5	251380.0	5003.0	5003.0
SD	4.2	295.6	571.3	0.7	0.7
%RSD	12.0	0.0	0.2	0.0	0.0

APPARENT CONCENTRATIONS
Identity 1 : 230761 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:07:56 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.3074 H	189.0823 H	546.4976	5003.500 H	104.4633
# 2	0.2441 H	189.0118 H	544.8525	5002.500 H	104.4424
Mean	0.2758 H	189.0470 H	545.6751	5003.000 H	104.4528
SD	0.0448	0.0499	1.1633	0.707	0.0148
%RSD	16.2364	0.0264	0.2132	0.014	0.0142

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230762 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:11:04 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	29.0	Over-range	343032.0	4857.0	4857.0
# 2	34.0	Over-range	342215.0	4853.0	4853.0
Mean	31.5	Over-range	342623.5	4855.0	4855.0

EVOLUTION by Micro-Active Australia Pty Ltd 1:17:36 PM August 1, 2003

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SD	3.5	n/a	577.7	2.8	2.8
%RSD	11.2	n/a	0.2	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230762 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:11:04 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.2163	Over-range H	767.0431	4857.000 H	101.4006
# 2	0.2710	Over-range H	765.8468	4853.000 H	101.3170
Mean	0.2437	Over-range H	766.4449	4855.000 H	101.3588
SD	0.0387	n/a	0.8459	2.828	0.0591
%RSD	15.8805	n/a	0.1104	0.058	0.0583

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230763 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:14:12 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	36.0	Over-range	290792.5	4805.5	4805.5
# 2	25.0	Over-range	292859.5	4836.5	4836.5
Mean	30.5	Over-range	291826.0	4821.0	4821.0
SD	7.8	n/a	1461.6	21.9	21.9
%RSD	25.5	n/a	0.5	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230763 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:14:12 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.2967	Over-range H	657.1884	4805.500 H	100.3240
# 2	0.1739	Over-range H	657.6176	4836.500 H	100.9721
Mean	0.2353	Over-range H	657.4030	4821.000 H	100.6481
SD	0.0868	n/a	0.3035	21.920	0.4582
%RSD	36.8920	n/a	0.0462	0.455	0.4553

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230764 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:17:20 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	38.5	Over-range	226830.5	4869.0	4869.0
# 2	15.5	Over-range	225420.5	4847.0	4847.0
Mean	27.0	Over-range	226125.5	4858.0	4858.0
SD	16.3	n/a	997.0	15.6	15.6
%RSD	60.2	n/a	0.4	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230764 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:17:20 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm

# 1	0.3187	Over-range	H	505.9299	4869.000	H	101.6515
# 2	0.0697	Over-range	H	505.0670	4847.000	H	101.1916
Mean	0.1942	Over-range	H	505.4985	4858.000	H	101.4216
SD	0.1760	n/a		0.6102	15.556		0.3252
%RSD	90.6465	n/a		0.1207	0.320		0.3207

010251

EVOLUTION by Micro-Active Australia Pty Ltd 1:28:00 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230765 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:20:28 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	38.5	Over-range	199189.5	4902.5	4902.5
# 2	42.5	Over-range	196937.5	4861.5	4861.5
Mean	40.5	Over-range	198063.5	4882.0	4882.0
SD	2.8	n/a	1592.4	29.0	29.0
%RSD	7.0	n/a	0.8	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230765 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:20:28 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.3158	Over-range H	441.2320	4902.500 H	102.3518
# 2	0.3628	Over-range H	439.9224	4861.500 H	101.4947
Mean	0.3393	Over-range H	440.5772	4882.000 H	101.9233
SD	0.0332	n/a	0.9260	28.991	0.6061
%RSD	9.7937	n/a	0.2102	0.594	0.5946

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 1:25:16 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1753.5	18654.0	12847.5	4889.0	4889.0
# 2	1722.5	18591.0	12714.5	4790.0	4790.0
Mean	1738.0	18622.5	12781.0	4839.5	4839.5
SD	21.9	44.5	94.0	70.0	70.0
%RSD	1.3	0.2	0.7	1.4	1.4

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 1:25:16 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	18.8613	4.9515	28.4591	4889.000 H	102.0696
# 2	18.9111	5.0367	28.7474	4790.000	100.0000
Mean	18.8862	4.9941	28.6032	4839.500 H	101.0348
SD	0.0352	0.0603	0.2039	70.004	1.4634
%RSD	0.1863	1.2067	0.7128	1.447	1.4484

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	18.886	22.000
Li670	4.500	4.994	5.500
Na589	27.000	28.603	33.000

EVOLUTION by Micro-Active Australia Pty Ltd 1:36:02 PM August 1, 2003 **010252**

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 1:29:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.0	117.0	83.5	4963.5	4963.5
# 2	24.0	149.0	86.5	4919.5	4919.5
Mean	24.5	133.0	85.0	4941.5	4941.5
SD	0.7	22.6	2.1	31.1	31.1
%RSD	2.9	17.0	2.5	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 1:29:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1669	0.0333	0.0988	4963.500 H	103.6271
# 2	0.1586	0.0420	0.1071	4919.500 H	102.7072
Mean	0.1628	0.0376	0.1030	4941.500 H	103.1671
SD	0.0059	0.0062	0.0058	31.113	0.6504
%RSD	3.6340	16.3646	5.6718	0.630	0.6304

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.163	Contaminated
Li670	0.010	0.038	Contaminated
Na589	0.050	0.103	Contaminated
Sc361	0.000	103.167	

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230766 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:32:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	32.5	Over-range	157457.0	4900.0	4900.0
# 2	30.5	Over-range	156965.0	4887.0	4887.0
Mean	31.5	Over-range	157211.0	4893.5	4893.5
SD	1.4	n/a	347.9	9.2	9.2
%RSD	4.5	n/a	0.2	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230766 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:32:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.2513	Over-range H	348.9492	4900.000 H	102.2996
# 2	0.2306	Over-range H	348.7842	4887.000 H	102.0278
Mean	0.2410	Over-range H	348.8667	4893.500 H	102.1637
SD	0.0146	n/a	0.1167	9.192	0.1922
%RSD	6.0753	n/a	0.0335	0.188	0.1881

BACKGROUND CORRECTED INTENSITIES

Identity 1 : 230767 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:35:46 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	23.0	741746.5	701320.0	4877.5	4877.5

EVOLUTION by Micro-Active Australia Pty Ltd 1:42:38 PM August 1, 2003

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# 2	33.0	741430.5	701424.0	4860.5	4860.5
Mean	28.0	741588.5	701372.0	4869.0	4869.0
SD	7.1	223.4	73.5	12.0	12.0
%RSD	25.3	0.0	0.0	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230767 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:35:46 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1500 H	197.2483 H	1561.6954	4877.500 H	101.8292
# 2	0.2596 H	197.8538 H	1567.3903	4860.500 H	101.4738
Mean	0.2048 H	197.5510 H	1564.5429	4869.000 H	101.6515
SD	0.0775	0.4282	4.0269	12.021	0.2513
%RSD	37.8583	0.2168	0.2574	0.247	0.2472

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230768 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:39:14 PM August 1, 2003

8/4/03

	K_766	Li670	Na589	Sc	Sc361
# 1	25.5	Over-range	524145.0	1.5	1.5
# 2	34.5	Over-range	528417.0	0.5	0.5
Mean	30.0	Over-range	526281.0	1.0	1.0
SD	6.4	n/a	3020.8	0.7	0.7
%RSD	21.2	n/a	0.6	70.7	70.7

APPARENT CONCENTRATIONS
Identity 1 : 230768 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:39:14 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	H 898.6041	Over-range	H95429.2695	1.500 L	-0.1045
# 2	H 3647.5793	Over-range	H79090.9653	0.500 L	-0.1254
Mean	H 2273.0917	Over-range	H37260.1174	1.000 L	-0.1150
SD	1943.8190	n/a	5433169.2894	0.707	0.0148
%RSD	85.5143	n/a	71.1403	70.711	12.8565

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230769 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:42:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.5	Over-range	317941.5	4866.0	4866.0
# 2	9.5	Over-range	317596.5	4858.0	4858.0
Mean	14.0	Over-range	317769.0	4862.0	4862.0
SD	6.4	n/a	244.0	5.7	5.7
%RSD	45.5	n/a	0.1	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230769 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:42:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1017	Over-range H	709.6178	4866.000 H	101.5888
# 2	0.0041	Over-range H	710.0151	4858.000 H	101.4216

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EVOLUTION by Micro-Active Australia Pty Ltd 1:53:02 PM August 1, 2003

Mean	0.0529	Over-range H	709.8165	4862.000 H	101.5052
SD	0.0690	n/a	0.2810	5.657	0.1183
%RSD	130.5831	n/a	0.0396	0.116	0.1165

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230770 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:45:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	24.0	Over-range	216715.0	4840.5	4840.5
# 2	32.0	Over-range	216821.0	4847.5	4847.5
Mean	28.0	Over-range	216768.0	4844.0	4844.0
SD	5.7	n/a	75.0	4.9	4.9
%RSD	20.2	n/a	0.0	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230770 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:45:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1628	Over-range H	486.2107	4840.500 H	101.0557
# 2	0.2497	Over-range H	485.7460	4847.500 H	101.2020
Mean	0.2062	Over-range H	485.9784	4844.000 H	101.1289
SD	0.0614	n/a	0.3286	4.950	0.1035
%RSD	29.7859	n/a	0.0676	0.102	0.1023

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230771 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:48:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	17.5	Over-range	111780.0	4809.5	4809.5
# 2	16.5	Over-range	111472.0	4811.5	4811.5
Mean	17.0	Over-range	111626.0	4810.5	4810.5
SD	0.7	n/a	217.8	1.4	1.4
%RSD	4.2	n/a	0.2	0.0	0.0

APPARENT CONCENTRATIONS
Identity 1 : 230771 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:48:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0930	Over-range H	252.3600	4809.500 H	100.4077
# 2	0.0820	Over-range H	251.5598	4811.500 H	100.4495
Mean	0.0875	Over-range H	251.9599	4810.500 H	100.4286
SD	0.0078	n/a	0.5658	1.414	0.0296
%RSD	8.9443	n/a	0.2246	0.029	0.0294

010255

EVOLUTION by Micro-Active Australia Pty Ltd 2:01:38 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230772 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:55:04 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	29.5	Over-range	283.5	4894.0	4894.0
# 2	33.5	Over-range	278.5	4913.0	4913.0
Mean	31.5	Over-range	281.0	4903.5	4903.5
SD	2.8	n/a	3.5	13.4	13.4
%RSD	9.0	n/a	1.3	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230772 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:55:04 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.2193	Over-range	0.5453	4894.000 H	102.1741
# 2	0.2611	Over-range	0.5318	4913.000 H	102.5713
Mean	0.2402	Over-range	0.5386	4903.500 H	102.3727
SD	0.0296	n/a	0.0095	13.435	0.2809
%RSD	12.3059	n/a	1.7709	0.274	0.2744

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230773 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:58:12 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	9406.0	1747.0	22700.0	5055.5	5055.5
# 2	9411.0	1994.0	22689.0	5022.5	5022.5
Mean	9408.5	1870.5	22694.5	5039.0	5039.0
SD	3.5	174.7	7.8	23.3	23.3
%RSD	0.0	9.3	0.0	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230773 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 1:58:12 PM August 1, 2003

		K_766	Li670	Na589	Sc	Sc361
		ppm	ppm	ppm		ppm
# 1	H	98.2584	0.4509	48.6872	5055.500 H	105.5503
# 2	H	98.9572	0.5176	48.9838	5022.500 H	104.8605
Mean	H	98.6078	0.4843	48.8355	5039.000 H	105.2054
SD		0.4942	0.0472	0.2098	23.335	0.4878
%RSD		0.5012	9.7435	0.4295	0.463	0.4637

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230773d Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:01:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	9361.5	265.5	22524.5	5104.5	5104.5
# 2	9352.5	279.5	22446.5	5080.5	5080.5
Mean	9357.0	272.5	22485.5	5092.5	5092.5

SD	6.4	9.9	55.2	17.0	17.0
%RSD	0.1	3.6	0.2	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230773d Identity 2 : pg53-134 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 2:09:34 PM August 1, 2003

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Weight : 1.0000 Volume : 1.00 Printed : 2:01:22 PM August 1, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	H	96.8533	0.0702	47.8456	5104.500	H	106.5747
# 2	H	97.2177	0.0741	47.9052	5080.500	H	106.0730
Mean	H	97.0355	0.0721	47.8754	5092.500	H	106.3238
SD		0.2576	0.0028	0.0422	16.971		0.3548
%RSD		0.2655	3.8169	0.0881	0.333		0.3337

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230774 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:04:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	9391.0	83.0	22662.5	5118.0	5118.0
# 2	9410.0	110.0	22664.5	5108.0	5108.0
Mean	9400.5	96.5	22663.5	5113.0	5113.0
SD	13.4	19.1	1.4	7.1	7.1
%RSD	0.1	19.8	0.0	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230774 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:04:30 PM August 1, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	H	96.9023	0.0237	48.0120	5118.000	H	106.8569
# 2	H	97.2888	0.0306	48.1104	5108.000	H	106.6479
Mean	H	97.0956	0.0272	48.0612	5113.000	H	106.7524
SD		0.2733	0.0049	0.0696	7.071		0.1478
%RSD		0.2815	17.9362	0.1448	0.138		0.1385

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 2:09:16 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1775.0	18387.5	12828.5	4913.0	4913.0
# 2	1715.0	17979.5	12630.5	4793.0	4793.0
Mean	1745.0	18183.5	12729.5	4853.0	4853.0
SD	42.4	288.5	140.0	84.9	84.9
%RSD	2.4	1.6	1.1	1.7	1.7

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 2:09:16 PM August 1, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1		19.0000	4.8570	28.2776	4913.000	H	102.5713
# 2		18.8164	4.8681	28.5390	4793.000	H	100.0627
Mean		18.9082	4.8626	28.4083	4853.000	H	101.3170
SD		0.1298	0.0079	0.1848	84.853		1.7739

%RSD	0.6866	0.1618	0.6506	1.748	1.7508

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

010257

EVOLUTION by Micro-Active Australia Pty Ltd 2:19:36 PM August 1, 2003

Report name	Low limit	Value	High limit
K_766	18.000	18.908	22.000
Li670	4.500	4.863	5.500
Na589	27.000	28.408	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 2:13:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	37.0	72.0	4977.0	4977.0
# 2	12.5	47.0	76.0	4889.0	4889.0
Mean	13.5	42.0	74.0	4933.0	4933.0
SD	1.4	7.1	2.8	62.2	62.2
%RSD	10.5	16.8	3.8	1.3	1.3

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 2:13:30 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0547	0.0124	0.0732	4977.000 H	103.9093
# 2	0.0358	0.0152	0.0849	4889.000 H	102.0696
Mean	0.0453	0.0138	0.0791	4933.000 H	102.9894
SD	0.0133	0.0020	0.0083	62.225	1.3008
%RSD	29.4550	14.5214	10.4740	1.261	1.2631

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.045	
Li670	0.010	0.014	Contaminated
Na589	0.050	0.079	Contaminated
Sc361	0.000	102.989	

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230774s Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:16:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11313.5	9.5	31879.0	5009.0	5009.0
# 2	11316.5	4.5	31632.0	4953.0	4953.0
Mean	11315.0	7.0	31755.5	4981.0	4981.0
SD	2.1	3.5	174.7	39.6	39.6
%RSD	0.0	50.5	0.6	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230774s Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:16:38 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 H	119.3032	0.0052 H	69.0442	5009.000 H	104.5782
# 2 H	120.6852	0.0039 H	69.2841	4953.000 H	103.4075
Mean H	119.9942	0.0045 H	69.1641	4981.000 H	103.9929

SD	0.9772	0.0009	0.1696	39.598	0.8278
%RSD	0.8144	20.0173	0.2453	0.795	0.7960

EVOLUTION by Micro-Active Australia Pty Ltd 2:26:20 PM August 1, 2003

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BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:19:46 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	45.0	256496.0	313176.0	5068.5	5068.5
# 2	48.0	257545.0	312397.0	5090.5	5090.5
Mean	46.5	257020.5	312786.5	5079.5	5079.5
SD	2.1	741.8	550.8	15.6	15.6
%RSD	4.6	0.3	0.2	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230868 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:19:46 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.3700 H	65.6399 H	671.0509	5068.500 H	105.8221
# 2	0.3992 H	65.6235 H	666.4882	5090.500 H	106.2820
Mean	0.3846 H	65.6317 H	668.7695	5079.500 H	106.0521
SD	0.0206	0.0116	3.2263	15.556	0.3252
%RSD	5.3552	0.0177	0.4824	0.306	0.3066

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230869 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:22:56 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.0	379277.5	261191.5	5059.0	5059.0
# 2	21.0	381119.5	261645.5	5090.0	5090.0
Mean	21.5	380198.5	261418.5	5074.5	5074.5
SD	0.7	1302.5	321.0	21.9	21.9
%RSD	3.3	0.3	0.1	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230869 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:22:56 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1306 H	97.2419 H	560.6994	5059.000 H	105.6235
# 2	0.1188 H	97.1191 H	558.2528	5090.000 H	106.2716
Mean	0.1247 H	97.1805 H	559.4761	5074.500 H	105.9475
SD	0.0083	0.0869	1.7300	21.920	0.4582
%RSD	6.6848	0.0894	0.3092	0.432	0.4325

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230869d Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:26:04 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	35.5	375595.0	258269.0	5027.0	5027.0
# 2	31.5	380198.0	260633.0	5083.0	5083.0
Mean	33.5	377896.5	259451.0	5055.0	5055.0

SD	2.8	3254.8	1671.6	39.6	39.6
%RSD	8.4	0.9	0.6	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230869d Identity 2 : pg53-134 Type : SAMPLE **010259**
EVOLUTION by Micro-Active Australia Pty Ltd 2:36:36 PM August 1, 2003

Weight : 1.0000 Volume : 1.00 Printed : 2:26:04 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.2740 H	96.9108 H	557.9545	5027.000 H	104.9545
# 2	0.2283 H	97.0177 H	556.8582	5083.000 H	106.1252
Mean	0.2511 H	96.9642 H	557.4064	5055.000 H	105.5399
SD	0.0323	0.0756	0.7753	39.598	0.8278
%RSD	12.8713	0.0780	0.1391	0.783	0.7844

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230870 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:29:12 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	30.5	551552.5	185822.5	5072.5	5072.5
# 2	31.5	548475.5	184113.5	5057.5	5057.5
Mean	31.0	550014.0	184968.0	5065.0	5065.0
SD	0.7	2175.8	1208.4	10.6	10.6
%RSD	2.3	0.4	0.7	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230870 Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:29:12 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.2185 H	141.0335 H	397.8189	5072.500 H	105.9057
# 2	0.2299 H	140.6626 H	395.3287	5057.500 H	105.5921
Mean	0.2242 H	140.8480 H	396.5738	5065.000 H	105.7489
SD	0.0081	0.2622	1.7608	10.607	0.2217
%RSD	3.5935	0.1862	0.4440	0.209	0.2097

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230870s Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:32:20 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	2159.0	539266.0	190241.5	4844.0	4844.0
# 2	2162.0	537392.0	189264.5	4834.0	4834.0
Mean	2160.5	538329.0	189753.0	4839.0	4839.0
SD	2.1	1325.1	690.8	7.1	7.1
%RSD	0.1	0.2	0.4	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230870s Identity 2 : pg53-134 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 2:32:20 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	23.4629 H	144.3963 H	426.4974	4844.000 H	101.1289
# 2	23.5444 H	144.1922 H	425.1846	4834.000 H	100.9198
Mean	23.5037 H	144.2942 H	425.8410	4839.000 H	101.0244
SD	0.0577	0.1443	0.9283	7.071	0.1478

%RSD	0.2453	0.1000	0.2180	0.146	0.1463

010260

EVOLUTION by Micro-Active Australia Pty Ltd 2:41:38 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 2:37:08 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1762.0	18361.5	12859.0	4905.0	4905.0
# 2	1742.0	18082.5	12699.0	4789.0	4789.0
Mean	1752.0	18222.0	12779.0	4847.0	4847.0
SD	14.1	197.3	113.1	82.0	82.0
%RSD	0.8	1.1	0.9	1.7	1.7

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 2:37:08 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	18.8911	4.8580	28.3914	4905.000 H	102.4041
# 2	19.1303	4.9001	28.7183	4789.000	99.9791
Mean	19.0107	4.8791	28.5549	4847.000 H	101.1916
SD	0.1691	0.0297	0.2311	82.024	1.7147
%RSD	0.8898	0.6093	0.8094	1.692	1.6945

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.011	22.000
Li670	4.500	4.879	5.500
Na589	27.000	28.555	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 2:41:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.5	47.5	104.5	5017.0	5017.0
# 2	14.5	57.5	75.5	4948.0	4948.0
Mean	13.0	52.5	90.0	4982.5	4982.5
SD	2.1	7.1	20.5	48.8	48.8
%RSD	16.3	13.5	22.8	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 2:41:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0218	0.0150	0.1423	5017.000 H	104.7455
# 2	0.0556	0.0178	0.0818	4948.000 H	103.3030
Mean	0.0387	0.0164	0.1121	4982.500 H	104.0243
SD	0.0239	0.0020	0.0428	48.790	1.0200
%RSD	61.6205	12.0522	38.1698	0.979	0.9805

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.039	
Li670	0.010	0.016	Contaminated
Na589	0.050	0.112	Contaminated

010261

EVOLUTION by Micro-Active Australia Pty Ltd 2:51:38 PM August 1, 2003

Sc361	0.000	104.024

EVOLUTION by Micro-Active Australia Pty Ltd 4:01:46 PM August 1, 2003

Keep last result visible enabled ...
Starting run ...
Creating high priority queue entries ...

EVOLUTION by Micro-Active Australia Pty Ltd 4:07:14 PM August 1, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:02:44 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1731.0	17929.0	12623.5	4784.0	4784.0
# 2	1718.0	17640.0	12405.5	4683.0	4683.0
Mean	1724.5	17784.5	12514.5	4733.5	4733.5
SD	9.2	204.4	154.1	71.4	71.4
%RSD	0.5	1.1	1.2	1.5	1.5

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:02:44 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.0288	4.8636	28.5770	4784.000	99.8746
# 2	19.2946	4.8884	28.6895	4683.000	97.7631
Mean	19.1617	4.8760	28.6332	4733.500	98.8189
SD	0.1879	0.0175	0.0796	71.418	1.4930
%RSD	0.9808	0.3595	0.2778	1.509	1.5108

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.162	22.000
Li670	4.500	4.876	5.500
Na589	27.000	28.633	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:06:58 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	14.5	22.5	62.0	4832.0	4832.0
# 2	22.5	20.5	51.0	4783.0	4783.0
Mean	18.5	21.5	56.5	4807.5	4807.5
SD	5.7	1.4	7.8	34.6	34.6
%RSD	30.6	6.6	13.8	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:06:58 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0593	0.0087	0.0555	4832.000 H	100.8780
# 2	0.1494	0.0083	0.0319	4783.000	99.8537
Mean	0.1043	0.0085	0.0437	4807.500 H	100.3658
SD	0.0637	0.0003	0.0167	34.648	0.7243
%RSD	61.0281	3.9937	38.1170	0.721	0.7217

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.104	Contaminated
Li670	0.010	0.009	
Na589	0.050	0.044	

010264

EVOLUTION by Micro-Active Australia Pty Ltd 4:16:46 PM August 1, 2003

Sc361	0.000	100.366

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230754 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:10:06 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	28.5	Over-range	3955.0	4811.0	4811.0
# 2	31.5	Over-range	3942.0	4769.0	4769.0
Mean	30.0	Over-range	3948.5	4790.0	4790.0
SD	2.1	n/a	9.2	29.7	29.7
%RSD	7.1	n/a	0.2	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230754 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:10:06 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.2138	Over-range	8.8453	4811.000 H	100.4390
# 2	0.2499	Over-range	8.8943	4769.000	99.5610
Mean	0.2318	Over-range	8.8698	4790.000	100.0000
SD	0.0255	n/a	0.0347	29.698	0.6209
%RSD	10.9837	n/a	0.3909	0.620	0.6209

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230755 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:13:14 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	40.5	Over-range	1703.0	4787.0	4787.0
# 2	34.5	Over-range	1664.0	4742.0	4742.0
Mean	37.5	Over-range	1683.5	4764.5	4764.5
SD	4.2	n/a	27.6	31.8	31.8
%RSD	11.3	n/a	1.6	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230755 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:13:14 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.3479	Over-range	3.7802	4787.000	99.9373
# 2	0.2853	Over-range	3.7276	4742.000	98.9966
Mean	0.3166	Over-range	3.7539	4764.500	99.4669
SD	0.0443	n/a	0.0372	31.820	0.6652
%RSD	13.9910	n/a	0.9920	0.668	0.6688

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230756 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:16:22 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	21.5	Over-range	1167.0	4787.5	4787.5
# 2	25.5	Over-range	1123.0	4756.5	4756.5

Mean	23.5	Over-range	1145.0	4772.0	4772.0
SD	2.8	n/a	31.1	21.9	21.9
%RSD	12.0	n/a	2.7	0.5	0.5

010265

APPARENT CONCENTRATIONS
EVOLUTION by Micro-Active Australia Pty Ltd 4:26:46 PM August 1, 2003

Identity 1 : 230756 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:16:22 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1381	Over-range	2.5638	4787.500	99.9477
# 2	0.1841	Over-range	2.4805	4756.500	99.2997
Mean	0.1611	Over-range	2.5222	4772.000	99.6237
SD	0.0325	n/a	0.0588	21.920	0.4582
%RSD	20.1946	n/a	2.3332	0.459	0.4600

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230758 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:22:48 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	28.0	Over-range	6031.0	4853.5	4853.5
# 2	15.0	Over-range	6049.0	4822.5	4822.5
Mean	21.5	Over-range	6040.0	4838.0	4838.0
SD	9.2	n/a	12.7	21.9	21.9
%RSD	42.8	n/a	0.2	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230758 Identity 2 : pg53-133 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:22:48 PM August 1, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.2057	Over-range	13.4130	4853.500 H	101.3275
# 2	0.0651	Over-range	13.5403	4822.500 H	100.6794
Mean	0.1354	Over-range	13.4767	4838.000 H	101.0034
SD	0.0994	n/a	0.0900	21.920	0.4582
%RSD	73.4112	n/a	0.6679	0.453	0.4537

EVOLUTION by Micro-Active Australia Pty Ltd 4:32:16 PM August 1, 2003 010266

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:27:34 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1720.5	18219.0	12549.0	4742.5	4742.5
# 2	1686.5	18093.0	12417.0	4695.5	4695.5
Mean	1703.5	18156.0	12483.0	4719.0	4719.0
SD	24.0	89.1	93.3	33.2	33.2
%RSD	1.4	0.5	0.7	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:27:34 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.0792	4.9854	28.6571	4742.500	99.0070
# 2	18.8884	5.0005	28.6395	4695.500	98.0245
Mean	18.9838	4.9930	28.6483	4719.000	98.5157
SD	0.1349	0.0107	0.0125	33.234	0.6948
%RSD	0.7108	0.2134	0.0436	0.704	0.7052

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	18.984	22.000
Li670	4.500	4.993	5.500
Na589	27.000	28.648	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:31:48 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.0	89.5	73.0	4835.5	4835.5
# 2	24.0	86.5	61.0	4803.5	4803.5
Mean	24.5	88.0	67.0	4819.5	4819.5
SD	0.7	2.1	8.5	22.6	22.6
%RSD	2.9	2.4	12.7	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:31:48 PM August 1, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1740	0.0267	0.0801	4835.500 H	100.9512
# 2	0.1648	0.0261	0.0540	4803.500 H	100.2822
Mean	0.1694	0.0264	0.0671	4819.500 H	100.6167
SD	0.0065	0.0005	0.0184	22.627	0.4730
%RSD	3.8340	1.7420	27.4622	0.469	0.4701

Checking calibration blank ...

Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.169	Contaminated
Li670	0.010	0.026	Contaminated
Na589	0.050	0.067	Contaminated

010267

EVOLUTION by Micro-Active Australia Pty Ltd 4:35:10 PM August 1, 2003

Sc361	0.000	100.617

ICP ANALYSIS

Al K Si

PROJ. NO.	PROJECT	TO#	DATE	MATRIX	LOGBK PG
06002.01.141	AIV20	030721-18	8/4/03	water	54 137
		030722-12			54 138

INSTRUMENT: trac #2 FILENAME:

INSTRUMENT DL:

Method: DAILY2 Standard: blk

Run Time: 08/04/03 11:30:23

010268

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Avge	-.0000	.0003	-.0001	.0033	-.0000	-.0000	-.0000
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	58.03	.5495	80.98	.8109	19.97	7.763	106.0
#1	-.0000	.0003	-.0000	.0034	-.0000	-.0000	-.0000
#2	-.0000	.0003	-.0001	.0033	-.0000	-.0000	-.0000

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Avge	.0000	.0000	-.0000	-.0000	.0004	.0000	.0004
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	5.415	1034.	41.82	36.14	8.012	76.94	7.584
#1	.0000	-.0000	-.0000	-.0000	.0004	.0000	.0004
#2	.0000	.0000	-.0000	-.0000	.0003	.0000	.0003

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Avge	-.0000	.0014	-.0000	.0000	-.0000	-.0002	-.0135
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0001
%RSD	70.53	2.621	55.13	35.58	120.8	4.682	.4672
#1	-.0000	.0014	-.0000	.0000	-.0000	-.0001	-.0135
#2	-.0000	.0014	-.0000	.0000	-.0001	-.0002	-.0136

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Avge	-.0000	.0000	.0002	.0000	.0001	.0000	-.0013
SDev	.0001	.0000	.0001	.0001	.0000	.0000	.0000
%RSD	239.1	127.9	28.62	5159.	20.63	56.36	2.984
#1	.0000	.0000	.0002	.0001	.0001	.0000	-.0013
#2	-.0001	.0000	.0002	-.0001	.0001	.0000	-.0014

Elem	Sc3613	1960/1	1960/2	Si2881	Sn1899	Sr4215	Th2837
Avge	72.17	-.0003	.0002	.0022	.0000	.0000	.0000
SDev	.18	.0000	.0001	.0000	.0000	.0000	.0000
%RSD	.2481	17.82	25.25	1.686	187.2	.2427	18.87
#1	72.29	-.0002	.0002	.0021	.0000	.0000	.0000
#2	72.04	-.0003	.0002	.0022	-.0000	.0000	.0000

Elem	Ti3349	Tl1908	U_4090	V_2924	W_2079	Y_3710	Zn2062
Avge	-.0001	-.0003	-.0002	-.0000	.0003	.0000	.0000
SDev	.0000	.0000	.0001	.0000	.0000	.0000	.0000
%RSD	1.132	5.696	40.87	6.090	7.923	198.2	38.34
#1	-.0001	-.0003	-.0003	-.0000	.0003	.0000	.0000
#2	-.0001	-.0003	-.0001	-.0000	.0003	-.0000	.0000

Elem	Zr3496
Avge	.0002
SDev	.0001
%RSD	30.32
#1	.0002
#2	.0002

8/5/03

4 Sept 03

8-4-03

010269

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	---	---	---	---	---	---
Wavlen	361.384	---	---	---	---	---	---
Avge	721632	10000	---	---	---	---	---
SDev	1751.504	.0000000	---	---	---	---	---
%RSD	.2427144	.0000000	---	---	---	---	---
#1	722870	10000	---	---	---	---	---
#2	720393	10000	---	---	---	---	---

Method: DAILY2 Standard: clp_std4
Run Time: 08/04/03 11:35:37

010270

Elem	Ag3280	As1890	2203/1	2203/2	Sb2068	1960/1	1960/2
Avge	.0806	.1346	.3718	.3127	.2035	.3057	.2982
SDev	.0000	.0002	.0003	.0015	.0002	.0001	.0028
%RSD	.0014	.1485	.0823	.4663	.0969	.0194	.9354
#1	.0806	.1344	.3716	.3117	.2033	.3057	.2962
#2	.0806	.1347	.3720	.3137	.2036	.3057	.3001

Elem	Tl1908
Avge	.2649
SDev	.0000
%RSD	.0066
#1	.2649
#2	.2649

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	717136	10000	--	--	--	--	--
SDev	6776.912	.0000000	--	--	--	--	--
%RSD	.9449966	.0000000	--	--	--	--	--
#1	721928	10000	--	--	--	--	--
#2	712344	10000	--	--	--	--	--

Method: DAILY2 Standard: clp_std1
Run Time: 08/04/03 11:40:29

010271

Elem	Al3082	Ca3179	Fe2714	K_7664	Li6707	Mg2790	Na3302
Avge	.1096	.2121	.1070	.1687	2.762	.0903	.0089
SDev	.0001	.0001	.0001	.0004	.015	.0000	.0001
%RSD	.0683	.0715	.0522	.2200	.5319	.0359	.6115
#1	.1097	.2120	.1070	.1690	2.772	.0903	.0089
#2	.1096	.2122	.1071	.1685	2.752	.0903	.0088

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	712803	10000	--	--	--	--	--
SDev	8015.763	.0000000	--	--	--	--	--
%RSD	1.124541	.0000000	--	--	--	--	--
#1	718471	10000	--	--	--	--	--
#2	707135	10000	--	--	--	--	--

Method: DAILY2 Standard: clp_std5
Run Time: 08/04/03 11:44:38

010272

Elem	B_2496	Bi2230	Mo2020	P_1782	Si2881	Sn1899	Sr4215
Avge	.1755	.0382	.4259	.0170	.1642	.1966	2.466
SDev	.0009	.0001	.0032	.0002	.0003	.0000	.004
%RSD	.5346	.1807	.7401	1.314	.1690	.0217	.1664
#1	.1748	.0383	.4237	.0172	.1644	.1966	2.463
#2	.1762	.0382	.4282	.0169	.1640	.1966	2.469

Elem	Ti3349
Avge	2.721
SDev	.004
%RSD	.1351
#1	2.719
#2	2.724

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	720000	10000	--	--	--	--	--
SDev	1048.639	.0000000	--	--	--	--	--
%RSD	.1456445	.0000000	--	--	--	--	--
#1	720741	10000	--	--	--	--	--
#2	719258	10000	--	--	--	--	--

Method: DAILY2 Standard: clp_std2
Run Time: 08/04/03 11:48:47

010273

Elem	Ba4934	Be3130	Cr2677	Cu3247	Ni2316
Avge	1.062	1.326	.4459	.3060	.3929
SDev	.008	.008	.0003	.0019	.0016
%RSD	.7435	.6181	.0774	.6052	.4160
#1	1.057	1.320	.4457	.3046	.3918
#2	1.068	1.331	.4461	.3073	.3941

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	763542	10000	--	--	--	--	--
SDev	39376.66	.0000000	--	--	--	--	--
%RSD	5.157101	.0000000	--	--	--	--	--
#1	735699	10000	--	--	--	--	--
#2	791386	10000	--	--	--	--	--

Method: DAILY2 Standard: clp_std3
Run Time: 08/04/03 11:52:34

010274

Elem	Cd2265	Co2286	Mn2576	V_2924	Zn2062
Avge	1.139	.2484	.9437	.2009	.3645
SDev	.001	.0001	.0004	.0003	.0005
%RSD	.0506	.0605	.0406	.1366	.1292
#1	1.138	.2485	.9440	.2011	.3642
#2	1.139	.2483	.9434	.2007	.3648

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	786255	10000	--	--	--	--	--
SDev	1431.184	.0000000	--	--	--	--	--
%RSD	.1820255	.0000000	--	--	--	--	--
#1	787267	10000	--	--	--	--	--
#2	785243	10000	--	--	--	--	--

Method: DAILY2 Standard: clp_std6 **010275**
Run Time: 08/04/03 11:56:43

Elem	La3988	Na5889	Pd3404	S_1820	Th2837	U_4090	W_2079
Avge	.4770	.0440	.2084	.0359	.1175	.0751	.2285
SDev	.0004	.0007	.0004	.0001	.0001	.0000	.0005
%RSD	.0941	1.513	.1833	.2477	.0392	.0034	.2336
#1	.4773	.0445	.2087	.0360	.1175	.0751	.2281
#2	.4767	.0435	.2082	.0359	.1175	.0751	.2289

Elem	Y_3710	Zr3496
Avge	.7922	1.940
SDev	.0004	.001
%RSD	.0528	.0387
#1	.7925	1.940
#2	.7919	1.941

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	775886	10000	--	--	--	--	--
SDev	8805.601	.0000000	--	--	--	--	--
%RSD	1.134908	.0000000	--	--	--	--	--
#1	782113	10000	--	--	--	--	--
#2	769660	10000	--	--	--	--	--

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Method: DAILY2 Slope = Conc(SIR)/IR

010276

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	clp_std4	blk	24.7907	.000875	08/04/03 11:56:43
Al3082	308.215	clp_std1	blk	457.500	-.146133	08/04/03 11:56:43
As1890	189.042	clp_std4	blk	74.2797	.004327	08/04/03 11:56:43
B_2496	249.678	clp_std5	blk	58.0919	-.194488	08/04/03 11:56:43
Ba4934	493.409	clp_std2	blk	9.41231	.000183	08/04/03 11:56:43
Be3130	313.042	clp_std2	blk	3.77206	.000139	08/04/03 11:56:43
Bi2230	223.061	clp_std5	blk	129.637	.002153	08/04/03 11:56:43
Ca3179	317.933	clp_std1	blk	235.772	-.008167	08/04/03 11:56:43
Cd2265	226.502	clp_std3	blk	8.77831	-.000031	08/04/03 11:56:43
Co2286	228.616	clp_std3	blk	40.2524	.000949	08/04/03 11:56:43
Cr2677	267.716	clp_std2	blk	22.4251	.000544	08/04/03 11:56:43
Cu3247	324.753	clp_std2	blk	32.7224	-.011653	08/04/03 11:56:43
Fe2714	271.441	clp_std1	blk	467.493	-.011348	08/04/03 11:56:43
K_7664	766.491	clp_std1	blk	296.929	-.104092	08/04/03 11:56:43
La3988	398.853	clp_std6	blk	20.9817	.000407	08/04/03 11:56:43
Li6707	670.784	clp_std1	blk	3.62246	-.005082	08/04/03 11:56:43
Mg2790	279.078	clp_std1	blk	276.657	.008812	08/04/03 11:56:43
Mn2576	257.610	clp_std3	blk	10.5976	-.000118	08/04/03 11:56:43
Mo2020	202.030	clp_std5	blk	23.4799	.000668	08/04/03 11:56:43
Na3302	330.232	clp_std1	blk	5543.01	.856504	08/04/03 11:56:43
Na5889	588.991	clp_std6	blk	17.4690	.236377	08/04/03 11:56:43
Ni2316	231.604	clp_std2	blk	25.4466	.000866	08/04/03 11:56:43
P_1782	178.287	clp_std5	blk	588.046	-.008543	08/04/03 11:56:43
2203/1	220.351	clp_std4	blk	26.9121	-.005573	08/04/03 11:56:43
2203/2	220.352	clp_std4	blk	31.9814	-.000063	08/04/03 11:56:43
Pd3404	340.458	clp_std6	blk	49.2793	-.004165	08/04/03 11:56:43
S_1820	182.040	clp_std6	blk	278.359	-.009637	08/04/03 11:56:43
Sb2068	206.838	clp_std4	blk	48.8322	.064593	08/04/03 11:56:43
Sc3613	361.384	blk	dark	1.38568	.000000	08/04/03 11:56:43
1960/1	196.021	clp_std4	blk	32.6870	.008744	08/04/03 11:56:43
1960/2	196.022	clp_std4	blk	33.5619	-.006443	08/04/03 11:56:43
Si2881	288.158	clp_std5	blk	61.4895	-.133610	08/04/03 11:56:43
Pb220	220.353	NONE	NONE	1.00000	.000000	*NOT STANDARDIZED
Se196	196.026	NONE	NONE	1.00000	.000000	*NOT STANDARDIZED
Sn1899	189.989	clp_std5	blk	50.8999	-.001091	08/04/03 11:56:43
Sr4215	421.552	clp_std5	blk	4.05458	-.000028	08/04/03 11:56:43
Th2837	283.730	clp_std6	blk	88.8450	-.002277	08/04/03 11:56:43
Ti3349	334.941	clp_std5	blk	3.67488	.000405	08/04/03 11:56:43
Tl1908	190.864	clp_std4	blk	37.7054	.010163	08/04/03 11:56:43
U_4090	409.014	clp_std6	blk	140.489	.028799	08/04/03 11:56:43
V_2924	292.402	clp_std3	blk	49.7560	.002310	08/04/03 11:56:43
W_2079	207.914	clp_std6	blk	21.9015	-.006570	08/04/03 11:56:43
Y_3710	371.030	clp_std6	blk	12.6208	-.000044	08/04/03 11:56:43
Zn2062	206.200	clp_std3	blk	27.4361	-.000209	08/04/03 11:56:43
Zr3496	349.621	clp_std6	blk	5.63416	-.001101	08/04/03 11:56:43

Method: DAILY2 Sample Name: icv/ccv Operator: **010277**
Run Time: 08/04/03 12:01:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9871	10.06	4.937	4.856	9.964	.9953	4.998
SDev	.0008	.02	.015	.013	.006	.0003	.007
%RSD	.0768	.1548	.3061	.2577	.0585	.0329	.1408
#1	.9877	10.07	4.926	4.847	9.960	.9955	5.003
#2	.9866	10.05	4.947	4.865	9.968	.9950	4.993
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	1.000	10.00	5.000	5.000	10.00	1.000	5.000
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.67	1.007	5.015	1.958	2.012	10.13	18.50
SDev	.02	.001	.006	.002	.001	.02	.00
%RSD	.1153	.0551	.1269	.1243	.0416	.2102	.0109
#1	19.68	1.007	5.010	1.956	2.013	10.15	18.50
#2	19.65	1.008	5.019	1.960	2.012	10.12	18.50
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	20.00	1.000	5.000	2.000	2.000	10.00	20.00
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.875	4.937	19.94	1.013	5.134	28.92	Q39.59
SDev	.000	.003	.01	.001	.031	.11	.02
%RSD	.0061	.0653	.0325	.0568	.6066	.3687	.0618
#1	4.875	4.935	19.94	1.012	5.112	29.00	Q39.57
#2	4.875	4.939	19.94	1.013	5.156	28.84	Q39.61
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Fail
Value	5.000	5.000	20.00	1.000	5.000	30.00	30.00
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.893	5.044	4.855	4.859	.9727	1.021	.9893
SDev	.008	.130	.013	.016	.0019	.004	.0065
%RSD	.1571	2.583	.2736	.3278	.1985	.4207	.6588
#1	4.887	5.136	4.845	4.870	.9740	1.024	.9939
#2	4.898	4.951	4.864	4.848	.9713	1.018	.9847
Errors	QC Pass	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass
Value	5.000	5.000			1.000	1.000	1.000
Range	10.00	10.00			10.00	10.00	10.00

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

010278

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	108.1	5.118	5.113	5.012	4.857	5.114	4.877
SDev	.1	.013	.023	.000	.006	.011	.008
%RSD	.0811	.2453	.4403	.0089	.1274	.2116	.1709
#1	108.0	5.109	5.129	5.013	4.862	5.122	4.883
#2	108.1	5.127	5.097	5.012	4.853	5.107	4.871
Errors	NOCHECK	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value				5.000	5.000	5.000	5.000
Range				10.00	10.00	10.00	10.00

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.009	.9845	4.852	5.156	.9268	4.960	.9946
SDev	.003	.0021	.002	.014	.0101	.006	.0065
%RSD	.0548	.2136	.0506	.2700	1.087	.1227	.6578
#1	5.007	.9860	4.850	5.146	.9340	4.964	.9900
#2	5.010	.9830	4.854	5.166	.9197	4.956	.9993
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	5.000	1.000	5.000	5.000	1.000	5.000	1.000
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.948	1.006	4.854
SDev	.002	.000	.000
%RSD	.0471	.0293	.0051
#1	4.949	1.007	4.854
#2	4.946	1.006	4.854
Errors	QC Pass	QC Pass	QC Pass
Value	5.000	1.000	5.000
Range	10.00	10.00	10.00

010279

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	779783	10000	--	--	--	--	--
SDev	683.0651	.0000000	--	--	--	--	--
%RSD	.0875968	.0000000	--	--	--	--	--
#1	779300	10000	--	--	--	--	--
#2	780266	10000	--	--	--	--	--

Analysis Report Blank Sample 08/04/03 12:13:55 PM page 1

Method: DAILY2 Sample Name: icb/ccb Operator:
Run Time: 08/04/03 12:08:52 010280
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	-.0055	-.0016	-.0258	.0002	.0000	.0031
SDev	.0003	.0011	.0036	.0015	.0003	.0000	.0015
%RSD	90.35	19.79	223.6	5.701	152.8	134.0	49.26
#1	.0001	-.0047	.0009	-.0248	.0005	.0000	.0020
#2	.0006	-.0062	-.0041	-.0269	-.0000	.0000	.0041
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0040	.0001	.0002	.0010	.0007	.0156	-.0111
SDev	.0004	.0000	.0006	.0008	.0004	.0011	.0154
%RSD	10.78	9.665	348.1	88.65	62.76	6.844	138.2
#1	.0043	.0001	-.0003	.0016	.0009	.0149	-.0003
#2	.0037	.0001	.0006	.0004	.0004	.0164	-.0220
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0001	.0092	-.0000	.0032	H.0532	.0353
SDev	.0004	.0001	.0034	.0000	.0008	.0409	.0002
%RSD	87.41	112.6	36.77	26.68	26.24	76.82	.6273
#1	.0002	.0002	.0068	-.0000	.0038	.0243	.0352
#2	.0008	.0000	.0116	-.0001	.0026	H.0822	.0355
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0013	-.0056	-.0003	.0010	.0008	-.0028	.0029
SDev	.0015	.0105	.0014	.0012	.0001	.0018	.0034
%RSD	119.8	186.8	415.8	118.2	15.41	63.39	116.2
#1	.0023	L-.0130	-.0013	.0018	.0009	-.0015	.0053
#2	.0002	.0018	.0006	.0002	.0007	-.0040	.0005
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	110.0	.0011	-.0021	.0057	.0006	-.0010	-.0014
SDev	.3	.0027	.0008	.0157	.0003	.0004	.0000
%RSD	.3179	238.0	38.06	274.0	55.83	38.88	.1628
#1	109.8	.0031	-.0026	H.0169	.0008	-.0007	-.0013
#2	110.3	-.0008	-.0015	-.0054	.0003	-.0013	-.0014
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0014	.0001	-.0004	.0068	.0005	.0003
SDev	.0000	.0016	.0003	.0011	.0110	.0004	.0010
%RSD	39.90	116.3	363.3	287.5	162.3	79.66	355.7
#1	.0001	.0026	.0003	.0004	-.0010	.0008	-.0004
#2	.0001	.0002	-.0001	-.0012	.0145	.0002	.0010
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0001	.0020
SDev	.0001	.0002	.0009
%RSD	280.6	363.9	47.95
#1	.0001	-.0001	.0013
#2	-.0000	.0002	.0027
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	793865	10000	--	--	--	--	--
SDev	2544.170	.0000000	--	--	--	--	--
%RSD	.3204789	.0000000	--	--	--	--	--
#1	792066	10000	--	--	--	--	--
#2	795664	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: pbw-H04W1 pg54-137 Operator:
Run Time: 08/04/03 12:14:07
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0036	-.0006	-.0188	.0002	.0000	-.0007
SDev	.0003	.0027	.0012	.0024	.0001	.0000	.0003
%RSD	1494.	76.76	182.6	12.70	35.41	22.96	46.91
#1	.0002	.0055	.0002	-.0204	.0001	.0000	-.0010
#2	-.0002	.0016	-.0015	-.0171	.0002	.0000	-.0005
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	H.1310	-.0001	.0001	.0009	.0013	.0035	-.0125
SDev	.1575	.0000	.0008	.0003	.0003	.0115	.0186
%RSD	120.3	42.23	562.4	29.74	22.39	326.5	148.4
#1	.0196	-.0001	.0007	.0011	.0011	.0116	.0006
#2	H.2423	-.0000	-.0004	.0007	.0015	-.0046	-.0257
Errors	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0000	.0076	.0002	.0007	L-.0559	.0288
SDev	.0004	.0000	.0047	.0001	.0011	.0671	.0057
%RSD	210.5	110.0	62.95	70.37	157.3	120.0	19.64
#1	.0004	-.0001	.0109	.0001	-.0001	-.0085	.0328
#2	-.0001	-.0000	.0042	.0003	.0015	L-.1034	.0248
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Low	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	-.0026	-.0021	.0014	-.0009	-.0010	-.0032
SDev	.0013	.0051	.0042	.0024	.0005	.0001	.0030
%RSD	728.2	197.2	201.3	175.8	56.76	11.58	93.88
#1	-.0011	-.0062	.0009	.0031	-.0006	-.0011	-.0054
#2	.0007	.0010	-.0050	-.0003	-.0013	-.0010	-.0011
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	103.4	.0001	-.0003	-.0027	.0003	-.0001	.0004
SDev	1.5	.0017	.0025	.0019	.0030	.0011	.0005
%RSD	1.478	1815.	872.3	72.12	1199.	748.5	142.1
#1	104.5	.0013	-.0021	-.0013	.0024	-.0009	-.0000
#2	102.4	-.0011	.0015	-.0040	-.0019	.0006	.0007
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0027	.0000	-.0021	-.0289	.0004	.0009
SDev	.0000	.0012	.0000	.0019	.0179	.0003	.0020
%RSD	48.50	43.84	14.39	93.00	61.88	74.67	217.6
#1	.0001	.0035	.0000	-.0035	-.0416	.0002	-.0005
#2	.0001	.0018	.0000	-.0007	-.0163	.0006	.0023
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0015	.0000
SDev	.0000	.0009	.0001
%RSD	20.83	57.50	499.0
#1	.0001	.0009	-.0001
#2	.0001	.0021	.0001
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	746482	10000	--	--	--	--	--
SDev	11037.23	.0000000	--	--	--	--	--
%RSD	1.478567	.0000000	--	--	--	--	--
#1	754286	10000	--	--	--	--	--
#2	738677	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: lcsw-H04W1 Operator:
Run Time: 08/04/03 12:19:21
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0510	2.023	2.051	-.0167	2.082	.0515	.0015
SDev	.0001	.008	.005	.0014	.003	.0000	.0044
%RSD	.2117	.3737	.2418	8.182	.1238	.0388	291.0
#1	.0509	2.018	2.048	-.0176	2.080	.0515	-.0016
#2	.0511	2.029	2.055	-.0157	2.084	.0515	.0046

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.92	.0517	.5172	.2046	.2587	1.106	17.85
SDev	.03	.0005	.0011	.0005	.0007	.025	.01
%RSD	.1460	.9666	.2045	.2318	.2613	2.256	.0578
#1	20.94	.0520	.5165	.2049	.2582	1.123	17.86
#2	20.90	.0513	.5180	.2042	.2592	1.088	17.85

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0008	21.29	.5184	.0002	19.11	26.07
SDev	.0003	.0001	.03	.0006	.0011	.03	.04
%RSD	147.2	9.787	.1550	.1186	625.4	.1710	.1378
#1	-.0000	.0008	21.31	.5179	-.0006	19.13	26.10
#2	.0004	.0009	21.26	.5188	.0009	19.09	26.05

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5127	-.0000	.4963	.5020	.0019	.0101	.4914
SDev	.0006	.0057	.0035	.0000	.0016	.0140	.0044
%RSD	.1270	27580.	.7035	.0069	83.68	138.5	.8958
#1	.5131	.0040	.4939	.5020	.0030	.0002	.4883
#2	.5122	-.0041	.4988	.5019	.0008	.0200	.4945

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.1	2.088	2.088	4.181	.5001	2.088	.0002
SDev	.2	.021	.003	.004	.0011	.009	.0006
%RSD	.1807	.9919	.1639	.0973	.2283	.4400	336.0
#1	100.9	2.074	2.085	4.184	.4993	2.081	.0006
#2	101.2	2.103	2.090	4.178	.5009	2.094	-.0003

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	-.0146	.0001	2.110	-.0154	.5138	-.0016
SDev	.0000	.0036	.0001	.003	.0000	.0001	.0012
%RSD	.4331	24.44	114.9	.1195	.2561	.0287	72.29
#1	.0006	-.0171	.0000	2.111	-.0154	.5139	-.0024
#2	.0006	-.0121	.0002	2.108	-.0154	.5137	-.0008

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.5226	.0028
SDev	.0000	.0005	.0002
%RSD	.9904	.0938	5.921
#1	-.0000	.5222	.0027
#2	-.0000	.5229	.0029

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	729218	10000	--	--	--	--	--
SDev	1319.461	.0000000	--	--	--	--	--
%RSD	.1809419	.0000000	--	--	--	--	--
#1	728285	10000	--	--	--	--	--
#2	730151	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230742 Operator:
Run Time: 08/04/03 12:24:35
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0082	.0028	-.0221	.0003	.0000	.0109
SDev	.0005	.0038	.0017	.0013	.0000	.0000	.0049
%RSD	89.90	46.45	62.69	5.918	2.951	99.72	44.97
#1	.0009	.0109	.0015	-.0212	.0003	.0000	.0144
#2	.0002	.0055	.0040	-.0230	.0003	.0000	.0074

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0452	.0004	.0016	.0001	.0020	.0092	.0350
SDev	.0378	.0002	.0002	.0002	.0000	.0030	.0177
%RSD	83.53	50.41	14.39	328.1	.2106	33.05	50.51
#1	.0185	.0002	.0017	-.0001	.0020	.0114	.0475
#2	.0719	.0005	.0014	.0002	.0020	.0071	.0225

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	17.67	.0155	.0001	.0018	195.9	242.2
SDev	.0008	.06	.0069	.0001	.0001	1.0	1.3
%RSD	86.08	.3381	44.31	59.35	5.797	.5059	.5523
#1	.0016	17.72	.0203	.0001	.0019	196.6	243.2
#2	.0004	17.63	.0106	.0002	.0017	195.2	241.3

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0014	.0018	-.0038	.0016	.0016	.0073	-.0033
SDev	.0006	.0068	.0021	.0005	.0013	.0097	.0004
%RSD	41.87	380.7	54.16	30.86	81.48	133.0	11.16
#1	.0010	-.0030	-.0053	.0012	.0026	.0004	-.0031
#2	.0018	.0066	-.0024	.0019	.0007	.0141	-.0036

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	102.6	.0046	-.0016	.3926	-.0002	.0005	.0009
SDev	.8	.0039	.0011	.0008	.0010	.0005	.0024
%RSD	.7544	84.76	72.97	.2097	493.9	107.1	270.6
#1	103.2	.0073	-.0024	.3920	-.0009	.0009	-.0008
#2	102.1	.0018	-.0008	.3932	.0005	.0001	.0026

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0014	.0001	-.0013	.0217	.0003	.0024
SDev	.0000	.0009	.0001	.0038	.0135	.0006	.0018
%RSD	23.33	66.68	44.76	290.0	61.99	225.4	76.19
#1	.0001	.0020	.0002	.0014	.0313	.0007	.0036
#2	.0001	.0007	.0001	-.0040	.0122	-.0002	.0011

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0012	.0001
SDev	.0000	.0003	.0001
%RSD	54.53	21.29	57.88
#1	.0000	.0010	.0002
#2	.0001	.0014	.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	740584	10000	--	--	--	--	--
SDev	5580.487	.0000000	--	--	--	--	--
%RSD	.7535251	.0000000	--	--	--	--	--
#1	744530	10000	--	--	--	--	--
#2	736638	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230743 Operator:
Run Time: 08/04/03 12:29:49
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	k.0292	k-.0009	k-.0190	k.0002	k.0000	k.0025
SDev	.0002	.0001	.0006	.0040	.0001	.0000	.0066
%RSD	72.82	.1945	66.93	21.21	31.65	51.43	259.1
#1	k.0001	k.0293	k-.0014	k-.0219	k.0002	k.0000	k-.0021
#2	k.0003	k.0292	k-.0005	k-.0162	k.0003	k.0000	k.0072

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0168	k.0001	k.0006	k.0004	k.0019	k.0731	.1343
SDev	.0036	.0001	.0000	.0003	.0001	.0038	.1695
%RSD	21.58	51.01	1.107	75.47	5.751	5.166	126.2
#1	k.0143	k.0002	k.0006	k.0006	k.0020	k.0704	.0144
#2	k.0194	k.0001	k.0006	k.0002	k.0018	k.0758	.2541

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0007	S33.21	k.0231	k.0004	k.0041	59.41	k89.33
SDev	.0003	.72	.0010	.0001	.0001	.50	.36
%RSD	46.31	2.170	4.186	19.40	3.721	.8382	.4015
#1	k.0005	S32.70	k.0224	k.0004	k.0040	59.76	k89.58
#2	k.0009	S33.72	k.0238	k.0005	k.0042	59.05	k89.08

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0008	k-.0026	k-.0027	k-.0005	k.0004	k.0020	k-.0014
SDev	.0004	.0200	.0013	.0003	.0003	.0033	.0002
%RSD	54.10	759.7	49.49	49.48	77.93	164.1	13.82
#1	k.0005	k.0115	k-.0017	k-.0003	k.0002	k.0044	k-.0015
#2	k.0011	k-.0167	k-.0036	k-.0007	k.0006	k-.0003	k-.0012

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.5	k.0021	k-.0062	k.4957	k-.0012	k-.0034	k-.0013
SDev	1.8	.0064	.0011	.0052	.0006	.0014	.0012
%RSD	1.752	300.7	18.24	1.044	50.03	40.81	97.52
#1	101.7	k.0067	k-.0070	k.4921	k-.0008	k-.0024	k-.0004
#2	99.25	k-.0024	k-.0054	k.4994	k-.0017	k-.0044	k-.0022

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k-.0009	k.0020	k.0028	k-.0173	k.0006	k-.0006
SDev	.0001	.0021	.0002	.0008	.0019	.0000	.0015
%RSD	75.88	235.1	7.865	28.06	11.02	3.733	242.3
#1	k.0000	k.0006	k.0019	k.0023	k-.0160	k.0006	k.0004
#2	k.0001	k-.0024	k.0021	k.0034	k-.0187	k.0006	k-.0016

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0013	k.0003
SDev	.0000	.0007	.0001
%RSD	214.9	55.26	34.18
#1	k-.0000	k.0008	k.0003
#2	k.0000	k.0017	k.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	725127	10000	--	--	--	--	--
SDev	12720.85	.0000000	--	--	--	--	--
%RSD	1.754293	.0000000	--	--	--	--	--
#1	734122	10000	--	--	--	--	--
#2	716132	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230744 Operator:
Run Time: 08/04/03 12:35:03
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0002	k.0207	k.0001	k-.0231	k.0002	k.0000	k.0014
SDev	.0001	.0037	.0020	.0009	.0001	.0000	.0025
%RSD	41.42	17.95	1815.	3.992	23.60	93.45	176.5
#1	k-.0002	k.0181	k.0015	k-.0238	k.0002	k.0000	k-.0004
#2	k-.0003	k.0233	k-.0013	k-.0225	k.0003	k.0000	k.0032

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0096	k.0001	k.0028	k.0006	k.0016	k.0418	.0020
SDev	.0020	.0001	.0002	.0004	.0007	.0084	.0086
%RSD	21.08	46.35	6.678	66.41	43.08	20.01	431.6
#1	k.0082	k.0001	k.0029	k.0003	k.0011	k.0359	-.0041
#2	k.0110	k.0001	k.0026	k.0008	k.0021	k.0477	.0081

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	S32.89	k.0192	k.0003	k.0036	44.81	k69.29
SDev	.0003	.23	.0044	.0001	.0003	.07	.15
%RSD	224.1	.6908	22.68	17.67	8.849	.1465	.2233
#1	k-.0001	S32.73	k.0162	k.0003	k.0038	44.86	k69.40
#2	k.0003	S33.05	k.0223	k.0002	k.0034	44.76	k69.18

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0014	k.0076	k-.0005	k-.0006	k-.0010	k.0033	k-.0052
SDev	.0010	.0022	.0039	.0002	.0009	.0053	.0024
%RSD	70.37	28.56	711.4	41.72	94.14	160.6	45.48
#1	k.0021	k.0091	k.0022	k-.0004	k-.0017	k.0070	k-.0035
#2	k.0007	k.0061	k-.0033	k-.0007	k-.0003	k-.0004	k-.0069

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.1	k.0019	k-.0049	k.3855	k-.0005	k-.0026	k-.0012
SDev	.8	.0039	.0005	.0017	.0014	.0016	.0033
%RSD	.7598	206.0	9.876	.4441	262.8	62.69	275.0
#1	101.6	k.0047	k-.0045	k.3867	k.0005	k-.0014	k.0011
#2	100.5	k-.0009	k-.0052	k.3843	k-.0016	k-.0037	k-.0035

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0009	k.0015	k.0021	k-.0191	k.0004	k.0021
SDev	.0000	.0016	.0001	.0010	.0157	.0002	.0009
%RSD	46.25	188.2	5.448	47.57	82.25	57.48	45.11
#1	k.0000	k-.0003	k.0016	k.0014	k-.0302	k.0002	k.0014
#2	k.0000	k.0020	k.0015	k.0028	k-.0080	k.0006	k.0027

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0000	k.0014	k-.0002
SDev	.0000	.0001	.0004
%RSD	205.2	10.75	195.4
#1	k.0000	k.0013	k.0001
#2	k-.0000	k.0015	k-.0005

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	729382	10000	--	--	--	--	--
SDev	5600.993	.0000000	--	--	--	--	--
%RSD	.7679099	.0000000	--	--	--	--	--
#1	733342	10000	--	--	--	--	--
#2	725421	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230745 Operator:
Run Time: 08/04/03 12:40:17
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0001	k.0193	k.0020	k-.0260	k.0002	k.0000	k-.0018
SDev	.0005	.0019	.0001	.0004	.0001	.0000	.0009
%RSD	447.4	9.715	4.558	1.702	39.23	44.32	49.32
#1	k-.0005	k.0180	k.0019	k-.0263	k.0002	k.0000	k-.0012
#2	k.0003	k.0206	k.0020	-.0257	k.0001	k.0000	k-.0025

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0256	k-.0001	k.0013	k.0001	k.0018	k.0415	.0175
SDev	.0024	.0002	.0007	.0004	.0003	.0179	.0194
%RSD	9.586	218.3	52.52	760.2	14.82	42.99	110.5
#1	k.0239	k-.0003	k.0017	k-.0002	k.0016	k.0289	.0038
#2	k.0273	k.0001	k.0008	k.0003	k.0020	k.0541	.0312

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0004	S32.59	k.0159	k.0002	k.0042	37.16	k58.07
SDev	.0001	.26	.0003	.0001	.0002	.05	.28
%RSD	16.57	.8080	1.568	29.12	4.519	.1274	.4808
#1	k.0003	S32.40	k.0158	k.0001	k.0043	37.12	k58.27
#2	k.0004	S32.78	k.0161	k.0002	k.0041	37.19	k57.88

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	k-.0005	k.0001	k-.0004	k-.0001	k.0033	k-.0008
SDev	.0009	.0056	.0036	.0025	.0013	.0023	.0010
%RSD	406.8	1048.	2792.	575.1	2213.	69.62	130.7
#1	k.0008	k.0034	k.0027	k.0013	k-.0010	k.0017	k-.0015
#2	k-.0004	k-.0045	k-.0024	k-.0022	k.0009	k.0049	k-.0001

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.4	k.0080	k-.0034	k.3110	k-.0002	k.0004	k-.0003
SDev	1.1	.0025	.0017	.0011	.0028	.0020	.0004
%RSD	1.062	31.55	50.88	.3557	1292.	497.3	155.5
#1	102.2	k.0062	k-.0046	k.3103	k.0018	k-.0010	k-.0006
#2	100.7	k.0097	k-.0022	k.3118	k-.0022	k.0018	k.0000

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0019	k.0012	k-.0032	k-.0094	k.0007	k.0012
SDev	.0000	.0008	.0001	.0011	.0098	.0009	.0014
%RSD	14.83	43.76	6.789	33.82	103.5	130.9	117.9
#1	k.0001	k.0013	k.0012	k-.0024	k-.0164	k.0001	k.0022
#2	k.0001	k.0025	k.0013	k-.0039	k-.0025	k.0013	k.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0014	k-.0001
SDev	.0001	.0002	.0001
%RSD	376.4	16.01	63.45
#1	k-.0000	k.0013	k-.0000
#2	k.0001	k.0016	k-.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	731831	10000	--	--	--	--	--
SDev	7759.790	.0000000	--	--	--	--	--
%RSD	1.060325	.0000000	--	--	--	--	--
#1	737318	10000	--	--	--	--	--
#2	726344	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230745d Operator:
Run Time: 08/04/03 12:45:32
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	k.0148	k.0002	k-.0263	k.0001	k.0000	k-.0026
SDev	.0006	.0017	.0008	.0007	.0000	.0000	.0034
%RSD	194.6	11.17	333.6	2.827	27.52	23.26	132.2
#1	k-.0001	k.0160	k.0008	k-.0258	k.0001	k.0000	k-.0049
#2	k.0007	k.0137	k-.0003	-.0268	k.0001	k.0000	k-.0002

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0083	k.0002	k.0006	k.0004	k.0016	k.0442	.0069
SDev	.0004	.0002	.0004	.0004	.0006	.0073	.0078
%RSD	4.478	98.46	68.14	119.0	40.53	16.60	112.6
#1	k.0086	k.0003	k.0009	k.0001	k.0011	k.0494	.0124
#2	k.0080	k.0000	k.0003	k.0006	k.0020	k.0390	.0014

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0005	S32.60	k.0159	k.0001	k.0047	36.79	k57.53
SDev	.0000	.03	.0020	.0001	.0008	.24	.05
%RSD	5.794	.0980	12.63	45.02	16.98	.6566	.0783
#1	k.0004	S32.58	k.0173	k.0001	k.0042	36.96	k57.50
#2	k.0005	S32.62	k.0145	k.0002	k.0053	36.62	k57.56

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	k-.0125	k-.0009	k-.0001	k-.0015	k.0023	k-.0043
SDev	.0004	.0000	.0032	.0038	.0007	.0078	.0081
%RSD	111.2	.1572	338.6	2781.	47.56	334.1	189.4
#1	k-.0007	k-.0125	k-.0032	k-.0028	-.0010	k-.0032	k-.0100
#2	k-.0001	k-.0126	k.0013	k.0025	k-.0020	k.0079	k.0015

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.6	k-.0001	k-.0016	k.3108	k-.0004	k-.0011	k-.0018
SDev	.2	.0110	.0033	.0032	.0036	.0015	.0024
%RSD	.2250	9553.	200.9	1.026	938.1	131.4	127.3
#1	101.7	k.0076	k-.0040	k.3085	k-.0029	k-.0001	k-.0035
#2	101.4	k-.0079	k.0007	k.3130	k.0021	k-.0022	k-.0002

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0011	k.0011	k-.0006	k-.0213	k-.0003	k-.0007
SDev	.0000	.0000	.0001	.0005	.0147	.0004	.0020
%RSD	8.922	.7352	4.793	78.02	68.83	166.1	276.5
#1	k.0000	k.0011	k.0011	k-.0003	k-.0317	k-.0006	k.0007
#2	k.0000	k.0011	k.0012	k-.0010	k-.0109	k.0000	k-.0022

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0000	k.0003	k-.0001
SDev	.0000	.0005	.0002
%RSD	69.46	149.0	143.6
#1	k-.0000	k-.0000	k.0000
#2	k-.0000	k.0007	k-.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	732938	10000	--	--	--	--	--
SDev	1632.710	.0000000	--	--	--	--	--
%RSD	.2227621	.0000000	--	--	--	--	--
#1	734093	10000	--	--	--	--	--
#2	731784	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230746 Operator:
Run Time: 08/04/03 12:50:46
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	k.0169	k-.0005	-.0265	k.0002	k.0000	k.0035
SDev	.0004	.0032	.0055	.0011	.0000	.0000	.0069
%RSD	146.1	18.86	1154.	4.238	.0986	8.089	199.3
#1	k.0005	k.0192	k.0034	-.0257	k.0002	k.0000	k.0084
#2	k-.0000	k.0147	k-.0044	-.0273	k.0002	k.0000	k-.0014

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0097	k.0001	k.0005	k.0009	k.0020	k.0334	.0256
SDev	.0023	.0000	.0005	.0009	.0002	.0165	.0073
%RSD	23.48	1.448	105.7	96.68	9.290	49.31	28.48
#1	k.0081	k.0001	k.0009	k.0003	k.0021	k.0450	.0308
#2	k.0113	k.0001	k.0001	k.0015	k.0019	k.0217	.0205

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0005	S32.62	k.0132	k.0140	k.0049	29.99	k47.62
SDev	.0009	.09	.0104	.0000	.0012	.46	.21
%RSD	158.7	.2688	78.28	.3130	24.46	1.529	.4365
#1	k.0012	S32.68	k.0206	k.0140	k.0057	30.31	k47.77
#2	k-.0001	S32.56	k.0059	k.0140	k.0041	29.67	k47.47

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0016	k-.0126	k-.0007	k-.0004	k.0001	k.0013	k-.0017
SDev	.0013	.0080	.0043	.0047	.0040	.0094	.0008
%RSD	81.54	63.51	620.7	1323.	3546.	751.6	48.50
#1	k.0026	k-.0182	k.0023	k-.0037	k.0030	k.0079	k-.0011
#2	k.0007	k-.0069	k-.0037	k.0030	k-.0027	k-.0054	k-.0022

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.2	k-.0018	k-.0012	k.2443	k-.0005	k-.0014	k.0009
SDev	.1	.0041	.0017	.0041	.0017	.0002	.0006
%RSD	.1313	233.2	142.1	1.684	381.9	17.33	70.58
#1	101.3	k.0011	k-.0024	k.2473	k-.0017	k-.0012	k.0013
#2	101.1	k-.0047	k.0000	k.2414	k.0008	k-.0015	k.0004

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0017	k.0008	k.0037	k-.0041	k.0005	k-.0001
SDev	.0000	.0017	.0000	.0037	.0221	.0001	.0012
%RSD	45.83	100.1	5.167	100.5	543.5	24.46	2025.
#1	k.0001	k.0005	k.0009	k.0062	k.0116	k.0004	k.0008
#2	k.0000	k.0029	k.0008	k.0011	k-.0197	k.0006	k-.0009

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0010	k-.0001
SDev	.0000	.0002	.0001
%RSD	40.05	20.76	66.17
#1	k.0001	k.0011	k-.0001
#2	k.0000	k.0009	k-.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	730123	10000	--	--	--	--	--
SDev	988.5353	.0000000	--	--	--	--	--
%RSD	.1353930	.0000000	--	--	--	--	--
#1	730822	10000	--	--	--	--	--
#2	729424	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230746s Operator:
Run Time: 08/04/03 12:56:00
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0522	k2.122	2.091	k-.0253	2.015	k.0508	k.0064
SDev	.0008	.003	.010	.0004	.002	.0004	.0022
%RSD	1.625	.1456	.4721	1.616	.0845	.7314	34.30
#1	k.0516	k2.124	2.084	k-.0250	2.017	k.0505	k.0079
#2	k.0528	k2.120	2.098	k-.0256	2.014	k.0511	k.0048

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k20.25	k.0511	k.5257	k.2018	k.2638	k1.114	28.17
SDev	.08	.0004	.0036	.0030	.0006	.004	.06
%RSD	.3792	.7547	.6824	1.507	.2412	.3771	.1974
#1	k20.20	k.0508	k.5232	k.1997	k.2633	k1.111	28.21
#2	k20.31	k.0513	k.5282	k.2040	k.2642	k1.117	28.13

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	S33.20	20.67	k.5107	k.0037	k54.29	k83.15
SDev	.0007	.60	.12	.0024	.0014	.16	.39
%RSD	433.1	1.796	.5723	.4721	39.83	.2867	.4686
#1	k-.0003	S33.63	20.59	k.5090	k.0026	k54.40	k83.42
#2	k.0006	S32.78	20.75	k.5124	k.0047	k54.18	k82.87

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.5068	k.0054	k.5168	k.5050	k.0004	k-.0012	k.4999
SDev	.0047	.0027	.0138	.0052	.0004	.0034	.0125
%RSD	.9294	49.67	2.661	1.021	98.88	276.4	2.501
#1	k.5035	k.0035	k.5266	k.5014	k.0001	k.0012	k.4911
#2	k.5101	k.0073	k.5071	k.5087	k.0008	k-.0036	k.5088

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	99.51	k2.169	k2.139	k4.452	k.5090	k2.149	k-.0005
SDev	1.36	.025	.009	.004	.0011	.003	.0002
%RSD	1.371	1.164	.4058	.0825	.2257	.1223	41.16
#1	98.54	k2.187	k2.133	k4.449	k.5098	k2.151	k-.0006
#2	100.5	k2.151	k2.145	k4.454	k.5082	k2.147	k-.0003

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0006	k-.0176	k.0006	k2.187	k-.0259	k.5126	k.0016
SDev	.0000	.0057	.0002	.008	.0032	.0022	.0001
%RSD	1.462	32.45	41.45	.3503	12.20	.4255	7.571
#1	k.0006	k-.0216	k.0004	k2.182	k-.0282	k.5110	k.0015
#2	k.0006	k-.0135	k.0007	k2.193	k-.0237	k.5141	k.0017

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0003	k.5160	k.0026
SDev	.0002	.0062	.0009
%RSD	66.99	1.191	33.48
#1	k-.0004	k.5116	k.0020
#2	k-.0001	k.5203	k.0032

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	718068	10000	--	--	--	--	--
SDev	9906.566	.0000000	--	--	--	--	--
%RSD	1.379614	.0000000	--	--	--	--	--
#1	711063	10000	--	--	--	--	--
#2	725073	10000	--	--	--	--	--

Method: DAILY2 Sample Name: 230747 Operator:
Run Time: 08/04/03 13:01:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0002	k.0093	k.0013	k-.0253	k.0003	k.0001	k.0041
SDev	.0008	.0044	.0009	.0018	.0001	.0000	.0078
%RSD	313.2	47.43	68.10	7.148	13.62	60.01	191.9
#1	k-.0008	k.0062	k.0019	k-.0241	k.0004	k.0000	k-.0015
#2	k.0003	k.0124	k.0007	-.0266	k.0003	k.0001	k.0096

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0086	k.0000	k.0000	k.0010	k.0035	k.0154	.0127
SDev	.0031	.0001	.0000	.0002	.0008	.0083	.0041
%RSD	36.70	340.7	85.84	16.56	22.80	54.15	32.29
#1	k.0063	k-.0001	k.0001	k.0011	k.0029	k.0095	.0098
#2	k.0108	k.0001	k.0000	k.0009	k.0040	k.0213	.0156

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	S32.70	k.0125	k.0002	k.0042	21.63	k34.66
SDev	.0013	.39	.0057	.0001	.0001	.37	.17
%RSD	833.7	1.181	45.77	33.21	1.141	1.715	.4829
#1	k-.0007	S32.98	k.0085	k.0002	k.0042	21.36	k34.78
#2	k.0010	S32.43	k.0166	k.0003	k.0042	21.89	k34.54

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0011	k-.0098	k-.0033	k-.0001	k-.0004	k-.0045	k-.0024
SDev	.0003	.0029	.0029	.0002	.0013	.0078	.0053
%RSD	28.28	29.35	87.57	246.7	318.5	174.5	218.2
#1	k.0009	k-.0118	k-.0012	k.0001	k.0005	k-.0100	k-.0062
#2	k.0014	k-.0077	k-.0053	k-.0002	k-.0013	k.0010	k.0013

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.6	k.0027	k-.0045	k.1645	k-.0011	k-.0021	k.0016
SDev	.7	.0006	.0011	.0018	.0011	.0006	.0014
%RSD	.7125	21.11	25.08	1.119	96.04	26.93	83.36
#1	100.1	k.0031	k-.0054	k.1658	k-.0004	k-.0025	k.0007
#2	101.1	k.0023	k-.0037	k.1632	k-.0019	k-.0017	k.0026

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0006	k.0008	k-.0027	k-.0115	k.0006	k-.0036
SDev	.0000	.0012	.0002	.0042	.0107	.0002	.0018
%RSD	99.14	187.9	21.86	156.9	92.98	27.24	49.06
#1	k.0000	k.0015	k.0009	k-.0057	k-.0190	k.0005	k-.0023
#2	k.0001	k-.0002	k.0007	k.0003	k-.0039	k.0007	k-.0048

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0000	k.0005	k.0005
SDev	.0001	.0003	.0010
%RSD	21930.	69.15	227.0
#1	k-.0000	k.0003	k.0012
#2	k.0000	k.0007	k-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	725874	10000	--	--	--	--	--
SDev	5108.847	.0000000	--	--	--	--	--
%RSD	.7038205	.0000000	--	--	--	--	--
#1	722261	10000	--	--	--	--	--
#2	729486	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv2 Operator:
Run Time: 08/04/03 13:11:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9849	10.03	4.926	4.843	9.862	.9940	4.999
SDev	.0002	.03	.011	.019	.004	.0001	.012
%RSD	.0182	.2914	.2287	.3864	.0427	.0137	.2303
#1	.9848	10.05	4.934	4.829	9.865	.9941	5.007
#2	.9850	10.01	4.918	4.856	9.859	.9939	4.991
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.71	1.008	5.011	1.958	2.010	10.08	18.52
SDev	.06	.002	.008	.001	.000	.03	.04
%RSD	.3234	.1654	.1619	.0483	.0084	.2961	.2084
#1	19.67	1.009	5.017	1.957	2.010	10.10	18.54
#2	19.76	1.007	5.005	1.959	2.010	10.06	18.49
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.861	4.884	19.93	1.012	5.136	28.82	H39.29
SDev	.002	.017	.02	.000	.022	.36	.15
%RSD	.0471	.3538	.1194	.0334	.4205	1.250	.3806
#1	4.859	4.896	19.92	1.012	5.121	29.08	H39.40
#2	4.863	4.871	19.95	1.012	5.151	28.57	H39.19
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.867	5.436	4.843	4.846	.9704	1.016	.9858
SDev	.016	.028	.012	.014	.0007	.002	.0033
%RSD	.3322	.5210	.2411	.2849	.0756	.1793	.3360
#1	4.878	5.416	4.835	4.836	.9709	1.015	.9834
#2	4.855	5.456	4.851	4.855	.9698	1.017	.9881
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	108.8	5.089	5.112	5.014	4.845	5.104	4.876
SDev	1.2	.005	.019	.007	.013	.014	.003
%RSD	1.081	.0910	.3793	.1394	.2704	.2835	.0642
#1	109.6	5.086	5.098	5.019	4.836	5.094	4.878
#2	108.0	5.093	5.125	5.009	4.854	5.114	4.874
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.006	.9768	4.842	5.154	.9514	4.946	.9919
SDev	.004	.0051	.003	.007	.0021	.004	.0014
%RSD	.0863	.5203	.0548	.1416	.2194	.0733	.1404
#1	5.003	.9804	4.840	5.148	.9529	4.943	.9929
#2	5.009	.9732	4.844	5.159	.9499	4.949	.9909
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.940	1.009	4.872
SDev	.007	.002	.004
%RSD	.1431	.1519	.0857
#1	4.945	1.008	4.875
#2	4.935	1.010	4.869
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	785154	10000	--	--	--	--	--
SDev	8508.616	.0000000	--	--	--	--	--
%RSD	1.083688	.0000000	--	--	--	--	--
#1	791170	10000	--	--	--	--	--
#2	779137	10000	--	--	--	--	--

Analysis Report 08/04/03 01:23:53 PM

Method: DAILY2 Sample Name: ccb2 Operator:
Run Time: 08/04/03 13:18:51
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	-.0109	.0006	-.0395	.0001	.0001	.0036
SDev	.0005	.0007	.0008	.0026	.0000	.0000	.0067
%RSD	143.4	6.491	149.0	6.505	19.72	4.736	185.3
#1	.0007	-.0104	.0011	-.0377	.0001	.0001	H.0084
#2	-.0000	-.0114	-.0000	-.0413	.0001	.0001	-.0011
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0107	.0001	-.0000	.0003	.0004	.0051	-.0247
SDev	.0106	.0000	.0008	.0006	.0001	.0068	.0075
%RSD	99.25	.2275	1794.	194.5	32.53	133.0	30.43
#1	.0032	.0001	.0005	-.0001	.0005	.0099	-.0193
#2	.0183	.0001	-.0006	.0007	.0003	.0003	-.0300
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0042	.0055	.0000	.0033	.0090	.0463
SDev	.0002	.0003	.0024	.0001	.0016	.1645	.0014
%RSD	24.87	6.351	43.01	268.6	49.30	1829.	3.093
#1	.0008	.0044	.0071	-.0000	.0045	H.1253	.0452
#2	.0006	.0040	.0038	.0001	.0022	L-.1073	.0473
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0014	-.0033	-.0034	.0005	-.0024	-.0072	.0001
SDev	.0010	.0105	.0039	.0029	.0010	.0005	.0001
%RSD	70.77	318.3	112.2	592.3	42.12	6.972	165.0
#1	.0020	.0041	-.0007	-.0016	-.0017	-.0075	-.0000
#2	.0007	L-.0108	-.0062	.0025	-.0031	-.0068	.0002
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	109.6	-.0004	-.0007	L-.0142	-.0008	-.0006	.0011
SDev	.5	.0025	.0003	.0008	.0006	.0007	.0010
%RSD	.4255	696.5	37.33	5.547	81.00	113.1	90.64
#1	109.2	.0014	-.0009	L-.0148	-.0013	-.0001	.0004
#2	109.9	-.0021	-.0005	L-.0137	-.0003	-.0010	.0018
Errors	NOCHECK	NOCHECK	NOCHECK	LC Low	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0018	.0001	.0016	-.0103	.0004	-.0002
SDev	.0000	.0002	.0001	.0016	.0106	.0005	.0017
%RSD	37.33	13.23	265.4	103.9	103.7	134.4	1079.
#1	.0000	.0016	.0001	.0027	-.0027	.0000	-.0013
#2	.0000	.0020	-.0000	.0004	-.0178	.0007	.0010
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0004	-.0001
SDev	.0000	.0002	.0003
%RSD	270.8	54.89	315.8
#1	.0000	.0002	.0001
#2	-.0000	.0006	-.0003
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	790702	10000	--	--	--	--	--
SDev	3301.481	.0000000	--	--	--	--	--
%RSD	.4175378	.0000000	--	--	--	--	--
#1	788368	10000	--	--	--	--	--
#2	793037	10000	--	--	--	--	--

Analysis Report 08/04/03 01:29:08 PM

Method: DAILY2 Sample Name: 230748 Operator:
Run Time: 08/04/03 13:24:05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0042	k.0014	-.0341	k.0003	k.0001	k.0035
SDev	.0008	.0004	.0045	.0003	.0000	.0000	.0006
%RSD	1229.	8.729	312.5	.8708	.1140	10.00	17.48
#1	k-.0005	k.0039	k-.0017	-.0343	k.0003	k.0001	k.0030
#2	k.0006	k.0045	k.0046	-.0339	k.0003	k.0002	k.0039

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0127	k.0000	k.0002	k.0004	k.0027	k.0070	-.0007
SDev	.0057	.0000	.0003	.0006	.0003	.0008	.0073
%RSD	44.76	73.68	127.2	167.8	11.32	10.79	997.3
#1	k.0087	k.0001	k.0004	k-.0001	k.0025	k.0064	-.0059
#2	k.0168	k.0000	k.0000	k.0008	k.0029	k.0075	.0044

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0004	S32.01	k.0127	k.0001	k.0058	14.97	k24.27
SDev	.0001	.13	.0048	.0001	.0008	.02	.07
%RSD	19.00	.4111	38.06	55.20	14.48	.1604	.2742
#1	k.0003	S31.92	k.0093	k.0002	k.0052	14.95	k24.32
#2	k.0004	S32.10	k.0161	k.0001	k.0064	14.98	k24.23

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0008	k.0027	k-.0019	k-.0015	k.0008	k.0078	k-.0045
SDev	.0008	.0080	.0053	.0030	.0009	.0049	.0023
%RSD	103.7	298.5	276.3	206.1	103.2	62.78	50.98
#1	k.0002	k-.0030	k-.0056	k.0007	k.0002	k.0043	k-.0028
#2	k.0014	k.0083	k.0018	k-.0036	k.0015	.0112	k-.0061

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.9	k.0023	k-.0023	k.1100	k-.0016	k-.0008	k.0010
SDev	.4	.0037	.0016	.0026	.0003	.0002	.0007
%RSD	.4348	158.9	67.68	2.385	16.10	21.53	75.79
#1	102.2	k-.0003	k-.0012	k.1081	k-.0014	k-.0009	k.0015
#2	101.6	k.0049	k-.0035	k.1118	k-.0018	k-.0007	k.0004

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0010	k.0004	k.0020	k-.0079	k.0001	k.0003
SDev	.0000	.0005	.0001	.0000	.0196	.0006	.0019
%RSD	38.07	50.79	11.33	1.317	247.9	441.4	734.9
#1	k.0001	k.0007	k.0005	k.0020	k.0060	k.0005	k.0016
#2	k.0001	k.0014	k.0004	k.0020	k-.0218	k-.0003	k-.0011

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0006	k-.0002
SDev	.0000	.0004	.0002
%RSD	70.68	72.36	107.3
#1	k.0001	k.0003	k-.0003
#2	k.0000	k.0009	k-.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	735535	10000	--	--	--	--	--
SDev	3165.010	.0000000	--	--	--	--	--
%RSD	.4303004	.0000000	--	--	--	--	--
#1	737773	10000	--	--	--	--	--
#2	733297	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230749 Operator:
Run Time: 08/04/03 13:29:19
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	k-.0023	k.0002	k-.0316	k.0002	k.0001	k.0003
SDev	.0008	.0022	.0036	.0007	.0000	.0000	.0049
%RSD	196.6	96.89	1567.	2.216	16.74	14.07	1805.
#1	k.0002	k-.0039	k-.0023	k-.0311	k.0001	k.0001	k.0037
#2	k-.0009	k-.0007	k.0027	k-.0321	k.0002	k.0001	k-.0032

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0124	k.0002	k.0008	k.0003	k.0017	k.0145	.0072
SDev	.0009	.0000	.0001	.0005	.0002	.0000	.0155
%RSD	7.475	15.39	14.41	147.5	12.75	.3006	215.8
#1	k.0117	k.0002	k.0007	k-.0000	k.0019	k.0145	.0181
#2	k.0130	k.0002	k.0009	k.0006	k.0016	k.0146	-.0038

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0003	S32.19	k.0038	k.0000	k.0048	k11.13	k18.56
SDev	.0001	.01	.0033	.0000	.0010	.28	.06
%RSD	19.14	.0378	87.77	.3667	21.34	2.533	.3077
#1	k-.0004	S32.20	k.0014	k.0000	k.0055	11.33	k18.60
#2	k-.0003	S32.18	k.0062	k.0000	k.0041	k10.93	k18.52

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0009	k-.0025	k-.0011	k.0024	k-.0006	k-.0007	k.0010
SDev	.0006	.0085	.0028	.0012	.0017	.0003	.0006
%RSD	68.21	341.1	241.6	50.50	308.0	40.31	58.00
#1	k.0005	k.0035	k-.0031	k.0032	k.0007	k-.0009	k.0006
#2	k.0014	k-.0085	k.0008	k.0015	k-.0018	k-.0005	k.0015

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.3	k.0025	k-.0031	k.0855	k.0012	k-.0012	k-.0015
SDev	.0	.0044	.0011	.0014	.0001	.0022	.0002
%RSD	.0187	179.2	36.56	1.591	9.129	183.6	16.03
#1	101.3	k-.0007	k-.0039	k.0845	k.0011	k-.0028	k-.0017
#2	101.3	k.0056	k-.0023	k.0864	k.0013	k.0004	k-.0014

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0019	k.0003	k-.0002	k-.0220	k.0006	k-.0025
SDev	.0000	.0007	.0000	.0004	.0012	.0003	.0034
%RSD	10.99	38.29	13.85	206.5	5.617	57.05	136.9
#1	k.0000	k.0014	k.0003	k-.0005	k-.0211	k.0009	k-.0001
#2	k.0000	k.0024	k.0002	k.0001	k-.0229	k.0004	k-.0049

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0003	k-.0002
SDev	.0001	.0002	.0003
%RSD	213.4	53.52	168.5
#1	k-.0000	k.0004	k.0000
#2	k.0001	k.0002	k-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	731184	10000	--	--	--	--	--
SDev	136.4716	.0000000	--	--	--	--	--
%RSD	.0186645	.0000000	--	--	--	--	--
#1	731281	10000	--	--	--	--	--
#2	731088	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230750 Operator:
Run Time: 08/04/03 13:34:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	k-.0007	k-.0004	-.0357	k.0001	k.0002	k.0041
SDev	.0008	.0029	.0015	.0030	.0001	.0000	.0043
%RSD	272.3	417.4	348.4	8.455	85.26	14.03	104.3
#1	k-.0003	k-.0028	k.0006	-.0378	k.0000	k.0001	k.0011
#2	k.0009	k.0014	k-.0015	-.0335	.0002	k.0002	k.0071

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0110	k-.0000	k.0000	k.0001	k.0075	k.0129	.0067
SDev	.0025	.0004	.0001	.0000	.0004	.0064	.0161
%RSD	22.27	1222.	318.8	50.67	5.419	49.74	241.6
#1	k.0093	k-.0004	k-.0000	k.0001	k.0073	k.0175	-.0047
#2	k.0128	k.0003	k.0001	k.0001	k.0078	k.0084	.0181

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0007	S32.03	k.0096	k.0001	k.0042	8.204	k13.47
SDev	.0010	.18	.0063	.0001	.0003	.025	.05
%RSD	148.6	.5514	65.91	137.3	6.502	.2989	.3353
#1	k-.0000	S31.91	k.0051	k.0000	k.0044	8.187	k13.50
#2	k.0013	S32.16	k.0141	k.0001	k.0040	8.221	k13.44

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0008	k-.0006	k-.0039	k-.0024	k-.0011	k.0067	k-.0059
SDev	.0007	.0079	.0018	.0006	.0008	.0001	.0040
%RSD	89.21	1414.	46.98	25.15	77.38	1.654	67.62
#1	k.0003	k.0050	k-.0026	k-.0019	k-.0017	k.0066	k-.0031
#2	k.0012	k-.0061	k-.0052	k-.0028	k-.0005	k.0067	k-.0087

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.8	k.0019	k-.0037	k.0655	k-.0028	k-.0019	k.0006
SDev	.6	.0039	.0014	.0056	.0010	.0022	.0021
%RSD	.6336	211.0	36.77	8.596	35.29	119.5	355.4
#1	102.3	k-.0009	k-.0047	k.0615	k-.0021	k-.0034	k-.0009
#2	101.4	k.0046	k-.0028	k.0695	k-.0036	k-.0003	k.0020

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0027	k.0002	k-.0008	k-.0132	k.0003	k-.0027
SDev	.0000	.0020	.0002	.0007	.0181	.0002	.0002
%RSD	117.8	74.92	82.50	86.75	137.4	65.56	8.135
#1	k.0000	k.0013	k.0001	k-.0012	k-.0260	k.0002	k-.0028
#2	k.0001	k.0042	k.0004	k-.0003	k-.0004	k.0005	k-.0025

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0004	k.0000
SDev	.0000	.0001	.0000
%RSD	75.93	24.98	57.51
#1	k.0000	k.0004	k.0000
#2	k.0000	k.0005	k.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	734840	10000	--	--	--	--	--
SDev	4630.842	.0000000	--	--	--	--	--
%RSD	.6301833	.0000000	--	--	--	--	--
#1	738115	10000	--	--	--	--	--
#2	731566	10000	--	--	--	--	--

Analysis Report 08/04/03 01:44:50 PM page 1

Method: DAILY2 Sample Name: 230751 Operator:
Run Time: 08/04/03 13:39:48
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0003	k-.0001	k.0012	k-.0380	k.0001	k.0002	k-.0001
SDev	.0010	.0042	.0037	.0001	.0000	.0000	.0034
%RSD	340.8	5187.	314.3	.1524	.0541	14.59	4881.
#1	k-.0010	k-.0031	k.0038	k-.0380	k.0001	k.0001	k.0023
#2	k.0004	k.0029	k-.0014	k-.0381	k.0001	k.0002	k-.0024

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0094	k.0002	k.0033	k.0010	k.0023	k-.0083	.0022
SDev	.0020	.0002	.0011	.0001	.0002	.0002	.0185
%RSD	21.48	111.6	34.63	10.16	8.530	2.985	831.4
#1	k.0080	k.0000	k.0025	k.0009	k.0021	k-.0081	-.0109
#2	k.0109	k.0004	.0041	k.0011	k.0024	k-.0085	.0153

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	S31.90	k.0068	k.0001	k.0037	k4.538	k7.656
SDev	.0010	.17	.0064	.0000	.0001	.037	.019
%RSD	511.2	.5355	94.24	6.026	3.018	.8207	.2490
#1	k-.0005	S31.78	k.0023	k.0001	k.0037	k4.511	k7.670
#2	k.0009	S32.02	k.0113	k.0001	k.0038	k4.564	k7.643

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0015	k-.0006	k-.0008	k-.0006	k-.0002	k.0012	k-.0065
SDev	.0007	.0056	.0019	.0005	.0032	.0019	.0035
%RSD	42.59	1010.	232.5	79.48	1661.	166.4	54.14
#1	k.0020	k.0034	k-.0022	k-.0003	k-.0024	k-.0002	k-.0040
#2	k.0011	k-.0045	k.0005	k-.0010	k.0020	k.0026	k-.0090

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.9	k-.0005	k-.0026	k.0375	k-.0007	k-.0019	k.0017
SDev	.8	.0041	.0002	.0102	.0003	.0015	.0022
%RSD	.7768	830.7	6.157	27.17	43.72	78.01	133.9
#1	102.4	k-.0034	k-.0027	k.0303	k-.0009	k-.0029	k.0001
#2	101.3	k.0024	k-.0025	k.0447	k-.0005	k-.0008	k.0032

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0014	k.0002	k.0028	k-.0126	k.0007	k-.0023
SDev	.0000	.0028	.0000	.0016	.0295	.0001	.0004
%RSD	112.3	201.2	5.744	57.04	233.6	12.61	16.59
#1	k.0000	k.0033	k.0002	k.0039	k-.0335	k.0008	k-.0020
#2	k.0000	k-.0006	k.0002	k.0016	k.0082	k.0007	k-.0026

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0005	k.0001
SDev	.0000	.0001	.0004
%RSD	70.68	25.87	630.9
#1	k.0001	k.0004	k-.0002
#2	k.0000	k.0006	k.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	734986	10000	--	--	--	--	--
SDev	5760.799	.0000000	--	--	--	--	--
%RSD	.7837976	.0000000	--	--	--	--	--
#1	739059	10000	--	--	--	--	--
#2	730912	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230752 Operator:
Run Time: 08/04/03 13:45:02
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0028	k.0004	k-.0389	k.0002	k.0002	k.0001
SDev	.0003	.0040	.0022	.0002	.0001	.0000	.0037
%RSD	1667.	144.7	596.0	.5054	31.14	6.551	6230.
#1	k.0003	k.0056	k-.0012	k-.0390	k.0002	k.0002	k-.0026
#2	k-.0002	k-.0001	k.0019	k-.0388	k.0002	k.0002	k.0027

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0152	k.0002	k.0014	k.0007	k.0020	k.0043	.0045
SDev	.0005	.0001	.0003	.0001	.0002	.0046	.0150
%RSD	3.359	20.47	19.28	20.20	8.730	105.7	336.5
#1	k.0148	k.0003	k.0012	k.0006	k.0019	k.0075	-.0062
#2	k.0156	k.0002	k.0016	k.0008	k.0021	k.0011	.0151

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0004	S31.58	k.0136	k.0000	k.0050	k2.451	k4.415
SDev	.0007	.31	.0008	.0001	.0001	.079	.004
%RSD	171.5	.9812	5.901	327.5	1.794	3.220	.0994
#1	k-.0001	S31.36	k.0142	k-.0000	k.0050	k2.507	k4.418
#2	k.0009	S31.80	k.0131	k.0001	k.0051	2.395	k4.412

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0016	k-.0042	k-.0005	k-.0011	k-.0001	k-.0117	k-.0009
SDev	.0005	.0017	.0014	.0006	.0010	.0077	.0013
%RSD	32.07	41.51	288.7	59.04	978.0	65.96	143.4
#1	k.0012	k-.0054	k-.0015	k-.0006	k.0006	k-.0171	k-.0018
#2	k.0020	k-.0029	k.0005	k-.0015	k-.0008	k-.0062	k.0000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	102.6	k.0002	k-.0006	k.0181	k-.0009	k-.0003	k.0008
SDev	1.1	.0026	.0013	.0024	.0001	.0000	.0008
%RSD	1.052	1043.	244.3	13.01	6.690	16.97	92.50
#1	103.4	k-.0016	k.0004	k.0164	k-.0009	k-.0002	k.0003
#2	101.8	k.0020	k-.0015	k.0198	k-.0008	k-.0003	k.0013

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0012	k.0001	k-.0015	k-.0174	k.0002	k-.0007
SDev	.0000	.0016	.0000	.0014	.0084	.0004	.0012
%RSD	19.70	130.0	15.70	96.71	48.00	190.9	157.6
#1	k.0001	k.0001	k.0001	k-.0025	k-.0234	k.0006	k.0001
#2	k.0001	k.0023	k.0001	k-.0005	k-.0115	k-.0001	k-.0016

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0006	k.0003
SDev	.0001	.0000	.0005
%RSD	113.4	1.570	162.8
#1	k.0001	k.0006	k.0006
#2	k.0000	k.0006	k-.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	740389	10000	--	--	--	--	--
SDev	7796.560	.0000000	--	--	--	--	--
%RSD	1.053036	.0000000	--	--	--	--	--
#1	745902	10000	--	--	--	--	--
#2	734876	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230753 Operator:
Run Time: 08/04/03 13:50:16
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	-.0005	.0023	.0072	.0003	.0002	-.0019
SDev	.0002	.0018	.0014	.0027	.0000	.0000	.0025
%RSD	86.11	356.8	58.95	37.64	3.219	2.367	129.9
#1	.0001	-.0018	.0013	.0053	.0003	.0002	-.0002
#2	.0004	.0008	.0033	.0091	.0003	.0002	-.0037

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0143	.0001	-.0000	.0008	.0024	.0031	.0082
SDev	.0000	.0000	.0001	.0003	.0001	.0147	.0119
%RSD	.1291	27.77	244.6	34.97	3.482	474.0	145.3
#1	.0143	.0001	.0000	.0010	.0023	-.0073	-.0002
#2	.0143	.0001	-.0001	.0006	.0024	.0135	.0166

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	25.94	.0116	.0001	.0014	162.6	205.9
SDev	.0005	.07	.0013	.0000	.0016	.7	1.2
%RSD	104.3	.2875	11.00	25.73	114.7	.4138	.5906
#1	.0001	25.99	.0107	.0001	.0025	163.1	206.7
#2	.0008	25.89	.0125	.0001	.0003	162.1	205.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	.0043	.0000	.0007	-.0005	.0029	.0005
SDev	.0001	.0024	.0013	.0000	.0022	.0049	.0018
%RSD	10.57	54.81	2821.	4.429	410.5	172.1	331.0
#1	.0012	.0026	-.0009	.0006	-.0021	-.0006	.0018
#2	.0011	.0059	.0010	.0007	.0010	.0063	-.0007

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.7	.0030	.0004	.5197	.0005	.0013	.0004
SDev	.7	.0027	.0027	.0011	.0004	.0027	.0006
%RSD	.6511	91.69	639.4	.2151	93.99	211.2	160.5
#1	102.2	.0010	-.0015	.5189	.0002	-.0006	-.0001
#2	101.3	.0049	.0023	.5205	.0008	.0032	.0009

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0015	.0001	-.0015	-.0064	.0007	-.0002
SDev	.0000	.0034	.0000	.0014	.0002	.0010	.0030
%RSD	32.65	226.2	37.54	89.79	3.427	146.7	1193.
#1	.0000	-.0009	.0001	-.0025	-.0063	-.0000	.0019
#2	.0001	.0039	.0001	-.0006	-.0066	.0014	-.0024

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0007	.0006
SDev	.0000	.0003	.0012
%RSD	304.3	36.61	199.4
#1	-.0000	.0009	.0014
#2	.0000	.0005	-.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	734214	10000	--	--	--	--	--
SDev	4719.230	.0000000	--	--	--	--	--
%RSD	.6427596	.0000000	--	--	--	--	--
#1	737551	10000	--	--	--	--	--
#2	730877	10000	--	--	--	--	--

010322

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Method: DAILY2 Sample Name: 230754 Operator:
Run Time: 08/04/03 13:55:31
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	k.0003	k.0031	k-.0268	k.0002	k.0002	k.0060
SDev	.0001	.0011	.0016	.0009	.0000	.0000	.0024
%RSD	65.06	416.2	52.52	3.257	4.135	22.00	40.13
#1	k.0001	k.0010	k.0043	k-.0262	k.0002	k.0002	k.0043
#2	k.0002	k-.0005	k.0020	-.0275	.0002	k.0001	k.0077

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0479	k.0001	k.0009	k.0009	k.0020	k.0200	.0076
SDev	.0004	.0003	.0002	.0004	.0001	.0019	.0050
%RSD	.8978	234.2	22.50	40.60	2.716	9.586	65.46
#1	k.0482	k.0004	k.0010	k.0012	k.0019	k.0214	.0041
#2	k.0476	k-.0001	k.0007	k.0007	k.0020	k.0186	.0111

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	S31.95	k.0085	k.0072	k.0049	k1.622	k2.909
SDev	.0001	.05	.0007	.0000	.0004	.420	.012
%RSD	59.50	.1666	8.703	.4639	8.968	25.88	.4254
#1	k.0001	S31.92	k.0090	k.0072	k.0052	k1.919	k2.917
#2	k.0003	S31.99	k.0080	k.0072	k.0046	k1.326	k2.900

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0089	k-.0022	k-.0014	k.0002	k.0014	k-.0016	k-.0050
SDev	.0008	.0147	.0029	.0029	.0008	.0016	.0012
%RSD	8.512	681.8	209.5	1267.	60.87	95.34	24.17
#1	k.0094	k.0082	k.0007	k-.0018	k.0019	k-.0005	k-.0041
#2	.0084	k-.0126	k-.0034	k.0022	k.0008	k-.0028	k-.0058

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.7	k.0068	k-.0005	k.0284	k-.0003	k.0020	k.0002
SDev	.4	.0011	.0015	.0019	.0009	.0006	.0009
%RSD	.3542	16.34	316.5	6.502	329.5	31.84	481.2
#1	102.0	k.0060	k.0006	k.0271	k-.0010	k.0024	k-.0005
#2	101.5	k.0075	k-.0015	k.0297	k.0004	k.0015	k.0009

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0023	k.0002	k-.0026	k-.0008	k.0008	k-.0010
SDev	.0000	.0006	.0002	.0029	.0105	.0002	.0031
%RSD	6.400	24.34	91.84	114.0	1274.	29.36	315.4
#1	k.0001	k.0027	k.0003	k-.0005	k-.0082	k.0010	k.0012
#2	k.0001	k.0019	k.0001	k-.0047	k.0066	k.0007	k-.0032

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0018	k.0002
SDev	.0001	.0001	.0004
%RSD	189.5	8.550	156.0
#1	k.0002	k.0019	k.0005
#2	k-.0000	k.0016	k-.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	733914	10000	--	--	--	--	--
SDev	2534.271	.0000000	--	--	--	--	--
%RSD	.3453090	.0000000	--	--	--	--	--
#1	735706	10000	--	--	--	--	--
#2	732122	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230755 Operator:
Run Time: 08/04/03 14:00:45
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0002	k-.0006	k-.0002	k-.0362	k.0001	k.0002	k.0026
SDev	.0006	.0013	.0010	.0025	.0000	.0000	.0006
%RSD	224.2	242.1	441.8	6.844	6.743	2.278	24.17
#1	k.0001	k.0004	k-.0009	k-.0345	k.0001	k.0002	k.0030
#2	k-.0006	k-.0015	k.0005	-.0380	k.0001	k.0002	k.0021

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0202	k.0001	k.0013	k.0002	k.0033	k.0086	.0030
SDev	.0009	.0000	.0005	.0005	.0003	.0215	.0173
%RSD	4.422	12.48	42.01	255.9	10.57	249.2	572.8
#1	k.0196	k.0001	k.0017	k.0005	k.0036	k.0239	.0152
#2	k.0208	k.0001	k.0009	k-.0002	k.0031	k-.0066	-.0092

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	S31.44	k.0060	k.0002	k.0044	k.5780	k1.229
SDev	.0003	.27	.0029	.0001	.0010	.1919	.004
%RSD	165.4	.8544	47.29	33.89	22.53	33.21	.2912
#1	k.0003	S31.63	k.0080	k.0002	k.0037	k.7137	k1.227
#2	k-.0000	S31.25	k.0040	k.0003	k.0051	k.4423	k1.232

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0037	k.0038	k-.0019	k-.0008	k-.0006	k-.0027	k-.0041
SDev	.0014	.0118	.0006	.0001	.0012	.0056	.0011
%RSD	36.94	313.8	31.23	17.09	213.2	209.3	26.53
#1	k.0046	k.0121	k-.0015	k-.0007	k.0003	k.0013	k-.0033
#2	k.0027	k-.0046	k-.0023	k-.0009	k-.0015	k-.0066	k-.0049

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	103.0	k.0046	k.0002	k.0130	k-.0011	k.0017	k-.0028
SDev	.9	.0013	.0000	.0018	.0003	.0005	.0006
%RSD	.8387	28.98	8.146	13.62	25.19	26.83	22.23
#1	102.4	k.0056	k.0003	k.0118	k-.0009	k.0020	k-.0023
#2	103.6	k.0037	k.0002	k.0143	k-.0013	k.0014	k-.0032

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0017	k.0000	k-.0039	k-.0139	k.0007	k-.0039
SDev	.0000	.0019	.0000	.0038	.0071	.0000	.0016
%RSD	48.41	109.6	52.55	98.53	51.30	4.003	42.14
#1	k.0001	k.0004	k.0001	k-.0012	k-.0088	k.0007	k-.0027
#2	k.0000	k.0031	k.0000	k-.0065	k-.0189	k.0007	k-.0050

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0020	k-.0004
SDev	.0001	.0001	.0002
%RSD	44.79	3.481	41.10
#1	k.0001	k.0021	k-.0003
#2	k.0001	k.0020	k-.0006

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	743463	10000	--	--	--	--	--
SDev	6195.669	.0000000	--	--	--	--	--
%RSD	.8333528	.0000000	--	--	--	--	--
#1	739082	10000	--	--	--	--	--
#2	747844	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230756 Operator:
Run Time: 08/04/03 14:05:59
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0019	k.0010	-.0311	k.0002	k.0002	k.0032
SDev	.0003	.0007	.0005	.0004	.0001	.0000	.0015
%RSD	663.3	38.60	47.93	1.271	26.42	15.27	46.86
#1	k-.0002	k.0024	k.0014	-.0314	k.0003	k.0001	k.0043
#2	k.0003	k.0014	k.0007	-.0308	k.0002	k.0002	k.0021

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0175	k.0001	k.0000	k.0005	k.0025	k.0136	.0023
SDev	.0009	.0000	.0000	.0003	.0003	.0033	.0064
%RSD	5.337	38.40	81.08	63.84	11.98	23.95	278.9
#1	k.0168	k.0001	k.0000	k.0003	k.0027	k.0113	-.0022
#2	k.0182	k.0001	k.0001	k.0007	k.0023	k.0159	.0068

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0000	S31.93	k.0060	k.0001	k.0026	k.2067	k.7904
SDev	.0003	.00	.0061	.0000	.0004	.1931	.0038
%RSD	1061.	.0099	100.7	.3235	16.46	93.43	.4833
#1	k-.0003	S31.93	k.0103	k.0001	.0029	k.3432	k.7877
#2	k.0002	S31.92	k.0017	k.0001	k.0023	k.0701	k.7931

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0037	k-.0214	k-.0032	k-.0008	k-.0003	k-.0022	k-.0041
SDev	.0005	.0125	.0002	.0007	.0005	.0013	.0046
%RSD	14.48	58.39	4.831	92.91	183.8	59.81	111.3
#1	k.0041	k-.0125	k-.0033	k-.0013	k.0001	k-.0013	k-.0009
#2	k.0033	k-.0302	k-.0031	k-.0003	k-.0007	k-.0032	k-.0074

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.7	k.0025	k-.0066	k.0074	k-.0016	k-.0036	k-.0013
SDev	.1	.0084	.0003	.0016	.0005	.0026	.0003
%RSD	.0742	341.1	4.544	21.21	33.73	72.33	22.69
#1	101.8	k-.0035	k-.0064	k.0063	k-.0019	k-.0054	k-.0011
#2	101.7	k.0084	k-.0068	k.0085	k-.0012	k-.0018	k-.0015

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0011	k.0000	k-.0002	k-.0160	k.0001	k-.0021
SDev	.0000	.0014	.0000	.0007	.0016	.0001	.0020
%RSD	38.62	127.4	39.71	285.4	9.958	111.3	94.88
#1	k.0000	k.0021	k.0000	k.0002	k-.0171	k.0000	k-.0035
#2	k.0000	k.0001	k.0000	k-.0007	k-.0148	k.0002	k-.0007

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0051	k-.0001
SDev	.0000	.0003	.0003
%RSD	108.0	5.628	267.1
#1	k.0001	k.0053	k.0001
#2	k.0000	k.0049	k-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	734140	10000	--	--	--	--	--
SDev	521.8448	.0000000	--	--	--	--	--
%RSD	.0710825	.0000000	--	--	--	--	--
#1	734509	10000	--	--	--	--	--
#2	733771	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230757 Operator:
Run Time: 08/04/03 14:11:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0005	k.0130	k.0002	-.0282	k.0003	k.0002	k.0035
SDev	.0001	.0028	.0006	.0038	.0000	.0000	.0041
%RSD	22.70	21.60	333.3	13.50	3.363	11.34	117.8
#1	k.0006	k.0110	k-.0002	-.0309	k.0003	k.0001	k.0006
#2	k.0005	k.0150	k.0006	-.0255	k.0002	k.0002	k.0064

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0234	k.0001	k.0001	k.0004	k.0018	k.0207	.0260
SDev	.0020	.0001	.0004	.0003	.0003	.0006	.0110
%RSD	8.586	63.50	447.7	77.24	16.21	3.114	42.10
#1	k.0220	k.0001	k.0004	k.0002	k.0020	k.0212	.0183
#2	k.0248	k.0001	k-.0002	k.0006	k.0016	k.0203	.0338

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0004	S32.37	k.0181	k.0003	k.0037	96.72	k138.1
SDev	.0005	.17	.0016	.0000	.0000	.34	.5
%RSD	116.5	.5240	8.642	6.594	1.092	.3554	.3434
#1	k.0007	S32.25	.0170	k.0003	k.0037	96.96	k138.5
#2	k.0001	S32.49	k.0192	k.0003	k.0037	96.48	k137.8

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0020	k-.0026	k-.0032	k.0004	k.0022	k.0112	k-.0019
SDev	.0006	.0073	.0015	.0008	.0000	.0110	.0005
%RSD	29.58	283.3	46.34	200.0	1.134	98.14	28.59
#1	k.0024	k-.0078	k-.0022	k.0010	k.0022	k.0034	k-.0015
#2	k.0015	k.0026	k-.0043	k-.0002	k.0023	k.0190	k-.0022

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	102.8	k.0062	k-.0002	k.3627	k-.0008	k.0020	k-.0012
SDev	.6	.0003	.0005	.0020	.0010	.0002	.0008
%RSD	.5929	5.559	296.4	.5551	130.0	11.32	68.72
#1	103.2	k.0059	k.0002	k.3641	k-.0001	k.0021	k-.0018
#2	102.4	k.0064	k-.0005	k.3612	k-.0015	k.0018	k-.0006

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0019	k.0006	k.0006	k.0074	k.0002	k-.0007
SDev	.0000	.0004	.0001	.0039	.0090	.0000	.0008
%RSD	27.52	22.22	22.75	640.6	120.7	4.510	118.3
#1	k.0001	k.0016	k.0005	k.0033	k.0011	k.0002	k-.0001
#2	k.0001	k.0022	k.0007	k-.0021	k.0138	k.0002	k-.0013

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0000	k.0011	k.0003
SDev	.0001	.0000	.0003
%RSD	9273.	4.181	104.1
#1	k-.0000	k.0011	k.0001
#2	k.0000	k.0010	k.0006

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	741849	10000	--	--	--	--	--
SDev	4372.748	.0000000	--	--	--	--	--
%RSD	.5894392	.0000000	--	--	--	--	--
#1	744941	10000	--	--	--	--	--
#2	738757	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv3 Operator:
Run Time: 08/04/03 14:21:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9801	9.988	4.937	4.842	9.828	.9959	5.001
SDev	.0008	.005	.005	.022	.014	.0001	.001
%RSD	.0779	.0535	.1068	.4507	.1429	.0055	.0104
#1	.9796	9.992	4.933	4.827	9.818	.9959	5.001
#2	.9806	9.984	4.941	4.857	9.838	.9960	5.001
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.76	1.015	5.032	1.961	2.001	10.08	18.47
SDev	.03	.003	.002	.001	.000	.04	.04
%RSD	.1495	.2554	.0302	.0419	.0025	.3485	.2429
#1	19.78	1.013	5.031	1.960	2.001	10.11	18.44
#2	19.74	1.017	5.033	1.961	2.001	10.06	18.50
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.855	4.899	20.02	1.013	5.175	28.94	H39.19
SDev	.004	.015	.02	.001	.009	.30	.09
%RSD	.0781	.3130	.0760	.0717	.1829	1.041	.2225
#1	4.852	4.888	20.03	1.012	5.168	29.15	H39.13
#2	4.858	4.910	20.01	1.013	5.181	28.73	H39.25
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.878	4.600	4.919	4.893	.9689	.9945	.9898
SDev	.019	.095	.038	.003	.0023	.0082	.0041
%RSD	.3933	2.075	.7684	.0630	.2392	.8250	.4183
#1	4.864	4.532	4.893	4.891	.9706	1.000	.9928
#2	4.892	4.667	4.946	4.895	.9673	.9887	.9869
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	108.3	5.213	5.177	5.031	4.902	5.189	4.900
SDev	.8	.051	.002	.007	.015	.018	.004
%RSD	.7039	.9695	.0437	.1352	.2989	.3537	.0916
#1	107.8	5.178	5.176	5.036	4.891	5.176	4.897
#2	108.9	5.249	5.179	5.027	4.912	5.202	4.903
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.991	.9800	4.835	5.150	.9413	4.932	.9941
SDev	.004	.0010	.001	.029	.0099	.000	.0014
%RSD	.0855	.0992	.0108	.5583	1.048	.0005	.1374
#1	4.988	.9794	4.836	5.129	.9482	4.932	.9950
#2	4.994	.9807	4.835	5.170	.9343	4.932	.9931
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.934	1.022	4.885
SDev	.001	.001	.003
%RSD	.0140	.1223	.0641
#1	4.935	1.021	4.883
#2	4.934	1.022	4.888
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	781784	10000	--	--	--	--	--
SDev	5548.667	.0000000	--	--	--	--	--
%RSD	.7097438	.0000000	--	--	--	--	--
#1	777861	10000	--	--	--	--	--
#2	785708	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccb3 Operator:
Run Time: 08/04/03 14:28:52
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0159	.0018	-.0317	.0006	.0003	.0023
SDev	.0003	.0008	.0003	.0029	.0006	.0001	.0034
%RSD	181.0	5.280	17.61	9.191	101.1	26.36	148.0
#1	-.0000	-.0153	.0020	-.0296	.0010	.0003	-.0001
#2	.0003	-.0165	.0016	-.0338	.0002	.0002	.0047
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0086	.0001	.0009	.0004	.0007	.0128	-.0170
SDev	.0014	.0001	.0004	.0002	.0003	.0059	.0004
%RSD	15.76	76.65	43.88	38.10	44.14	45.86	2.332
#1	.0076	.0002	.0011	.0005	.0010	.0087	-.0172
#2	.0096	.0001	.0006	.0003	.0005	.0170	-.0167
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	H.0075	.0060	.0000	.0031	.0286	H.0593
SDev	.0006	.0005	.0036	.0001	.0000	.0001	.0012
%RSD	108.3	6.445	59.64	1248.	.3365	.1937	1.980
#1	.0010	H.0079	.0085	.0000	.0031	.0286	H.0602
#2	.0001	H.0072	.0034	-.0000	.0031	.0287	H.0585
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	-.0027	-.0006	-.0011	-.0013	-.0043	-.0000
SDev	.0005	.0000	.0015	.0007	.0008	.0032	.0017
%RSD	46.23	.6245	249.5	64.04	65.70	74.92	17210.
#1	.0015	-.0027	.0005	-.0017	-.0019	-.0020	-.0012
#2	.0007	-.0027	-.0017	-.0006	-.0007	-.0065	.0012
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	111.7	-.0011	-.0022	L-.0150	-.0009	-.0018	.0001
SDev	.5	.0007	.0029	.0008	.0000	.0017	.0014
%RSD	.4470	60.99	129.4	5.269	2.184	93.05	1237.
#1	111.3	-.0006	-.0043	L-.0155	-.0009	-.0030	.0011
#2	112.0	-.0015	-.0002	L-.0144	-.0010	-.0006	-.0009
Errors	NOCHECK	NOCHECK	NOCHECK	LC Low	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0019	.0004	.0017	-.0187	.0004	-.0031
SDev	.0003	.0010	.0002	.0017	.0179	.0002	.0008
%RSD	133.3	52.00	55.54	99.92	95.83	49.13	25.66
#1	.0004	.0012	.0005	.0029	-.0060	.0005	-.0025
#2	.0000	.0026	.0002	.0005	-.0313	.0002	-.0036
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0002	.0006
SDev	.0004	.0000	.0001
%RSD	148.3	12.38	11.31
#1	.0005	.0002	.0007
#2	-.0000	.0002	.0006
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	806001	10000	--	--	--	--	--
SDev	3570.889	.0000000	--	--	--	--	--
%RSD	.4430378	.0000000	--	--	--	--	--
#1	803476	10000	--	--	--	--	--
#2	808526	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230758 Operator:
Run Time: 08/04/03 14:34:06
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k-.0014	k-.0013	k.0046	k.0002	k.0002	k.0027
SDev	.0010	.0041	.0015	.0002	.0001	.0000	.0022
%RSD	1805.	300.5	111.8	3.457	33.41	4.287	83.76
#1	k-.0007	k-.0043	k-.0003	k.0047	k.0001	k.0002	k.0011
#2	k.0008	k.0015	k-.0023	.0045	k.0002	k.0002	k.0043

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0645	k.0001	k.0002	k.0007	k.0017	k.0177	.0055
SDev	.0695	.0001	.0001	.0008	.0008	.0141	.0004
%RSD	107.7	70.84	30.31	105.3	44.18	79.34	7.264
#1	k.0154	k.0002	k.0002	k.0002	k.0012	k.0277	.0052
#2	k.1137	k.0001	k.0003	k.0013	k.0023	k.0078	.0058

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	S31.55	k.0085	k.0004	k.0055	k2.336	k4.396
SDev	.0011	.13	.0032	.0001	.0007	.138	.003
%RSD	783.1	.4068	38.14	15.13	12.51	5.904	.0748
#1	k-.0006	S31.46	k.0062	k.0004	k.0050	k2.434	k4.399
#2	k.0009	S31.64	k.0108	k.0005	k.0060	k2.239	k4.394

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0017	k-.0054	k-.0009	k-.0002	k.0002	k.0011	k-.0035
SDev	.0001	.0034	.0008	.0012	.0002	.0046	.0017
%RSD	4.459	62.74	82.71	587.2	107.6	411.3	48.50
#1	.0016	k-.0030	k-.0004	k.0006	k.0004	k-.0021	k-.0047
#2	k.0017	k-.0078	k-.0015	k-.0010	k.0001	k.0043	k-.0023

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	102.5	k.0031	k-.0036	k.0183	k-.0004	k-.0014	k.0003
SDev	.4	.0007	.0010	.0008	.0010	.0005	.0026
%RSD	.3647	22.21	28.28	4.495	245.6	32.99	753.4
#1	102.7	k.0026	k-.0029	k.0177	k.0003	k-.0011	k.0022
#2	102.2	k.0035	k-.0043	k.0188	k-.0012	k-.0017	k-.0015

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0003	k.0001	k.0010	k.0044	k.0004	k-.0006
SDev	.0000	.0032	.0001	.0014	.0089	.0005	.0006
%RSD	41.00	906.6	130.4	142.3	202.3	114.3	102.2
#1	k.0001	k-.0019	k.0002	k-.0000	k-.0019	k.0008	k-.0011
#2	k.0001	k.0026	k.0000	k.0019	k.0107	k.0001	k-.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0000	k.0011	k-.0001
SDev	.0000	.0009	.0002
%RSD	522.5	82.72	222.9
#1	k-.0000	k.0005	k.0001
#2	k.0000	k.0018	k-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	739574	10000	--	--	--	--	--
SDev	2703.976	.0000000	--	--	--	--	--
%RSD	.3656127	.0000000	--	--	--	--	--
#1	741486	10000	--	--	--	--	--
#2	737662	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230759 Operator:
Run Time: 08/04/03 14:39:21
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0072	-.0002	-.0272	.0001	.0002	.0057
SDev	.0001	.0007	.0000	.0022	.0000	.0000	.0050
%RSD	203.4	9.979	19.21	8.147	12.81	5.184	88.62
#1	.0002	-.0077	-.0002	-.0256	.0001	.0002	.0093
#2	-.0000	-.0067	-.0003	-.0287	.0001	.0002	.0021

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0494	.0001	.0001	.0003	.0015	-.0017	-.0165
SDev	.0344	.0001	.0002	.0007	.0006	.0032	.0008
%RSD	69.64	87.71	386.9	223.8	40.31	186.8	4.571
#1	.0251	.0002	-.0001	.0008	.0019	-.0039	-.0171
#2	.0737	.0000	.0002	-.0002	.0011	.0005	-.0160

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0082	.0111	.0004	.0005	-.1826	.0697
SDev	.0006	.0012	.0029	.0000	.0011	.0124	.0016
%RSD	168.2	14.72	26.42	3.729	199.3	6.804	2.269
#1	.0008	.0091	.0131	.0004	.0013	-.1914	.0708
#2	-.0001	.0073	.0090	.0004	-.0002	-.1738	.0686

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	-.0097	-.0005	-.0001	-.0021	.0065	.0014
SDev	.0006	.0168	.0013	.0013	.0002	.0069	.0043
%RSD	95.39	173.3	238.2	1122.	7.165	106.2	313.6
#1	.0002	-.0216	-.0015	-.0010	-.0020	.0016	.0044
#2	.0010	.0022	.0004	.0008	-.0022	.0114	-.0017

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	106.4	-.0006	-.0004	.0030	-.0002	-.0005	-.0018
SDev	.1	.0024	.0025	.0011	.0013	.0025	.0016
%RSD	.0692	385.8	609.0	35.43	535.3	526.2	87.16
#1	106.4	-.0023	-.0022	.0038	-.0012	-.0022	-.0007
#2	106.5	.0011	.0014	.0023	.0007	.0013	-.0029

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0016	-.0001	-.0017	-.0079	.0008	.0001
SDev	.0000	.0002	.0000	.0017	.0319	.0001	.0001
%RSD	6.190	15.12	9.209	97.27	406.5	14.56	276.8
#1	.0001	.0018	-.0001	-.0029	.0147	.0007	-.0001
#2	.0001	.0014	-.0001	-.0005	-.0304	.0009	.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0018	-.0003
SDev	.0000	.0004	.0006
%RSD	114.5	20.44	180.7
#1	.0001	.0016	.0001
#2	.0000	.0021	-.0007

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	768120	10000	--	--	--	--	--
SDev	564.9783	.0000000	--	--	--	--	--
%RSD	.0735534	.0000000	--	--	--	--	--
#1	767720	10000	--	--	--	--	--
#2	768519	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv4 Operator:
Run Time: 08/04/03 14:49:21
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9785	9.996	4.937	4.857	9.881	.9944	4.997
SDev	.0006	.024	.007	.010	.006	.0009	.019
%RSD	.0575	.2403	.1389	.2161	.0578	.0916	.3745
#1	.9781	10.01	4.932	4.850	9.885	.9938	5.010
#2	.9789	9.979	4.941	4.865	9.877	.9950	4.984
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.65	1.013	5.017	1.954	2.006	10.04	18.51
SDev	.06	.003	.002	.001	.003	.03	.04
%RSD	.3144	.2484	.0400	.0663	.1722	.3279	.1919
#1	19.61	1.011	5.015	1.953	2.008	10.02	18.53
#2	19.69	1.014	5.018	1.955	2.003	10.06	18.48
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.862	4.912	19.96	1.012	5.186	28.77	H39.38
SDev	.003	.019	.01	.000	.017	.10	.24
%RSD	.0602	.3932	.0321	.0315	.3294	.3542	.6076
#1	4.864	4.925	19.96	1.012	5.174	28.84	H39.55
#2	4.860	4.898	19.95	1.012	5.198	28.69	H39.21
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.882	4.579	4.852	4.851	.9682	.9975	.9909
SDev	.025	.099	.010	.078	.0032	.0065	.0002
%RSD	.5041	2.168	.2150	1.606	.3289	.6546	.0217
#1	4.864	4.649	4.860	4.796	.9660	1.002	.9907
#2	4.899	4.509	4.845	4.906	.9705	.9929	.9910
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	109.6	5.151	5.143	5.027	4.851	5.146	4.910
SDev	1.1	.012	.079	.001	.048	.048	.010
%RSD	1.002	.2376	1.527	.0207	.9989	.9381	.2048
#1	110.4	5.160	5.087	5.027	4.817	5.112	4.903
#2	108.8	5.142	5.199	5.026	4.886	5.180	4.917
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.989	.9795	4.841	5.155	.9512	4.924	.9872
SDev	.003	.0017	.001	.021	.0230	.004	.0021
%RSD	.0539	.1740	.0169	.3992	2.419	.0778	.2096
#1	4.987	.9807	4.841	5.141	.9349	4.926	.9858
#2	4.991	.9783	4.842	5.170	.9674	4.921	.9887
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.930	1.018	4.889
SDev	.005	.001	.005
%RSD	.1117	.1154	.0985
#1	4.933	1.017	4.886
#2	4.926	1.019	4.893
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	790962	10000	--	--	--	--	--
SDev	7897.676	.0000000	--	--	--	--	--
%RSD	.9984905	.0000000	--	--	--	--	--
#1	796546	10000	--	--	--	--	--
#2	785377	10000	--	--	--	--	--

010343

Method: DAILY2 Sample Name: ccb4 Operator:
Run Time: 08/04/03 14:56:58
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0175	-.0004	-.0258	.0001	.0002	-.0014
SDev	.0000	.0019	.0000	.0010	.0000	.0000	.0028
%RSD	38.97	10.77	7.252	3.988	22.78	3.278	194.9
#1	-.0001	-.0189	-.0005	-.0265	.0001	.0002	-.0034
#2	-.0000	-.0162	-.0004	-.0251	.0001	.0002	.0005
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0181	.0002	.0003	.0008	.0009	.0057	-.0243
SDev	.0163	.0001	.0006	.0004	.0003	.0025	.0092
%RSD	90.13	70.36	218.5	49.75	36.05	43.64	37.97
#1	.0066	.0003	.0007	.0011	.0006	.0039	-.0308
#2	.0296	.0001	-.0001	.0005	.0011	.0074	-.0178
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	H.0053	.0067	-.0000	.0033	L-.1585	H.0550
SDev	.0001	.0001	.0012	.0000	.0006	.1430	.0006
%RSD	37.56	2.199	17.54	49.34	18.02	90.26	1.101
#1	.0005	H.0053	.0059	-.0000	.0037	L-.2596	H.0545
#2	.0003	H.0054	.0076	-.0000	.0028	L-.0573	H.0554
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Low	LC High
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0014	-.0024	.0001	-.0007	-.0018	-.0024	-.0000
SDev	.0002	.0077	.0003	.0014	.0012	.0010	.0026
%RSD	17.56	320.3	459.5	187.1	67.61	40.84	8406.
#1	.0012	.0030	-.0002	.0002	-.0027	-.0031	.0018
#2	.0016	-.0078	.0003	-.0017	-.0010	-.0017	-.0019
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	112.6	-.0010	.0002	L-.0141	-.0004	-.0002	-.0016
SDev	.2	.0016	.0038	.0000	.0008	.0020	.0006
%RSD	.2139	170.0	1604.	.0374	178.0	1300.	35.73
#1	112.8	.0002	-.0024	L-.0141	.0001	-.0016	-.0012
#2	112.5	-.0021	.0029	L-.0141	-.0010	.0012	-.0020
Errors	NOCHECK	NOCHECK	NOCHECK	LC Low	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2037	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0018	-.0001	.0000	-.0177	.0001	-.0009
SDev	.0000	.0024	.0001	.0010	.0014	.0004	.0013
%RSD	9.099	138.0	155.9	5425.	7.729	277.8	148.8
#1	.0002	.0000	-.0001	.0008	-.0186	.0004	.0000
#2	.0002	.0035	.0000	-.0007	-.0167	-.0001	-.0018
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0001	-.0001
SDev	.0000	.0002	.0003
%RSD	43.07	215.4	169.5
#1	.0000	-.0000	-.0003
#2	.0000	.0002	.0000
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	812892	10000	--	--	--	--	--
SDev	1786.152	.0000000	--	--	--	--	--
%RSD	.2197281	.0000000	--	--	--	--	--
#1	814155	10000	--	--	--	--	--
#2	811629	10000	--	--	--	--	--

Standardization Rpt. 08/04/03 04:52:39 PM page 1

Method: DAILY2 Standard: blk
Run Time: 08/04/03 16:47:37

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Avge	-.0000	.0003	-.0001	.0024	-.0000	.0001	-.0000
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	55.22	1.481	23.65	.1382	70.28	.5788	106.3
#1	-.0000	.0003	-.0001	.0024	-.0000	.0001	-.0000
#2	-.0000	.0003	-.0001	.0024	-.0000	.0001	-.0000

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Avge	.0001	.0000	-.0000	.0000	.0004	.0000	.0003
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	5.851	111.4	85.22	81.49	1.939	115.1	7.678
#1	.0001	.0000	-.0000	.0000	.0004	.0000	.0003
#2	.0001	.0000	-.0000	.0000	.0004	.0000	.0003

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Avge	.0000	.0018	-.0000	.0000	-.0001	-.0001	-.0109
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0001
%RSD	1245.	2.225	1628.	21.19	40.26	25.28	.8233
#1	-.0000	.0018	.0000	.0000	-.0001	-.0001	-.0110
#2	.0000	.0018	-.0000	.0000	-.0000	-.0002	-.0109

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Avge	.0000	-.0000	.0001	.0000	.0001	.0000	-.0014
SDev	.0000	.0000	.0000	.0000	.0000	.0000	.0000
%RSD	70.28	81.20	5.629	186.6	27.75	5.079	2.310
#1	.0000	-.0000	.0001	.0000	.0001	.0000	-.0013
#2	.0000	-.0000	.0001	-.0000	.0001	.0000	-.0014

Elem	Sc3613	1960/1	1960/2	Si2881	Sn1899	Sr4215	Th2837
Avge	79.30	-.0002	.0001	.0019	.0000	.0000	.0000
SDev	.46	.0001	.0000	.0000	.0000	.0000	.0000
%RSD	.5762	42.04	23.26	.6659	66.45	12.28	64.24
#1	78.97	-.0003	.0001	.0019	.0000	.0000	.0000
#2	79.62	-.0002	.0001	.0019	.0000	.0000	.0000

Elem	Ti3349	Tl1908	U_4090	V_2924	W_2079	Y_3710	Zn2062
Avge	-.0001	-.0003	-.0002	-.0000	.0003	.0000	.0000
SDev	.0000	.0001	.0001	.0000	.0000	.0000	.0000
%RSD	35.77	22.86	57.51	2.897	11.81	253.3	82.88
#1	-.0001	-.0003	-.0003	-.0000	.0003	.0000	.0000
#2	-.0001	-.0002	-.0001	-.0000	.0003	-.0000	.0000

Elem	Zr3496
Avge	.0003
SDev	.0000
%RSD	5.816
#1	.0003
#2	.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	792846	10000	--	--	--	--	--
SDev	4589.123	.0000000	--	--	--	--	--
%RSD	.5788164	.0000000	--	--	--	--	--
#1	789601	10000	--	--	--	--	--
#2	796091	10000	--	--	--	--	--

Standardization Rpt. 08/04/03 04:57:31 PM page 1

Method: DAILY2 Standard: clp_std4
Run Time: 08/04/03 16:52:51

Elem	Ag3280	As1890	2203/1	2203/2	Sb2068	1960/1	1960/2
Avge	.0797	.1337	.3704	.3103	.2046	.3113	.2986
SDev	.0001	.0002	.0004	.0024	.0003	.0003	.0034
%RSD	.1037	.1509	.1083	.7654	.1355	.0969	1.126
#1	.0797	.1335	.3707	.3087	.2044	.3115	.2962
#2	.0796	.1338	.3702	.3120	.2048	.3111	.3009

Elem	Tl1908
Avge	.2633
SDev	.0002
%RSD	.0752
#1	.2634
#2	.2631

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	784086	10000	--	--	--	--	--
SDev	6917.626	.0000000	--	--	--	--	--
%RSD	.8822540	.0000000	--	--	--	--	--
#1	788977	10000	--	--	--	--	--
#2	779194	10000	--	--	--	--	--

Standardization Rpt. 08/04/03 05:01:40 PM page 1

Method: DAILY2 Standard: clp_std1
Run Time: 08/04/03 16:57:43

Elem	Al3082	Ca3179	Fe2714	K_7664	Li6707	Mg2790	Na3302
Avge	.1092	.2097	.1057	.1731	2.810	.0897	.0090
SDev	.0000	.0003	.0001	.0002	.003	.0000	.0000
%RSD	.0291	.1562	.0829	.1156	.1212	.0014	.1920
#1	.1092	.2095	.1058	.1730	2.808	.0897	.0090
#2	.1093	.2099	.1056	.1733	2.813	.0897	.0090

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	776478	10000	--	--	--	--	--
SDev	2590.132	.0000000	--	--	--	--	--
%RSD	.3335746	.0000000	--	--	--	--	--
#1	774646	10000	--	--	--	--	--
#2	778309	10000	--	--	--	--	--

Standardization Rpt. 08/04/03 05:05:49 PM page 1

Method: DAILY2 Standard: clp_std5
Run Time: 08/04/03 17:01:52

Elem	B_2496	Bi2230	Mo2020	P_1782	Si2881	Sn1899	Sr4215
Avge	.1761	.0385	.4293	.0173	.1647	.1965	2.456
SDev	.0008	.0000	.0022	.0002	.0006	.0000	.003
%RSD	.4592	.0232	.5198	1.076	.3516	.0067	.1130
#1	.1755	.0385	.4277	.0175	.1651	.1965	2.454
#2	.1767	.0385	.4309	.0172	.1643	.1965	2.458

Elem	Ti3349
Avge	2.722
SDev	.002
%RSD	.0671
#1	2.724
#2	2.721

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	794000	10000	--	--	--	--	--
SDev	1249.458	.0000000	--	--	--	--	--
%RSD	.1573625	.0000000	--	--	--	--	--
#1	794883	10000	--	--	--	--	--
#2	793116	10000	--	--	--	--	--

Standardization Rpt. 08/04/03 05:09:36 PM page 1

Method: DAILY2 Standard: clp_std2
Run Time: 08/04/03 17:06:01

Elem	Ba4934	Be3130	Cr2677	Cu3247	Ni2316
Avge	1.044	1.307	.4429	.3062	.3832
SDev	.001	.008	.0003	.0010	.0011
%RSD	.1141	.5819	.0741	.3368	.2806
#1	1.045	1.301	.4427	.3069	.3824
#2	1.043	1.312	.4432	.3054	.3839

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	784832	10000	--	--	--	--	--
SDev	1634.124	.0000000	--	--	--	--	--
%RSD	.2082133	.0000000	--	--	--	--	--
#1	783676	10000	--	--	--	--	--
#2	785987	10000	--	--	--	--	--

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Method: DAILY2 Standard: clp_std3
Run Time: 08/04/03 17:09:48

Elem	Cd2265	Co2286	Mn2576	V_2924	Zn2062
Avge	1.126	.2469	.9390	.1981	.3655
SDev	.002	.0002	.0004	.0001	.0003
%RSD	.1383	.0675	.0402	.0276	.0939
#1	1.127	.2470	.9392	.1981	.3652
#2	1.125	.2468	.9387	.1982	.3657

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	788726	10000	--	--	--	--	--
SDev	3205.315	.0000000	--	--	--	--	--
%RSD	.4063917	.0000000	--	--	--	--	--
#1	790992	10000	--	--	--	--	--
#2	786459	10000	--	--	--	--	--

Standardization Rpt. 08/04/03 05:18:16 PM page 1

Method: DAILY2 Standard: clp_std6
Run Time: 08/04/03 17:13:57

Elem	La3988	Na5889	Pd3404	S_1820	Th2837	U_4090	W_2079
Avge	.4747	.0443	.2089	.0357	.1165	.0746	.2216
SDev	.0002	.0001	.0001	.0001	.0000	.0002	.0002
%RSD	.0381	.1337	.0388	.3968	.0082	.2101	.0980
#1	.4748	.0443	.2089	.0358	.1165	.0745	.2215
#2	.4746	.0444	.2090	.0356	.1165	.0747	.2218

Elem	Y_3710	Zr3496
Avge	.7829	1.969
SDev	.0014	.001
%RSD	.1748	.0301
#1	.7838	1.969
#2	.7819	1.970

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	776244	10000	--	--	--	--	--
SDev	700.7428	.0000000	--	--	--	--	--
%RSD	.0902735	.0000000	--	--	--	--	--
#1	775749	10000	--	--	--	--	--
#2	776740	10000	--	--	--	--	--

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Method: DAILY2 Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	clp_std4	blk	25.0966	.000521	08/04/03 05:13:57
Al3082	308.215	clp_std1	blk	458.804	-.119203	08/04/03 05:13:57
As1890	189.042	clp_std4	blk	74.7761	.004625	08/04/03 05:13:57
B_2496	249.678	clp_std5	blk	57.5737	-.139860	08/04/03 05:13:57
Ba4934	493.409	clp_std2	blk	9.57860	.000048	08/04/03 05:13:57
Be3130	313.042	clp_std2	blk	3.82702	-.000246	08/04/03 05:13:57
Bi2230	223.061	clp_std5	blk	128.747	.000652	08/04/03 05:13:57
Ca3179	317.933	clp_std1	blk	238.522	-.013235	08/04/03 05:13:57
Cd2265	226.502	clp_std3	blk	8.88060	-.000106	08/04/03 05:13:57
Co2286	228.616	clp_std3	blk	40.5028	.000384	08/04/03 05:13:57
Cr2677	267.716	clp_std2	blk	22.5767	-.000270	08/04/03 05:13:57
Cu3247	324.753	clp_std2	blk	32.7043	-.012870	08/04/03 05:13:57
Fe2714	271.441	clp_std1	blk	473.358	-.009585	08/04/03 05:13:57
K_7664	766.491	clp_std1	blk	289.302	-.087228	08/04/03 05:13:57
La3988	398.853	clp_std6	blk	21.0846	-.000051	08/04/03 05:13:57
Li6707	670.784	clp_std1	blk	3.56045	-.006366	08/04/03 05:13:57
Mg2790	279.078	clp_std1	blk	278.554	.000336	08/04/03 05:13:57
Mn2576	257.610	clp_std3	blk	10.6510	-.000175	08/04/03 05:13:57
Mo2020	202.030	clp_std5	blk	23.2947	.001309	08/04/03 05:13:57
Na3302	330.232	clp_std1	blk	5467.54	.716670	08/04/03 05:13:57
Na5889	588.991	clp_std6	blk	18.1829	.198978	08/04/03 05:13:57
Ni2316	231.604	clp_std2	blk	26.0986	-.000197	08/04/03 05:13:57
P_1782	178.287	clp_std5	blk	576.536	.005102	08/04/03 05:13:57
2203/1	220.351	clp_std4	blk	27.0031	-.002861	08/04/03 05:13:57
2203/2	220.352	clp_std4	blk	32.2253	-.000633	08/04/03 05:13:57
Pd3404	340.458	clp_std6	blk	49.1558	-.003227	08/04/03 05:13:57
S_1820	182.040	clp_std6	blk	280.387	-.008840	08/04/03 05:13:57
Sb2068	206.838	clp_std4	blk	48.5577	.065956	08/04/03 05:13:57
Sc3613	361.384	blk	dark	1.26111	.000000	08/04/03 05:13:57
1960/1	196.021	clp_std4	blk	32.1001	.007803	08/04/03 05:13:57
1960/2	196.022	clp_std4	blk	33.5065	-.003425	08/04/03 05:13:57
Si2881	288.158	clp_std5	blk	61.1949	-.113998	08/04/03 05:13:57
Pb220	220.353	NONE	NONE	1.00000	.000000	*NOT STANDARDIZED
Se196	196.026	NONE	NONE	1.00000	.000000	*NOT STANDARDIZED
Sn1899	189.989	clp_std5	blk	50.9347	-.001448	08/04/03 05:13:57
Sr4215	421.552	clp_std5	blk	4.07181	-.000028	08/04/03 05:13:57
Th2837	283.730	clp_std6	blk	89.6218	-.002888	08/04/03 05:13:57
Ti3349	334.941	clp_std5	blk	3.67334	.000342	08/04/03 05:13:57
Tl1908	190.864	clp_std4	blk	37.9396	.010630	08/04/03 05:13:57
U_4090	409.014	clp_std6	blk	141.317	.033208	08/04/03 05:13:57
V_2924	292.402	clp_std3	blk	50.4639	.001941	08/04/03 05:13:57
W_2079	207.914	clp_std6	blk	22.5821	-.006179	08/04/03 05:13:57
Y_3710	371.030	clp_std6	blk	12.7711	-.000041	08/04/03 05:13:57
Zn2062	206.200	clp_std3	blk	27.3651	-.000830	08/04/03 05:13:57
Zr3496	349.621	clp_std6	blk	5.55108	-.001513	08/04/03 05:13:57

Analysis Report QC Standard 08/04/03 05:23:31 PM page 1

Method: DAILY2 Sample Name: icv/ccv Operator:
Run Time: 08/04/03 17:18:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9887	10.00	4.912	4.828	9.904	.9992	4.962
SDev	.0012	.01	.003	.025	.007	.0003	.007
%RSD	.1185	.0916	.0591	.5282	.0676	.0327	.1466
#1	.9878	9.994	4.914	4.810	9.899	.9990	4.957
#2	.9895	10.01	4.910	4.846	9.909	.9994	4.967
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	1.000	10.00	5.000	5.000	10.00	1.000	5.000
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.87	1.009	5.015	1.962	2.000	10.13	18.18
SDev	.01	.001	.001	.001	.001	.01	.00
%RSD	.0750	.0774	.0286	.0260	.0427	.1343	.0012
#1	19.88	1.009	5.016	1.962	1.999	10.14	18.18
#2	19.86	1.008	5.014	1.963	2.001	10.12	18.18
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	20.00	1.000	5.000	2.000	2.000	10.00	20.00
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.882	4.839	20.05	1.013	5.113	28.40	Q41.15
SDev	.001	.002	.01	.000	.027	.22	.05
%RSD	.0252	.0414	.0479	.0234	.5328	.7791	.1142
#1	4.881	4.841	20.05	1.013	5.094	28.56	Q41.19
#2	4.883	4.838	20.04	1.012	5.133	28.25	Q41.12
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Fail
Value	5.000	5.000	20.00	1.000	5.000	30.00	30.00
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.905	5.190	4.879	4.845	.9789	.9987	.9856
SDev	.011	.078	.011	.002	.0009	.0084	.0040
%RSD	.2340	1.501	.2223	.0359	.0919	.8390	.4039
#1	4.896	5.135	4.871	4.844	.9796	1.005	.9828
#2	4.913	5.245	4.887	4.846	.9783	.9928	.9884
Errors	QC Pass	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass
Value	5.000	5.000			1.000	1.000	1.000
Range	10.00	10.00			10.00	10.00	10.00

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	98.72	5.066	5.082	5.002	4.856	5.077	4.882
SDev	.42	.025	.015	.009	.005	.018	.000
%RSD	.4291	.4842	.2963	.1733	.0983	.3588	.0009
#1	98.42	5.049	5.072	4.996	4.853	5.064	4.882
#2	99.02	5.083	5.093	5.008	4.860	5.090	4.882
Errors	NOCHECK	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value				5.000	5.000	5.000	5.000
Range				10.00	10.00	10.00	10.00

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.015	.9825	4.826	5.134	.9706	4.964	1.025
SDev	.000	.0008	.004	.014	.0060	.002	.001
%RSD	.0075	.0759	.0797	.2719	.6230	.0497	.0795
#1	5.014	.9830	4.823	5.124	.9749	4.962	1.024
#2	5.015	.9820	4.828	5.144	.9663	4.965	1.025
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	5.000	1.000	5.000	5.000	1.000	5.000	1.000
Range	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.957	1.005	4.857
SDev	.002	.001	.003
%RSD	.0414	.0883	.0544
#1	4.958	1.006	4.855
#2	4.956	1.005	4.859
Errors	QC Pass	QC Pass	QC Pass
Value	5.000	1.000	5.000
Range	10.00	10.00	10.00

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	782714	10000	--	--	--	--	--
SDev	3335.423	.0000000	--	--	--	--	--
%RSD	.4261353	.0000000	--	--	--	--	--
#1	780356	10000	--	--	--	--	--
#2	785073	10000	--	--	--	--	--

Analysis Report Blank Sample 08/04/03 05:31:09 PM page 1

Method: DAILY2 Sample Name: icb/ccb Operator:
Run Time: 08/04/03 17:26:06
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	-.0006	.0025	.0064	.0000	.0000	.0007
SDev	.0003	.0053	.0010	.0006	.0000	.0000	.0001
%RSD	59.85	940.4	41.07	9.298	28.03	24.35	14.61
#1	-.0003	.0032	.0032	.0068	.0000	.0000	.0007
#2	-.0008	-.0043	.0018	.0060	.0000	.0000	.0008
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0039	.0001	-.0009	.0001	-.0002	.0065	-.0008
SDev	.0002	.0000	.0007	.0004	.0004	.0260	.0089
%RSD	5.066	15.87	74.87	714.9	204.4	402.4	1144.
#1	.0038	.0001	-.0004	.0003	-.0004	.0249	.0055
#2	.0041	.0001	-.0014	-.0002	.0001	-.0119	-.0071
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0002	-.0004	-.0000	.0034	.0078	.0022
SDev	.0001	.0001	.0037	.0000	.0007	.1020	.0015
%RSD	146.9	67.08	826.6	137.2	19.33	1299.	68.70
#1	.0001	.0002	-.0030	-.0000	.0039	H.0800	.0032
#2	-.0000	.0001	.0022	-.0001	.0029	L-.0643	.0011
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	.0055	.0034	-.0012	-.0004	.0043	.0029
SDev	.0002	.0046	.0017	.0007	.0022	.0072	.0002
%RSD	16.12	84.20	49.38	56.04	583.6	166.3	6.153
#1	-.0011	.0022	.0046	-.0017	.0012	-.0008	.0030
#2	-.0009	.0087	.0022	-.0007	-.0019	.0094	.0028
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.7	.0013	.0014	-.0002	.0003	.0014	-.0013
SDev	.1	.0016	.0034	.0001	.0001	.0017	.0007
%RSD	.0540	122.5	242.7	31.95	30.78	123.5	54.51
#1	100.7	.0025	-.0010	-.0002	.0004	.0002	-.0008
#2	100.6	.0002	.0038	-.0003	.0003	.0026	-.0018
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0008	-.0000	.0016	-.0018	.0002	.0004
SDev	.0000	.0001	.0002	.0011	.0056	.0005	.0008
%RSD	61.65	16.35	429.2	69.58	319.8	277.8	197.5
#1	.0001	.0008	.0001	.0025	.0022	-.0002	.0009
#2	.0000	.0007	-.0002	.0008	-.0058	.0005	-.0002
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0001	-.0000
SDev	.0000	.0001	.0001
%RSD	53.46	52.18	253.4
#1	.0000	.0001	.0000
#2	.0001	.0001	-.0001
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	798138	10000	--	--	--	--	--
SDev	368.4026	.0000000	--	--	--	--	--
%RSD	.0461577	.0000000	--	--	--	--	--
#1	798399	10000	--	--	--	--	--
#2	797878	10000	--	--	--	--	--

010362

Analysis Report 08/04/03 05:36:23 PM page 1

Method: DAILY2 Sample Name: ~~pbw 831W4 pg54-132~~ Operator:
Run Time: 08/04/03 17:31:20
Comment:
Mode: CONC Corr. Factor: 1

PBW-H04W2 pg54-138 JR 8/5/03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	.0084	-.0001	.0108	.0001	.0000	.0001
SDev	.0006	.0043	.0007	.0011	.0000	.0000	.0022
%RSD	140.5	51.31	824.8	9.856	.3140	10.37	1700.
#1	-.0008	.0054	.0004	.0100	.0001	.0000	.0017
#2	-.0000	.0115	-.0006	.0115	.0001	.0000	-.0014
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	H.0502	.0003	-.0002	.0006	.0011	.0135	.0123
SDev	.0512	.0001	.0002	.0001	.0002	.0104	.0095
%RSD	102.0	25.88	83.69	16.96	19.06	77.44	76.81
#1	.0140	.0003	-.0001	.0006	.0012	.0208	.0191
#2	H.0864	.0002	-.0004	.0005	.0009	.0061	.0056
Errors	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0000	.0004	.0000	.0013	L-.1011	.0046
SDev	.0005	.0000	.0009	.0001	.0007	.2133	.0002
%RSD	203.8	139.0	215.7	3763.	54.59	211.0	4.741
#1	-.0001	.0001	.0011	-.0001	.0018	L-.2520	.0047
#2	.0006	.0000	-.0002	.0001	.0008	.0497	.0044
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Low	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0025	-.0001	-.0015	.0007	L-.0111	.0023
SDev	.0002	.0054	.0021	.0024	.0009	.0115	.0010
%RSD	255.5	215.4	1443.	153.3	125.9	103.8	45.12
#1	.0001	.0013	.0013	.0001	.0001	-.0030	.0030
#2	-.0003	-.0064	-.0016	-.0032	.0013	L-.0192	.0015
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Low	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	95.60	-.0029	-.0005	.0095	-.0011	-.0013	-.0011
SDev	.74	.0004	.0038	.0027	.0023	.0027	.0003
%RSD	.7735	12.84	835.6	28.58	213.4	210.9	30.42
#1	96.12	-.0027	.0023	.0076	.0005	.0006	-.0008
#2	95.08	-.0032	-.0032	H.0114	-.0027	-.0032	-.0013
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0002	.0001	.0007	-.0059	-.0001	.0012
SDev	.0000	.0008	.0001	.0019	.0073	.0007	.0016
%RSD	30.44	326.1	75.91	256.4	123.8	498.0	133.2
#1	.0000	-.0008	.0001	.0021	-.0007	.0004	.0001
#2	.0001	.0003	.0000	-.0006	-.0110	-.0007	.0023
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0005	-.0002
SDev	.0001	.0001	.0001
%RSD	38.32	23.82	78.08
#1	.0001	.0004	-.0001
#2	.0002	.0005	-.0002
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	758025	10000	--	--	--	--	--
SDev	5880.300	.0000000	--	--	--	--	--
%RSD	.7757396	.0000000	--	--	--	--	--
#1	762183	10000	--	--	--	--	--
#2	753867	10000	--	--	--	--	--

010365

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Method: DAILY2 Sample Name: lcsw-~~G31W4~~ H04W2 Operator:
Run Time: 08/04/03 17:36:35
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0506	1.997	2.031	.0105	2.070	.0512	.0012
SDev	.0002	.005	.004	.0031	.002	.0001	.0025
%RSD	.3708	.2387	.1985	29.42	.0915	.1123	206.1
#1	.0507	2.000	2.033	.0084	2.071	.0511	-.0005
#2	.0504	1.994	2.028	.0127	2.069	.0512	.0029

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.19	.0508	.5112	.2017	.2554	1.116	16.85
SDev	.02	.0001	.0016	.0003	.0003	.006	.06
%RSD	.0944	.2290	.3177	.1454	.1036	.5661	.3504
#1	20.20	.0507	.5100	.2015	.2552	1.120	16.89
#2	20.18	.0509	.5123	.2019	.2556	1.111	16.81

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	.0010	20.48	.5142	.0013	17.90	26.13
SDev	.0000	.0001	.01	.0001	.0002	.32	.17
%RSD	7.102	14.27	.0671	.0096	16.92	1.767	.6494
#1	-.0005	.0009	20.48	.5141	.0014	18.13	26.25
#2	-.0006	.0011	20.47	.5142	.0011	17.68	26.01

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5083	.0063	.4995	.4910	.0008	.0039	.4967
SDev	.0020	.0088	.0006	.0016	.0010	.0053	.0011
%RSD	.3852	139.3	.1262	.3359	125.2	135.9	.2323
#1	.5069	.0001	.4991	.4899	.0015	.0076	.4959
#2	.5097	.0125	.5000	.4922	.0001	.0002	.4975

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.58	2.048	2.057	4.127	.4939	2.054	-.0023
SDev	.46	.005	.012	.009	.0013	.009	.0013
%RSD	.4939	.2295	.5784	.2286	.2646	.4625	56.73
#1	93.91	2.044	2.049	4.133	.4930	2.047	-.0014
#2	93.26	2.051	2.066	4.120	.4948	2.061	-.0033

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	-.0147	.0000	2.086	-.0001	.5111	-.0012
SDev	.0000	.0002	.0002	.001	.0044	.0003	.0015
%RSD	.8212	1.469	2880.	.0602	6268.	.0579	118.3
#1	.0006	-.0145	-.0001	2.085	-.0032	.5109	-.0023
#2	.0006	-.0148	.0001	2.087	.0030	.5113	-.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.5142	.0012
SDev	.0000	.0010	.0002
%RSD	35.97	.1892	14.11
#1	-.0000	.5135	.0011
#2	-.0000	.5149	.0014

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	742012	10000	--	--	--	--	--
SDev	3656.449	.0000000	--	--	--	--	--
%RSD	.4927746	.0000000	--	--	--	--	--
#1	744598	10000	--	--	--	--	--
#2	739427	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230760 Operator:
Run Time: 08/04/03 17:41:49
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0131	.0006	.0146	.0004	.0000	.0003
SDev	.0010	.0008	.0016	.0008	.0001	.0000	.0018
%RSD	187.3	6.247	250.0	5.122	18.31	48.74	597.2
#1	.0002	.0125	.0018	.0152	.0004	.0000	.0015
#2	-.0012	.0136	-.0005	.0141	.0003	.0000	-.0010

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0116	.0002	.0009	-.0007	.0010	.0324	.0762
SDev	.0017	.0001	.0000	.0008	.0011	.0185	.0032
%RSD	14.49	57.43	3.942	123.5	104.6	57.18	4.136
#1	.0128	.0003	.0009	-.0001	.0018	.0455	.0784
#2	.0104	.0001	.0008	-.0012	.0003	.0193	.0740

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	62.04	.0014	.0001	.0035	299.0	391.6
SDev	.0005	.17	.0009	.0000	.0005	.6	2.3
%RSD	283.8	.2707	64.25	32.85	14.82	.1871	.5785
#1	.0002	62.16	.0021	.0001	.0031	299.4	393.2
#2	-.0005	61.93	.0008	.0001	.0038	298.6	390.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0035	.0024	-.0019	.0031	-.0028	-.0045
SDev	.0007	.0022	.0007	.0008	.0018	.0103	.0006
%RSD	2574.	62.45	28.98	42.47	58.81	373.3	12.73
#1	.0005	.0051	.0029	-.0025	.0044	-.0100	-.0049
#2	-.0005	.0020	.0019	-.0014	.0018	.0045	-.0041

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.55	-.0042	.0028	.3135	-.0005	.0005	-.0020
SDev	.05	.0036	.0003	.0015	.0003	.0014	.0013
%RSD	.0570	86.00	10.57	.4661	66.66	291.6	66.78
#1	92.51	-.0017	.0030	.3125	-.0007	.0015	-.0010
#2	92.59	-.0068	.0026	.3145	-.0003	-.0005	-.0029

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0005	-.0000	-.0008	.0067	-.0002	.0002
SDev	.0000	.0005	.0000	.0023	.0323	.0011	.0001
%RSD	15.96	95.18	36.79	282.3	480.1	715.6	78.45
#1	.0001	-.0002	-.0000	.0008	.0295	.0006	.0001
#2	.0001	-.0008	-.0000	-.0025	-.0161	-.0009	.0003

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	-.0003	-.0002
SDev	.0000	.0002	.0002
%RSD	7.835	78.77	137.2
#1	.0002	-.0005	-.0000
#2	.0002	-.0001	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	733800	10000	--	--	--	--	--
SDev	380.4235	.0000000	--	--	--	--	--
%RSD	.0518429	.0000000	--	--	--	--	--
#1	733531	10000	--	--	--	--	--
#2	734069	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230761 Operator:
Run Time: 08/04/03 17:47:03
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0162	.0005	.0096	.0002	.0000	-.0019
SDev	.0002	.0010	.0024	.0010	.0000	.0000	.0063
%RSD	47.56	6.064	445.6	10.89	21.31	11.35	334.3
#1	-.0007	.0155	.0022	.0088	.0002	.0000	-.0063
#2	-.0003	.0169	-.0012	.0103	.0002	.0000	.0025

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0104	.0001	-.0000	-.0003	.0014	.0223	.0437
SDev	.0005	.0001	.0007	.0013	.0003	.0059	.0072
%RSD	4.426	214.5	1707.	449.4	20.21	26.47	16.46
#1	.0107	.0002	.0005	.0006	.0016	.0181	.0488
#2	.0101	-.0000	-.0005	-.0012	.0012	.0265	.0386

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	38.31	.0043	.0000	.0027	117.8	165.0
SDev	.0001	.10	.0023	.0000	.0003	.6	.7
%RSD	58.54	.2483	54.09	31.15	10.85	.4758	.4379
#1	.0002	38.37	.0026	.0000	.0025	118.2	165.5
#2	.0001	38.24	.0059	.0000	.0030	117.4	164.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0160	.0009	-.0008	.0021	-.0007	-.0009
SDev	.0000	.0021	.0014	.0001	.0030	.0046	.0038
%RSD	5.630	13.35	158.3	13.67	146.5	623.0	408.0
#1	.0005	.0175	-.0001	-.0007	.0042	-.0040	.0018
#2	.0005	.0145	.0019	-.0008	-.0001	.0025	-.0036

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.50	.0014	.0006	.4763	-.0002	.0009	-.0009
SDev	.58	.0006	.0035	.0022	.0004	.0021	.0015
%RSD	.6203	44.57	615.0	.4700	192.8	248.6	162.7
#1	93.91	.0018	-.0019	.4779	-.0005	-.0006	-.0020
#2	93.09	.0009	.0030	.4747	.0001	.0023	.0001

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0000	.0002	-.0019	-.0053	-.0003	.0007
SDev	.0000	.0016	.0002	.0005	.0084	.0007	.0007
%RSD	36.24	4327.	103.1	26.69	158.6	230.7	94.61
#1	.0000	.0012	.0003	-.0016	-.0112	.0002	.0012
#2	.0001	-.0011	.0000	-.0023	.0006	-.0008	.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0000	-.0001
SDev	.0000	.0001	.0004
%RSD	10.84	524.1	556.3
#1	.0001	.0001	.0002
#2	.0001	-.0001	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	741298	10000	--	--	--	--	--
SDev	4611.751	.0000000	--	--	--	--	--
%RSD	.6221183	.0000000	--	--	--	--	--
#1	744559	10000	--	--	--	--	--
#2	738037	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230762 Operator:
Run Time: 08/04/03 17:52:17
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0132	.0006	.0098	.0003	.0000	-.0016
SDev	.0001	.0015	.0037	.0014	.0000	.0000	.0011
%RSD	105.3	11.55	574.0	14.63	.4770	42.53	70.12
#1	-.0002	.0121	.0033	.0109	.0003	.0000	-.0008
#2	-.0000	.0143	-.0020	.0088	.0003	.0000	-.0023

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0098	.0001	.0003	-.0000	.0012	.0219	.0374
SDev	.0134	.0000	.0002	.0001	.0002	.0165	.0210
%RSD	136.6	25.36	63.20	1001.	14.16	75.17	56.35
#1	.0003	.0002	.0002	.0001	.0014	.0336	.0522
#2	.0193	.0001	.0004	-.0001	.0011	.0103	.0225

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	79.61	.0007	.0008	.0029	177.0	246.0
SDev	.0001	.34	.0031	.0000	.0002	.5	.6
%RSD	12.84	.4331	445.5	5.404	6.518	.2780	.2240
#1	-.0004	79.85	-.0015	.0008	.0030	177.3	246.3
#2	-.0005	79.37	.0029	.0009	.0028	176.6	245.6

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0017	.0009	.0019	-.0030	.0017	.0100	-.0031
SDev	.0008	.0227	.0009	.0009	.0008	.0031	.0016
%RSD	46.15	2627.	47.96	31.21	44.17	30.48	52.18
#1	.0012	.0169	.0026	-.0036	.0023	.0122	-.0020
#2	.0023	-.0152	.0013	-.0023	.0012	.0079	-.0043

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.74	-.0020	-.0022	.1668	-.0013	-.0021	-.0010
SDev	.55	.0004	.0041	.0047	.0003	.0029	.0012
%RSD	.5897	18.74	182.7	2.819	23.72	133.7	124.1
#1	92.35	-.0017	.0007	.1635	-.0016	-.0001	-.0001
#2	93.13	-.0022	-.0051	.1701	-.0011	-.0041	-.0019

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0017	-.0001	.0031	-.0113	-.0003	-.0007
SDev	.0000	.0011	.0001	.0034	.0077	.0001	.0018
%RSD	21.20	67.61	115.3	111.5	68.43	18.86	274.8
#1	.0000	-.0025	-.0000	.0055	-.0168	-.0004	.0006
#2	.0001	-.0009	-.0001	.0007	-.0058	-.0003	-.0019

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	-.0012	-.0003
SDev	.0001	.0002	.0001
%RSD	663.3	15.32	29.99
#1	-.0000	-.0011	-.0003
#2	.0001	-.0013	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	735356	10000	--	--	--	--	--
SDev	4355.778	.0000000	--	--	--	--	--
%RSD	.5923359	.0000000	--	--	--	--	--
#1	732276	10000	--	--	--	--	--
#2	738436	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230763 Operator:
Run Time: 08/04/03 17:57:31
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0201	.0006	.0051	.0008	.0000	-.0000
SDev	.0005	.0010	.0013	.0026	.0000	.0000	.0009
%RSD	89.43	4.902	206.5	50.74	5.111	734.2	2388.
#1	-.0002	.0208	-.0003	.0069	.0008	-.0000	-.0007
#2	-.0009	.0194	.0015	.0033	.0008	.0000	.0006

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0076	-.0002	.0046	-.0004	.0057	.0081	.0373
SDev	.0011	.0002	.0002	.0002	.0004	.0087	.0050
%RSD	15.18	101.1	3.748	44.64	6.280	107.6	13.53
#1	.0068	-.0000	.0047	-.0005	.0055	.0143	.0409
#2	.0084	-.0003	.0045	-.0003	.0060	.0019	.0337

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	81.72	.0014	.0073	.0036	148.8	210.9
SDev	.0007	.31	.0005	.0001	.0002	.1	.1
%RSD	66.92	.3752	39.01	1.371	5.749	.0952	.0373
#1	-.0005	81.94	.0018	.0073	.0034	148.7	211.0
#2	-.0015	81.51	.0010	.0074	.0037	148.9	210.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0132	-.0004	-.0010	.0001	.0141	.0009
SDev	.0009	.0038	.0006	.0011	.0010	.0075	.0029
%RSD	173.0	29.10	136.3	105.9	843.1	53.49	325.3
#1	.0001	.0159	-.0000	-.0003	.0008	.0088	.0029
#2	-.0011	.0105	-.0008	-.0018	-.0006	.0194	-.0012

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.64	.0026	-.0002	.3933	-.0008	.0008	-.0007
SDev	.52	.0009	.0015	.0038	.0009	.0013	.0013
%RSD	.5504	34.19	940.0	.9698	113.4	164.5	177.1
#1	94.27	.0032	.0009	.3906	-.0002	.0017	.0002
#2	95.01	.0020	-.0012	.3960	-.0014	-.0001	-.0016

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0001	.0001	.0012	-.0022	-.0000	-.0008
SDev	.0000	.0031	.0001	.0024	.0159	.0004	.0005
%RSD	13.28	5528.	90.37	198.3	718.3	7313.	67.29
#1	.0001	.0022	.0002	-.0005	.0090	-.0003	-.0004
#2	.0001	-.0021	.0000	.0030	-.0135	.0003	-.0011

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.0024	-.0003
SDev	.0001	.0003	.0000
%RSD	189.7	13.47	13.69
#1	.0000	.0027	-.0003
#2	-.0001	.0022	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	750412	10000	--	--	--	--	--
SDev	4138.696	.0000000	--	--	--	--	--
%RSD	.5515235	.0000000	--	--	--	--	--
#1	747485	10000	--	--	--	--	--
#2	753338	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230764 Operator:
Run Time: 08/04/03 18:02:45
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	k.0160	k.0019	k.0109	k.0002	k.0000	k.0004
SDev	.0002	.0000	.0013	.0031	.0001	.0000	.0016
%RSD	59.99	.1603	67.64	28.63	59.19	2.559	450.1
#1	k-.0002	k.0160	k.0010	.0131	k.0001	k.0000	k.0015
#2	k-.0006	k.0160	k.0029	k.0087	k.0002	k.0000	k-.0008

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0165	k-.0001	k.0003	k.0002	k.0017	k.0161	.0492
SDev	.0003	.0003	.0006	.0004	.0005	.0074	.0134
%RSD	2.108	246.6	215.5	243.3	29.02	45.89	27.26
#1	k.0167	k.0001	k-.0002	k.0005	k.0014	k.0214	.0587
#2	k.0162	k-.0003	k.0007	k-.0001	k.0021	k.0109	.0397

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	S32.24	k.0051	k.0002	k.0046	111.6	k165.0
SDev	.0001	.15	.0029	.0001	.0006	.4	.2
%RSD	193.7	.4594	58.05	42.64	13.45	.3158	.1019
#1	k-.0000	S32.13	k.0072	k.0003	k.0042	111.8	k165.1
#2	k.0001	S32.34	k.0030	k.0001	k.0050	111.3	k164.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0005	k.0047	k-.0017	k-.0011	k.0021	k.0097	k.0021
SDev	.0005	.0150	.0019	.0004	.0012	.0045	.0036
%RSD	110.5	320.4	110.5	33.28	56.36	46.72	170.7
#1	k-.0001	.0153	k-.0004	k-.0008	k.0030	k.0128	k-.0004
#2	k-.0009	k-.0059	k-.0030	k-.0014	k.0013	k.0065	k.0046

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.52	k-.0002	k.0011	k.5062	k-.0013	k.0007	k-.0016
SDev	.36	.0036	.0019	.0022	.0009	.0000	.0002
%RSD	.3854	1656.	165.9	.4401	67.51	4.187	15.19
#1	92.78	k.0024	k-.0002	k.5046	k-.0007	k.0007	k-.0018
#2	92.27	k-.0028	k.0024	k.5078	k-.0019	k.0007	k-.0014

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k-.0008	k.0004	k-.0014	k-.0074	k.0001	k.0008
SDev	.0000	.0000	.0003	.0010	.0063	.0009	.0013
%RSD	4.501	3.581	62.64	73.99	85.33	656.8	171.8
#1	k.0001	k-.0009	k.0002	k-.0007	k-.0029	k-.0005	k.0017
#2	k.0001	k-.0008	k.0006	k-.0021	k-.0118	k.0007	k-.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0004	k-.0002
SDev	.0001	.0000	.0002
%RSD	255.2	5.645	127.8
#1	k.0001	k.0004	k-.0003
#2	k-.0000	k.0004	k-.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	733597	10000	--	--	--	--	--
SDev	2863.782	.0000000	--	--	--	--	--
%RSD	.3903754	.0000000	--	--	--	--	--
#1	735622	10000	--	--	--	--	--
#2	731572	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230764d Operator:
Run Time: 08/04/03 18:07:59
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0009	k.0166	k.0034	k.0054	k.0001	k.0000	k-.0008
SDev	.0006	.0014	.0007	.0028	.0000	.0000	.0032
%RSD	62.03	8.521	20.32	52.47	32.55	50.86	414.7
#1	k-.0014	k.0156	k.0039	k.0074	k.0001	k.0000	k-.0030
#2	k-.0005	k.0176	k.0029	k.0034	k.0001	k.0000	k.0015

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0046	k.0001	k.0000	k-.0006	k.0015	k.0105	.0302
SDev	.0005	.0000	.0010	.0001	.0000	.0066	.0072
%RSD	10.70	78.54	2236.	10.10	.8393	63.39	23.91
#1	k.0049	k.0000	k-.0006	k-.0005	k.0015	k.0152	.0251
#2	k.0042	k.0001	k.0007	k-.0006	k.0015	k.0058	.0353

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	S31.91	k-.0008	k.0001	k.0039	112.4	k166.0
SDev	.0001	.23	.0024	.0001	.0001	.3	.3
%RSD	26.47	.7268	317.1	57.23	1.448	.2466	.1797
#1	k-.0003	S32.07	k.0009	k.0000	k.0039	112.2	k166.2
#2	k-.0005	S31.74	k-.0024	k.0001	k.0038	112.6	k165.8

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0002	k.0071	k.0021	k-.0016	k.0014	k.0053	k-.0018
SDev	.0004	.0083	.0037	.0007	.0008	.0035	.0017
%RSD	164.0	116.8	174.3	44.64	58.05	66.60	95.41
#1	k.0000	k.0129	k-.0005	k-.0021	k.0020	k.0078	k-.0006
#2	k-.0005	k.0012	k.0048	k-.0011	k.0008	k.0028	k-.0031

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.50	k-.0027	k.0012	k.5051	k-.0003	k-.0001	k.0014
SDev	.40	.0085	.0044	.0001	.0017	.0001	.0007
%RSD	.4267	308.7	349.6	.0174	503.1	111.8	52.76
#1	93.21	k-.0087	k.0043	k.5052	k-.0016	k-.0000	k.0019
#2	93.78	k.0032	k-.0018	k.5051	k.0009	k-.0001	k.0009

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0017	k.0005	k-.0017	k-.0156	k-.0003	k-.0004
SDev	.0000	.0042	.0001	.0006	.0153	.0003	.0022
%RSD	45.49	247.8	20.25	36.97	97.92	77.82	522.1
#1	k.0000	k.0047	k.0006	k-.0022	k-.0264	k-.0002	k.0011
#2	k.0000	k-.0013	k.0004	k-.0013	k-.0048	k-.0005	k-.0020

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k-.0002	k-.0006
SDev	.0001	.0002	.0004
%RSD	58.44	89.75	63.09
#1	k.0002	k-.0004	k-.0003
#2	k.0001	k-.0001	k-.0008

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	741356	10000	--	--	--	--	--
SDev	3168.545	.0000000	--	--	--	--	--
%RSD	.4273983	.0000000	--	--	--	--	--
#1	739116	10000	--	--	--	--	--
#2	743597	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230765 Operator:
Run Time: 08/04/03 18:13:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0008	k.0189	k-.0014	k.0085	k.0011	k.0000	k.0039
SDev	.0002	.0009	.0028	.0066	.0000	.0000	.0017
%RSD	23.51	4.878	194.2	77.60	3.172	5.499	42.62
#1	k-.0009	k.0183	k-.0034	.0132	k.0011	k.0000	k.0028
#2	k-.0006	k.0196	k.0005	k.0038	k.0011	k.0000	k.0051

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.1845	k-.0000	k-.0010	k-.0004	k.0015	k.0334	.0382
SDev	.2454	.0003	.0000	.0005	.0009	.0168	.0005
%RSD	133.0	721.7	2.636	123.4	57.92	50.25	1.284
#1	k.0110	k-.0002	k-.0011	k-.0001	k.0022	k.0215	.0378
#2	k.3580	k.0002	k-.0010	k-.0008	k.0009	k.0453	.0385

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0006	S32.06	k.0044	k.0002	k.0047	96.14	k145.2
SDev	.0001	.80	.0015	.0001	.0001	.21	.1
%RSD	10.77	2.480	34.35	61.79	2.766	.2167	.0978
#1	k-.0005	S32.62	k.0055	k.0001	k.0046	95.99	k145.3
#2	k-.0006	S31.50	k.0033	.0004	k.0048	96.29	k145.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	k.0093	k-.0028	k.0025	k.0005	k.0036	k.0004
SDev	.0003	.0224	.0059	.0015	.0019	.0043	.0033
%RSD	122.6	241.1	212.6	62.80	367.8	119.1	847.2
#1	k.0005	k.0251	k-.0069	k.0036	k.0019	k.0067	k-.0020
#2	k.0000	k-.0065	k.0014	k.0014	k-.0008	k.0006	k.0027

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.38	k-.0020	k.0006	k.3733	k.0007	k-.0003	k.0004
SDev	1.90	.0001	.0005	.0064	.0009	.0003	.0001
%RSD	2.058	3.903	80.40	1.721	125.0	126.6	13.25
#1	91.04	k-.0021	k.0003	k.3687	k.0001	k-.0005	k.0004
#2	93.73	k-.0019	k.0009	k.3778	k.0014	k-.0000	k.0005

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0000	k.0004	k.0011	k-.0129	k.0003	k-.0000
SDev	.0001	.0015	.0001	.0026	.0151	.0005	.0004
%RSD	90.87	141200.	19.42	231.3	117.6	200.5	1552.
#1	k.0000	k.0010	k.0005	k.0029	k-.0236	k.0007	k-.0003
#2	k.0002	k-.0010	k.0004	k-.0007	k-.0022	k-.0001	k.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0036	k.0003
SDev	.0000	.0010	.0005
%RSD	20.30	29.09	175.4
#1	.0001	k.0029	k.0006
#2	k.0001	k.0043	k-.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	732532	10000	--	--	--	--	--
SDev	15084.71	.0000000	--	--	--	--	--
%RSD	2.059257	.0000000	--	--	--	--	--
#1	721865	10000	--	--	--	--	--
#2	743198	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230765s Operator:
Run Time: 08/04/03 18:18:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0515	k2.103	2.060	k.0101	1.996	k.0505	k-.0012
SDev	.0000	.007	.003	.0017	.002	.0001	.0032
%RSD	.0126	.3525	.1226	16.96	.0790	.1477	253.2
#1	k.0515	k2.098	2.061	k.0089	1.997	k.0505	k.0010
#2	k.0515	k2.108	2.058	k.0113	1.995	k.0506	k-.0035

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k20.28	k.0508	k.5146	k.2009	k.2606	k1.099	27.68
SDev	.11	.0001	.0008	.0006	.0005	.010	.03
%RSD	.5257	.1271	.1598	.3234	.2075	.9197	.1114
#1	k20.20	k.0508	k.5140	k.2004	k.2610	k1.092	27.71
#2	k20.36	k.0507	k.5152	k.2013	k.2602	k1.106	27.66

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	S32.35	20.55	k.5052	k.0039	k120.5	k177.9
SDev	.0001	.26	.01	.0009	.0003	.0	.5
%RSD	180.6	.8117	.0532	.1728	8.521	.0237	.2786
#1	k.0001	S32.17	20.55	k.5046	k.0042	k120.5	k178.2
#2	k-.0000	S32.54	20.56	k.5058	k.0037	k120.5	k177.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.5052	k.0119	k.5020	k.5025	k-.0008	k.0014	k.5031
SDev	.0032	.0068	.0047	.0005	.0043	.0021	.0010
%RSD	.6408	57.07	.9463	.1066	551.2	146.0	.2055
#1	k.5029	k.0071	k.5054	k.5021	k-.0038	k.0029	k.5023
#2	k.5075	k.0167	k.4986	k.5028	k.0022	k-.0000	k.5038

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	91.52	k2.106	k2.120	k4.513	k.5023	k2.115	k-.0018
SDev	.83	.015	.002	.002	.0012	.007	.0015
%RSD	.9064	.7271	.1117	.0336	.2449	.3159	86.74
#1	92.11	k2.117	k2.122	k4.514	k.5032	k2.120	k-.0029
#2	90.94	k2.095	k2.118	k4.512	k.5015	k2.111	k-.0007

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0006	k-.0147	k.0006	k2.142	k-.0173	k.5103	k-.0021
SDev	.0000	.0041	.0000	.007	.0001	.0015	.0032
%RSD	6.448	27.55	.3048	.3076	.4301	.2973	152.3
#1	k.0006	k-.0176	k.0006	k2.137	k-.0173	k.5113	k.0002
#2	k.0006	k-.0118	k.0006	k2.147	k-.0172	k.5092	k-.0043

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0001	k.5120	k.0016
SDev	.0001	.0017	.0008
%RSD	80.50	.3317	46.92
#1	k-.0001	k.5108	k.0022
#2	k-.0002	k.5132	k.0011

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	725662	10000	--	--	--	--	--
SDev	6626.298	.0000000	--	--	--	--	--
%RSD	.9131389	.0000000	--	--	--	--	--
#1	730347	10000	--	--	--	--	--
#2	720976	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv2 Operator:
Run Time: 08/04/03 18:28:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9893	10.000	4.904	4.826	9.889	.9969	4.978
SDev	.0005	.0209	.010	.018	.001	.0002	.006
%RSD	.0473	.2092	.2054	.3724	.0117	.0198	.1154
#1	.9889	10.01	4.911	4.814	9.890	.9970	4.982
#2	.9896	9.985	4.897	4.839	9.888	.9968	4.974
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.92	1.007	5.017	1.962	2.002	10.15	18.22
SDev	.10	.001	.001	.000	.001	.05	.00
%RSD	.4868	.0854	.0195	.0240	.0292	.4499	.0193
#1	19.85	1.008	5.018	1.963	2.002	10.18	18.22
#2	19.99	1.007	5.017	1.962	2.003	10.12	18.21
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.878	4.861	20.06	1.013	5.098	28.21	H41.09
SDev	.005	.004	.02	.002	.028	.07	.06
%RSD	.1062	.0826	.0983	.1593	.5525	.2328	.1481
#1	4.882	4.864	20.07	1.012	5.078	28.26	H41.13
#2	4.875	4.858	20.05	1.014	5.118	28.16	H41.05
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.912	5.258	4.860	4.826	.9741	1.008	.9857
SDev	.015	.045	.014	.007	.0030	.011	.0030
%RSD	.2973	.8638	.2903	.1415	.3076	1.136	.3052
#1	4.902	5.226	4.850	4.821	.9763	1.016	.9878
#2	4.922	5.290	4.870	4.831	.9720	.9996	.9835
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	99.10	5.031	5.063	5.009	4.837	5.053	4.879
SDev	.69	.021	.011	.011	.009	.014	.004
%RSD	.6927	.4220	.2181	.2110	.1914	.2858	.0789
#1	99.59	5.016	5.055	5.016	4.831	5.042	4.877
#2	98.62	5.046	5.071	5.001	4.844	5.063	4.882
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.015	.9782	4.821	5.115	.9524	4.962	1.021
SDev	.001	.0027	.001	.026	.0268	.008	.004
%RSD	.0201	.2709	.0266	.5017	2.817	.1523	.3491
#1	5.014	.9800	4.822	5.097	.9714	4.967	1.019
#2	5.015	.9763	4.820	5.133	.9334	4.957	1.024
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.962	1.005	4.861
SDev	.004	.003	.001
%RSD	.0824	.3364	.0151
#1	4.965	1.003	4.861
#2	4.959	1.007	4.860
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	785778	10000	--	--	--	--	--
SDev	5391.689	.0000000	--	--	--	--	--
%RSD	.6861589	.0000000	--	--	--	--	--
#1	789591	10000	--	--	--	--	--
#2	781966	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccb2 Operator:
Run Time: 08/04/03 18:36:05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	-.0043	.0011	-.0021	.0000	.0000	-.0040
SDev	.0003	.0009	.0015	.0022	.0001	.0000	.0000
%RSD	138.0	21.84	129.3	104.9	341.9	335.8	.0467
#1	-.0000	-.0036	.0001	-.0005	-.0001	-.0000	-.0040
#2	-.0004	-.0049	.0022	-.0036	.0001	.0000	-.0040
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0132	.0002	-.0005	.0002	.0004	.0082	.0023
SDev	.0217	.0002	.0012	.0000	.0003	.0094	.0077
%RSD	164.5	146.7	230.3	1.552	76.74	114.0	337.1
#1	-.0022	.0003	-.0014	.0002	.0002	.0149	.0078
#2	.0286	-.0000	.0003	.0002	.0007	.0016	-.0032
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	H.0054	-.0022	-.0001	.0035	L-.1153	.0275
SDev	.0001	.0003	.0023	.0001	.0003	.1886	.0026
%RSD	62.62	4.715	103.5	117.1	7.049	163.7	9.326
#1	.0001	H.0056	-.0006	-.0001	.0037	.0181	.0293
#2	.0002	H.0052	-.0038	-.0000	.0034	L-.2487	.0257
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Low	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0091	-.0006	-.0009	.0008	-.0030	-.0009
SDev	.0002	.0097	.0024	.0009	.0007	.0122	.0004
%RSD	52.47	107.0	394.6	99.40	85.91	400.5	41.45
#1	.0002	.0022	-.0023	-.0015	.0014	.0056	-.0006
#2	.0005	H.0159	.0011	-.0003	.0003	L-.0117	-.0011
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.7	-.0026	.0018	-.0008	-.0008	.0003	-.0012
SDev	.0	.0022	.0009	.0002	.0014	.0001	.0008
%RSD	.0457	83.28	47.97	27.37	177.6	42.50	68.12
#1	100.6	-.0011	.0012	-.0009	-.0018	.0004	-.0018
#2	100.7	-.0041	.0024	-.0006	.0002	.0002	-.0006
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0008	.0001	.0030	.0020	-.0002	.0008
SDev	.0000	.0006	.0001	.0010	.0051	.0004	.0011
%RSD	95.15	69.03	152.3	35.12	261.9	210.3	129.2
#1	.0000	.0012	-.0000	.0022	.0056	.0001	.0016
#2	.0001	.0004	.0002	.0037	-.0017	-.0004	.0001
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	-.0005	.0001
SDev	.0001	.0004	.0002
%RSD	153.9	85.38	184.9
#1	-.0000	-.0007	-.0000
#2	.0002	-.0002	.0003
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	798232	10000	--	--	--	--	--
SDev	391.7371	.0000000	--	--	--	--	--
%RSD	.0490756	.0000000	--	--	--	--	--
#1	797955	10000	--	--	--	--	--
#2	798509	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230766 Operator:
Run Time: 08/04/03 18:41:19
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0003	k.0191	k-.0004	k.0060	k.0002	k.0001	k.0022
SDev	.0002	.0080	.0006	.0019	.0001	.0000	.0015
%RSD	97.25	41.52	147.3	32.21	54.65	57.02	67.97
#1	k-.0001	k.0135	k.0000	k.0074	k.0002	k.0000	k.0033
#2	k-.0004	k.0248	k-.0008	k.0046	k.0003	k.0001	k.0012

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0300	k.0004	k-.0003	k.0001	k.0014	k.0164	.0396
SDev	.0400	.0001	.0001	.0002	.0002	.0012	.0084
%RSD	133.3	30.18	37.17	246.2	13.97	7.202	21.13
#1	k.0017	k.0003	k-.0002	k-.0001	k.0013	k.0156	.0456
#2	k.0583	k.0004	k-.0004	k.0002	k.0016	k.0172	.0337

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	S31.35	k.0008	k-.0000	k.0059	73.84	k114.9
SDev	.0002	.30	.0043	.0001	.0014	.06	.2
%RSD	56.93	.9576	576.4	214.3	24.19	.0754	.1986
#1	k.0002	S31.56	k-.0023	k-.0001	k.0069	73.88	k115.0
#2	k.0004	S31.14	k.0038	k.0000	k.0049	73.80	k114.7

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0017	k.0183	k.0029	k-.0017	k.0012	k.0114	k-.0007
SDev	.0008	.0043	.0001	.0001	.0002	.0082	.0007
%RSD	45.48	23.58	4.163	5.017	18.09	71.69	106.9
#1	k.0022	k.0153	k.0028	k-.0016	k.0014	k.0056	k-.0012
#2	k.0011	k.0214	k.0030	k-.0018	k.0011	k.0171	k-.0002

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.35	k.0043	k-.0001	k.1965	k-.0001	k.0014	k-.0008
SDev	.66	.0005	.0035	.0029	.0000	.0025	.0014
%RSD	.7102	11.92	2935.	1.495	11.41	185.3	175.8
#1	92.88	k.0046	k.0024	k.1944	k-.0001	k.0031	k-.0018
#2	93.82	k.0039	k-.0026	k.1986	k-.0002	k-.0004	k.0002

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0017	k.0006	k.0026	k-.0058	k-.0001	k-.0010
SDev	.0001	.0003	.0007	.0016	.0198	.0002	.0004
%RSD	69.00	18.52	126.6	63.84	343.9	190.6	40.94
#1	k.0001	k.0020	k.0001	k.0014	k.0083	k.0000	k-.0014
#2	k.0002	k.0015	k.0011	k.0037	k-.0198	k-.0002	k-.0007

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0022	k.0024
SDev	.0001	.0006	.0034
%RSD	303.2	25.43	137.4
#1	k.0001	k.0018	k.0001
#2	k-.0000	k.0026	k.0048

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	740146	10000	--	--	--	--	--
SDev	5323.100	.0000000	--	--	--	--	--
%RSD	.7191959	.0000000	--	--	--	--	--
#1	736382	10000	--	--	--	--	--
#2	743910	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230767 Operator:
Run Time: 08/04/03 18:46:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0154	.0063	.0063	.0003	.0001	.0020
SDev	.0010	.0058	.0008	.0001	.0000	.0000	.0001
%RSD	2331.	37.59	12.49	2.036	7.512	28.41	7.656
#1	.0008	.0195	.0069	.0062	.0003	.0001	.0021
#2	-.0007	.0113	.0058	.0064	.0003	.0001	.0019

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0506	.0001	.0016	.0008	.0032	.0450	.0604
SDev	.0144	.0000	.0003	.0004	.0007	.0254	.0316
%RSD	28.46	27.66	20.06	48.78	22.33	56.48	52.31
#1	.0404	.0001	.0018	.0011	.0037	.0629	.0828
#2	.0608	.0001	.0014	.0005	.0027	.0270	.0381

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	41.93	.0079	.0001	.0028	395.1	S324.7
SDev	.0005	.03	.0091	.0001	.0001	1.4	235.0
%RSD	129.1	.0827	115.2	52.49	2.330	.3480	72.37
#1	.0008	41.90	.0144	.0002	.0028	396.1	S158.6
#2	.0000	41.95	.0015	.0001	.0027	394.2	490.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0024	.0151	-.0016	-.0001	.0061	.0111	-.0041
SDev	.0008	.0053	.0011	.0014	.0046	.0141	.0115
%RSD	33.90	35.06	72.05	1298.	75.92	127.5	281.7
#1	.0029	.0189	-.0024	.0009	.0094	.0210	.0041
#2	.0018	.0114	-.0008	-.0011	.0028	.0011	-.0123

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.63	.0010	.0018	-.0098	-.0006	.0015	.0011
SDev	1.46	.0012	.0018	.0032	.0005	.0008	.0042
%RSD	1.557	125.9	103.5	32.62	90.87	53.63	376.8
#1	94.66	.0018	.0005	-.0075	-.0002	.0009	.0041
#2	92.60	.0001	.0031	-.0120	-.0010	.0021	-.0019

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0015	.0002	.0028	.0188	.0011	-.0003
SDev	.0000	.0049	.0003	.0006	.0332	.0000	.0005
%RSD	1.951	317.6	175.4	22.04	177.0	2.761	165.8
#1	.0005	.0050	.0004	.0024	.0422	.0010	.0000
#2	.0005	-.0019	-.0000	.0032	-.0047	.0011	-.0006

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0006	.0004
SDev	.0001	.0001	.0010
%RSD	68.55	20.80	250.3
#1	.0003	.0007	.0011
#2	.0001	.0005	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	742424	10000	--	--	--	--	--
SDev	11527.25	.0000000	--	--	--	--	--
%RSD	1.552651	.0000000	--	--	--	--	--
#1	750575	10000	--	--	--	--	--
#2	734273	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230768 Operator:
Run Time: 08/04/03 18:51:47
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	.0111	-.0001	.0060	.0005	.0001	-.0012
SDev	.0001	.0004	.0022	.0012	.0001	.0000	.0056
%RSD	8.101	3.586	3037.	20.30	28.74	30.36	459.6
#1	-.0007	.0114	.0015	.0051	.0004	.0000	.0027
#2	-.0006	.0108	-.0016	.0068	.0006	.0001	-.0051

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0186	-.0002	-.0005	-.0001	.0021	.0103	.0171
SDev	.0071	.0001	.0001	.0009	.0006	.0091	.0007
%RSD	37.96	88.12	17.50	684.6	27.06	88.88	3.961
#1	.0136	-.0003	-.0004	-.0007	.0017	.0167	.0176
#2	.0236	-.0001	-.0006	.0005	.0025	.0038	.0166

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	65.78	.0011	.0000	.0037	281.6	368.5
SDev	.0000	.24	.0002	.0002	.0007	.5	.1
%RSD	5.639	.3677	19.90	360.2	17.98	.1906	.0197
#1	-.0007	65.61	.0009	-.0001	.0042	281.3	368.5
#2	-.0008	65.96	.0012	.0002	.0032	282.0	368.6

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0027	.0090	.0007	.0002	-.0003	.0069	-.0014
SDev	.0007	.0023	.0013	.0005	.0019	.0010	.0014
%RSD	24.60	25.05	191.7	190.7	698.6	14.51	97.21
#1	.0032	.0074	.0016	-.0001	-.0016	.0062	-.0004
#2	.0022	.0106	-.0002	.0006	.0011	.0076	-.0024

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.23	-.0007	-.0001	-.0052	.0004	-.0003	-.0037
SDev	1.13	.0026	.0013	.0050	.0001	.0018	.0031
%RSD	1.208	354.0	2007.	95.30	29.78	626.0	85.62
#1	94.02	.0011	.0009	-.0088	.0005	.0010	-.0014
#2	92.43	-.0026	-.0010	-.0017	.0003	-.0015	-.0059

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.0005	.0001	.0026	.0003	.0004	-.0019
SDev	.0000	.0047	.0002	.0015	.0130	.0007	.0010
%RSD	2.000	911.5	177.9	56.44	3855.	152.8	51.78
#1	.0003	-.0028	-.0000	.0037	.0095	-.0000	-.0026
#2	.0003	.0039	.0002	.0016	-.0088	.0009	-.0012

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0003	-.0001
SDev	.0002	.0001	.0004
%RSD	195.3	34.86	374.3
#1	-.0000	.0002	-.0004
#2	.0003	.0004	.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	739154	10000	--	--	--	--	--
SDev	8936.415	.0000000	--	--	--	--	--
%RSD	1.209006	.0000000	--	--	--	--	--
#1	745473	10000	--	--	--	--	--
#2	732835	10000	--	--	--	--	--

Analysis Report Blank Sample 08/04/03 05:31:09 PM page 1

Method: DAILY2 Sample Name: icb/ccb Operator:
Run Time: 08/04/03 17:26:06
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	-.0006	.0025	.0064	.0000	.0000	.0007
SDev	.0003	.0053	.0010	.0006	.0000	.0000	.0001
%RSD	59.85	940.4	41.07	9.298	28.03	24.35	14.61
#1	-.0003	.0032	.0032	.0068	.0000	.0000	.0007
#2	-.0008	-.0043	.0018	.0060	.0000	.0000	.0008
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0039	.0001	-.0009	.0001	-.0002	.0065	-.0008
SDev	.0002	.0000	.0007	.0004	.0004	.0260	.0089
%RSD	5.066	15.87	74.87	714.9	204.4	402.4	1144.
#1	.0038	.0001	-.0004	.0003	-.0004	.0249	.0055
#2	.0041	.0001	-.0014	-.0002	.0001	-.0119	-.0071
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0002	-.0004	-.0000	.0034	.0078	.0022
SDev	.0001	.0001	.0037	.0000	.0007	.1020	.0015
%RSD	146.9	67.08	826.6	137.2	19.33	1299.	68.70
#1	.0001	.0002	-.0030	-.0000	.0039	H.0800	.0032
#2	-.0000	.0001	.0022	-.0001	.0029	L-.0643	.0011
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	.0055	.0034	-.0012	-.0004	.0043	.0029
SDev	.0002	.0046	.0017	.0007	.0022	.0072	.0002
%RSD	16.12	84.20	49.38	56.04	583.6	166.3	6.153
#1	-.0011	.0022	.0046	-.0017	.0012	-.0008	.0030
#2	-.0009	.0087	.0022	-.0007	-.0019	.0094	.0028
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.7	.0013	.0014	-.0002	.0003	.0014	-.0013
SDev	.1	.0016	.0034	.0001	.0001	.0017	.0007
%RSD	.0540	122.5	242.7	31.95	30.78	123.5	54.51
#1	100.7	.0025	-.0010	-.0002	.0004	.0002	-.0008
#2	100.6	.0002	.0038	-.0003	.0003	.0026	-.0018
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0008	-.0000	.0016	-.0018	.0002	.0004
SDev	.0000	.0001	.0002	.0011	.0056	.0005	.0008
%RSD	61.65	16.35	429.2	69.58	319.8	277.8	197.5
#1	.0001	.0008	.0001	.0025	.0022	-.0002	.0009
#2	.0000	.0007	-.0002	.0008	-.0058	.0005	-.0002
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0001	-.0000
SDev	.0000	.0001	.0001
%RSD	53.46	52.18	253.4
#1	.0000	.0001	.0000
#2	.0001	.0001	-.0001
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	798138	10000	--	--	--	--	--
SDev	368.4026	.0000000	--	--	--	--	--
%RSD	.0461577	.0000000	--	--	--	--	--
#1	798399	10000	--	--	--	--	--
#2	797878	10000	--	--	--	--	--

010362

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Method: DAILY2 Sample Name: ~~pbw 831W4 pg54-132~~ Operator:
Run Time: 08/04/03 17:31:20
Comment:
Mode: CONC Corr. Factor: 1

PBW-H04W2 pg54-138 JR 8/5/03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	.0084	-.0001	.0108	.0001	.0000	.0001
SDev	.0006	.0043	.0007	.0011	.0000	.0000	.0022
%RSD	140.5	51.31	824.8	9.856	.3140	10.37	1700.
#1	-.0008	.0054	.0004	.0100	.0001	.0000	.0017
#2	-.0000	.0115	-.0006	.0115	.0001	.0000	-.0014
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	H.0502	.0003	-.0002	.0006	.0011	.0135	.0123
SDev	.0512	.0001	.0002	.0001	.0002	.0104	.0095
%RSD	102.0	25.88	83.69	16.96	19.06	77.44	76.81
#1	.0140	.0003	-.0001	.0006	.0012	.0208	.0191
#2	H.0864	.0002	-.0004	.0005	.0009	.0061	.0056
Errors	LC High	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0000	.0004	.0000	.0013	L-.1011	.0046
SDev	.0005	.0000	.0009	.0001	.0007	.2133	.0002
%RSD	203.8	139.0	215.7	3763.	54.59	211.0	4.741
#1	-.0001	.0001	.0011	-.0001	.0018	L-.2520	.0047
#2	.0006	.0000	-.0002	.0001	.0008	.0497	.0044
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Low	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0025	-.0001	-.0015	.0007	L-.0111	.0023
SDev	.0002	.0054	.0021	.0024	.0009	.0115	.0010
%RSD	255.5	215.4	1443.	153.3	125.9	103.8	45.12
#1	.0001	.0013	.0013	.0001	.0001	-.0030	.0030
#2	-.0003	-.0064	-.0016	-.0032	.0013	L-.0192	.0015
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Low	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	95.60	-.0029	-.0005	.0095	-.0011	-.0013	-.0011
SDev	.74	.0004	.0038	.0027	.0023	.0027	.0003
%RSD	.7735	12.84	835.6	28.58	213.4	210.9	30.42
#1	96.12	-.0027	.0023	.0076	.0005	.0006	-.0008
#2	95.08	-.0032	-.0032	H.0114	-.0027	-.0032	-.0013
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0002	.0001	.0007	-.0059	-.0001	.0012
SDev	.0000	.0008	.0001	.0019	.0073	.0007	.0016
%RSD	30.44	326.1	75.91	256.4	123.8	498.0	133.2
#1	.0000	-.0008	.0001	.0021	-.0007	.0004	.0001
#2	.0001	.0003	.0000	-.0006	-.0110	-.0007	.0023
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0005	-.0002
SDev	.0001	.0001	.0001
%RSD	38.32	23.82	78.08
#1	.0001	.0004	-.0001
#2	.0002	.0005	-.0002
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	758025	10000	--	--	--	--	--
SDev	5880.300	.0000000	--	--	--	--	--
%RSD	.7757396	.0000000	--	--	--	--	--
#1	762183	10000	--	--	--	--	--
#2	753867	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: lcsw-~~G31W4~~ H04W2 Operator: JR 8/5/03
Run Time: 08/04/03 17:36:35
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0506	1.997	2.031	.0105	2.070	.0512	.0012
SDev	.0002	.005	.004	.0031	.002	.0001	.0025
%RSD	.3708	.2387	.1985	29.42	.0915	.1123	206.1
#1	.0507	2.000	2.033	.0084	2.071	.0511	-.0005
#2	.0504	1.994	2.028	.0127	2.069	.0512	.0029

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.19	.0508	.5112	.2017	.2554	1.116	16.85
SDev	.02	.0001	.0016	.0003	.0003	.006	.06
%RSD	.0944	.2290	.3177	.1454	.1036	.5661	.3504
#1	20.20	.0507	.5100	.2015	.2552	1.120	16.89
#2	20.18	.0509	.5123	.2019	.2556	1.111	16.81

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	.0010	20.48	.5142	.0013	17.90	26.13
SDev	.0000	.0001	.01	.0001	.0002	.32	.17
%RSD	7.102	14.27	.0671	.0096	16.92	1.767	.6494
#1	-.0005	.0009	20.48	.5141	.0014	18.13	26.25
#2	-.0006	.0011	20.47	.5142	.0011	17.68	26.01

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5083	.0063	.4995	.4910	.0008	.0039	.4967
SDev	.0020	.0088	.0006	.0016	.0010	.0053	.0011
%RSD	.3852	139.3	.1262	.3359	125.2	135.9	.2323
#1	.5069	.0001	.4991	.4899	.0015	.0076	.4959
#2	.5097	.0125	.5000	.4922	.0001	.0002	.4975

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.58	2.048	2.057	4.127	.4939	2.054	-.0023
SDev	.46	.005	.012	.009	.0013	.009	.0013
%RSD	.4939	.2295	.5784	.2286	.2646	.4625	56.73
#1	93.91	2.044	2.049	4.133	.4930	2.047	-.0014
#2	93.26	2.051	2.066	4.120	.4948	2.061	-.0033

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	-.0147	.0000	2.086	-.0001	.5111	-.0012
SDev	.0000	.0002	.0002	.001	.0044	.0003	.0015
%RSD	.8212	1.469	2880.	.0602	6268.	.0579	118.3
#1	.0006	-.0145	-.0001	2.085	-.0032	.5109	-.0023
#2	.0006	-.0148	.0001	2.087	.0030	.5113	-.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.5142	.0012
SDev	.0000	.0010	.0002
%RSD	35.97	.1892	14.11
#1	-.0000	.5135	.0011
#2	-.0000	.5149	.0014

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	742012	10000	--	--	--	--	--
SDev	3656.449	.0000000	--	--	--	--	--
%RSD	.4927746	.0000000	--	--	--	--	--
#1	744598	10000	--	--	--	--	--
#2	739427	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230760 Operator:
Run Time: 08/04/03 17:41:49
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0131	.0006	.0146	.0004	.0000	.0003
SDev	.0010	.0008	.0016	.0008	.0001	.0000	.0018
%RSD	187.3	6.247	250.0	5.122	18.31	48.74	597.2
#1	.0002	.0125	.0018	.0152	.0004	.0000	.0015
#2	-.0012	.0136	-.0005	.0141	.0003	.0000	-.0010

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0116	.0002	.0009	-.0007	.0010	.0324	.0762
SDev	.0017	.0001	.0000	.0008	.0011	.0185	.0032
%RSD	14.49	57.43	3.942	123.5	104.6	57.18	4.136
#1	.0128	.0003	.0009	-.0001	.0018	.0455	.0784
#2	.0104	.0001	.0008	-.0012	.0003	.0193	.0740

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	62.04	.0014	.0001	.0035	299.0	391.6
SDev	.0005	.17	.0009	.0000	.0005	.6	2.3
%RSD	283.8	.2707	64.25	32.85	14.82	.1871	.5785
#1	.0002	62.16	.0021	.0001	.0031	299.4	393.2
#2	-.0005	61.93	.0008	.0001	.0038	298.6	390.0

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0035	.0024	-.0019	.0031	-.0028	-.0045
SDev	.0007	.0022	.0007	.0008	.0018	.0103	.0006
%RSD	2574.	62.45	28.98	42.47	58.81	373.3	12.73
#1	.0005	.0051	.0029	-.0025	.0044	-.0100	-.0049
#2	-.0005	.0020	.0019	-.0014	.0018	.0045	-.0041

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.55	-.0042	.0028	.3135	-.0005	.0005	-.0020
SDev	.05	.0036	.0003	.0015	.0003	.0014	.0013
%RSD	.0570	86.00	10.57	.4661	66.66	291.6	66.78
#1	92.51	-.0017	.0030	.3125	-.0007	.0015	-.0010
#2	92.59	-.0068	.0026	.3145	-.0003	-.0005	-.0029

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0005	-.0000	-.0008	.0067	-.0002	.0002
SDev	.0000	.0005	.0000	.0023	.0323	.0011	.0001
%RSD	15.96	95.18	36.79	282.3	480.1	715.6	78.45
#1	.0001	-.0002	-.0000	.0008	.0295	.0006	.0001
#2	.0001	-.0008	-.0000	-.0025	-.0161	-.0009	.0003

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	-.0003	-.0002
SDev	.0000	.0002	.0002
%RSD	7.835	78.77	137.2
#1	.0002	-.0005	-.0000
#2	.0002	-.0001	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	733800	10000	--	--	--	--	--
SDev	380.4235	.0000000	--	--	--	--	--
%RSD	.0518429	.0000000	--	--	--	--	--
#1	733531	10000	--	--	--	--	--
#2	734069	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230761 Operator:
Run Time: 08/04/03 17:47:03
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0162	.0005	.0096	.0002	.0000	-.0019
SDev	.0002	.0010	.0024	.0010	.0000	.0000	.0063
%RSD	47.56	6.064	445.6	10.89	21.31	11.35	334.3
#1	-.0007	.0155	.0022	.0088	.0002	.0000	-.0063
#2	-.0003	.0169	-.0012	.0103	.0002	.0000	.0025

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0104	.0001	-.0000	-.0003	.0014	.0223	.0437
SDev	.0005	.0001	.0007	.0013	.0003	.0059	.0072
%RSD	4.426	214.5	1707.	449.4	20.21	26.47	16.46
#1	.0107	.0002	.0005	.0006	.0016	.0181	.0488
#2	.0101	-.0000	-.0005	-.0012	.0012	.0265	.0386

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	38.31	.0043	.0000	.0027	117.8	165.0
SDev	.0001	.10	.0023	.0000	.0003	.6	.7
%RSD	58.54	.2483	54.09	31.15	10.85	.4758	.4379
#1	.0002	38.37	.0026	.0000	.0025	118.2	165.5
#2	.0001	38.24	.0059	.0000	.0030	117.4	164.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0160	.0009	-.0008	.0021	-.0007	-.0009
SDev	.0000	.0021	.0014	.0001	.0030	.0046	.0038
%RSD	5.630	13.35	158.3	13.67	146.5	623.0	408.0
#1	.0005	.0175	-.0001	-.0007	.0042	-.0040	.0018
#2	.0005	.0145	.0019	-.0008	-.0001	.0025	-.0036

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.50	.0014	.0006	.4763	-.0002	.0009	-.0009
SDev	.58	.0006	.0035	.0022	.0004	.0021	.0015
%RSD	.6203	44.57	615.0	.4700	192.8	248.6	162.7
#1	93.91	.0018	-.0019	.4779	-.0005	-.0006	-.0020
#2	93.09	.0009	.0030	.4747	.0001	.0023	.0001

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0000	.0002	-.0019	-.0053	-.0003	.0007
SDev	.0000	.0016	.0002	.0005	.0084	.0007	.0007
%RSD	36.24	4327.	103.1	26.69	158.6	230.7	94.61
#1	.0000	.0012	.0003	-.0016	-.0112	.0002	.0012
#2	.0001	-.0011	.0000	-.0023	.0006	-.0008	.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0000	-.0001
SDev	.0000	.0001	.0004
%RSD	10.84	524.1	556.3
#1	.0001	.0001	.0002
#2	.0001	-.0001	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	741298	10000	--	--	--	--	--
SDev	4611.751	.0000000	--	--	--	--	--
%RSD	.6221183	.0000000	--	--	--	--	--
#1	744559	10000	--	--	--	--	--
#2	738037	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230762 Operator:
Run Time: 08/04/03 17:52:17
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0132	.0006	.0098	.0003	.0000	-.0016
SDev	.0001	.0015	.0037	.0014	.0000	.0000	.0011
%RSD	105.3	11.55	574.0	14.63	.4770	42.53	70.12
#1	-.0002	.0121	.0033	.0109	.0003	.0000	-.0008
#2	-.0000	.0143	-.0020	.0088	.0003	.0000	-.0023

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0098	.0001	.0003	-.0000	.0012	.0219	.0374
SDev	.0134	.0000	.0002	.0001	.0002	.0165	.0210
%RSD	136.6	25.36	63.20	1001.	14.16	75.17	56.35
#1	.0003	.0002	.0002	.0001	.0014	.0336	.0522
#2	.0193	.0001	.0004	-.0001	.0011	.0103	.0225

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	79.61	.0007	.0008	.0029	177.0	246.0
SDev	.0001	.34	.0031	.0000	.0002	.5	.6
%RSD	12.84	.4331	445.5	5.404	6.518	.2780	.2240
#1	-.0004	79.85	-.0015	.0008	.0030	177.3	246.3
#2	-.0005	79.37	.0029	.0009	.0028	176.6	245.6

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0017	.0009	.0019	-.0030	.0017	.0100	-.0031
SDev	.0008	.0227	.0009	.0009	.0008	.0031	.0016
%RSD	46.15	2627.	47.96	31.21	44.17	30.48	52.18
#1	.0012	.0169	.0026	-.0036	.0023	.0122	-.0020
#2	.0023	-.0152	.0013	-.0023	.0012	.0079	-.0043

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.74	-.0020	-.0022	.1668	-.0013	-.0021	-.0010
SDev	.55	.0004	.0041	.0047	.0003	.0029	.0012
%RSD	.5897	18.74	182.7	2.819	23.72	133.7	124.1
#1	92.35	-.0017	.0007	.1635	-.0016	-.0001	-.0001
#2	93.13	-.0022	-.0051	.1701	-.0011	-.0041	-.0019

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0017	-.0001	.0031	-.0113	-.0003	-.0007
SDev	.0000	.0011	.0001	.0034	.0077	.0001	.0018
%RSD	21.20	67.61	115.3	111.5	68.43	18.86	274.8
#1	.0000	-.0025	-.0000	.0055	-.0168	-.0004	.0006
#2	.0001	-.0009	-.0001	.0007	-.0058	-.0003	-.0019

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	-.0012	-.0003
SDev	.0001	.0002	.0001
%RSD	663.3	15.32	29.99
#1	-.0000	-.0011	-.0003
#2	.0001	-.0013	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	735356	10000	--	--	--	--	--
SDev	4355.778	.0000000	--	--	--	--	--
%RSD	.5923359	.0000000	--	--	--	--	--
#1	732276	10000	--	--	--	--	--
#2	738436	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230763 Operator:
Run Time: 08/04/03 17:57:31
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0201	.0006	.0051	.0008	.0000	-.0000
SDev	.0005	.0010	.0013	.0026	.0000	.0000	.0009
%RSD	89.43	4.902	206.5	50.74	5.111	734.2	2388.
#1	-.0002	.0208	-.0003	.0069	.0008	-.0000	-.0007
#2	-.0009	.0194	.0015	.0033	.0008	.0000	.0006

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0076	-.0002	.0046	-.0004	.0057	.0081	.0373
SDev	.0011	.0002	.0002	.0002	.0004	.0087	.0050
%RSD	15.18	101.1	3.748	44.64	6.280	107.6	13.53
#1	.0068	-.0000	.0047	-.0005	.0055	.0143	.0409
#2	.0084	-.0003	.0045	-.0003	.0060	.0019	.0337

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	81.72	.0014	.0073	.0036	148.8	210.9
SDev	.0007	. .31	.0005	.0001	.0002	.1	.1
%RSD	66.92	.3752	39.01	1.371	5.749	.0952	.0373
#1	-.0005	81.94	.0018	.0073	.0034	148.7	211.0
#2	-.0015	81.51	.0010	.0074	.0037	148.9	210.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0132	-.0004	-.0010	.0001	.0141	.0009
SDev	.0009	.0038	.0006	.0011	.0010	.0075	.0029
%RSD	173.0	29.10	136.3	105.9	843.1	53.49	325.3
#1	.0001	.0159	-.0000	-.0003	.0008	.0088	.0029
#2	-.0011	.0105	-.0008	-.0018	-.0006	.0194	-.0012

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.64	.0026	-.0002	.3933	-.0008	.0008	-.0007
SDev	.52	.0009	.0015	.0038	.0009	.0013	.0013
%RSD	.5504	34.19	940.0	.9698	113.4	164.5	177.1
#1	94.27	.0032	.0009	.3906	-.0002	.0017	.0002
#2	95.01	.0020	-.0012	.3960	-.0014	-.0001	-.0016

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0001	.0001	.0012	-.0022	-.0000	-.0008
SDev	.0000	.0031	.0001	.0024	.0159	.0004	.0005
%RSD	13.28	5528.	90.37	198.3	718.3	7313.	67.29
#1	.0001	.0022	.0002	-.0005	.0090	-.0003	-.0004
#2	.0001	-.0021	.0000	.0030	-.0135	.0003	-.0011

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.0024	-.0003
SDev	.0001	.0003	.0000
%RSD	189.7	13.47	13.69
#1	.0000	.0027	-.0003
#2	-.0001	.0022	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	750412	10000	--	--	--	--	--
SDev	4138.696	.0000000	--	--	--	--	--
%RSD	.5515235	.0000000	--	--	--	--	--
#1	747485	10000	--	--	--	--	--
#2	753338	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230764 Operator:
Run Time: 08/04/03 18:02:45
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	k.0160	k.0019	k.0109	k.0002	k.0000	k.0004
SDev	.0002	.0000	.0013	.0031	.0001	.0000	.0016
%RSD	59.99	.1603	67.64	28.63	59.19	2.559	450.1
#1	k-.0002	k.0160	k.0010	.0131	k.0001	k.0000	k.0015
#2	k-.0006	k.0160	k.0029	k.0087	k.0002	k.0000	k-.0008

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0165	k-.0001	k.0003	k.0002	k.0017	k.0161	.0492
SDev	.0003	.0003	.0006	.0004	.0005	.0074	.0134
%RSD	2.108	246.6	215.5	243.3	29.02	45.89	27.26
#1	k.0167	k.0001	k-.0002	k.0005	k.0014	k.0214	.0587
#2	k.0162	k-.0003	k.0007	k-.0001	k.0021	k.0109	.0397

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	S32.24	k.0051	k.0002	k.0046	111.6	k165.0
SDev	.0001	.15	.0029	.0001	.0006	.4	.2
%RSD	193.7	.4594	58.05	42.64	13.45	.3158	.1019
#1	k-.0000	S32.13	k.0072	k.0003	k.0042	111.8	k165.1
#2	k.0001	S32.34	k.0030	k.0001	k.0050	111.3	k164.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0005	k.0047	k-.0017	k-.0011	k.0021	k.0097	k.0021
SDev	.0005	.0150	.0019	.0004	.0012	.0045	.0036
%RSD	110.5	320.4	110.5	33.28	56.36	46.72	170.7
#1	k-.0001	.0153	k-.0004	k-.0008	k.0030	k.0128	k-.0004
#2	k-.0009	k-.0059	k-.0030	k-.0014	k.0013	k.0065	k.0046

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.52	k-.0002	k.0011	k.5062	k-.0013	k.0007	k-.0016
SDev	.36	.0036	.0019	.0022	.0009	.0000	.0002
%RSD	.3854	1656.	165.9	.4401	67.51	4.187	15.19
#1	92.78	k.0024	k-.0002	k.5046	k-.0007	k.0007	k-.0018
#2	92.27	k-.0028	k.0024	k.5078	k-.0019	k.0007	k-.0014

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k-.0008	k.0004	k-.0014	k-.0074	k.0001	k.0008
SDev	.0000	.0000	.0003	.0010	.0063	.0009	.0013
%RSD	4.501	3.581	62.64	73.99	85.33	656.8	171.8
#1	k.0001	k-.0009	k.0002	k-.0007	k-.0029	k-.0005	k.0017
#2	k.0001	k-.0008	k.0006	k-.0021	k-.0118	k.0007	k-.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0004	k-.0002
SDev	.0001	.0000	.0002
%RSD	255.2	5.645	127.8
#1	k.0001	k.0004	k-.0003
#2	k-.0000	k.0004	k-.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	733597	10000	--	--	--	--	--
SDev	2863.782	.0000000	--	--	--	--	--
%RSD	.3903754	.0000000	--	--	--	--	--
#1	735622	10000	--	--	--	--	--
#2	731572	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230764d Operator:
Run Time: 08/04/03 18:07:59
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0009	k.0166	k.0034	k.0054	k.0001	k.0000	k-.0008
SDev	.0006	.0014	.0007	.0028	.0000	.0000	.0032
%RSD	62.03	8.521	20.32	52.47	32.55	50.86	414.7
#1	k-.0014	k.0156	k.0039	k.0074	k.0001	k.0000	k-.0030
#2	k-.0005	k.0176	k.0029	k.0034	k.0001	k.0000	k.0015

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0046	k.0001	k.0000	k-.0006	k.0015	k.0105	.0302
SDev	.0005	.0000	.0010	.0001	.0000	.0066	.0072
%RSD	10.70	78.54	2236.	10.10	.8393	63.39	23.91
#1	k.0049	k.0000	k-.0006	k-.0005	k.0015	k.0152	.0251
#2	k.0042	k.0001	k.0007	k-.0006	k.0015	k.0058	.0353

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	S31.91	k-.0008	k.0001	k.0039	112.4	k166.0
SDev	.0001	.23	.0024	.0001	.0001	.3	.3
%RSD	26.47	.7268	317.1	57.23	1.448	.2466	.1797
#1	k-.0003	S32.07	k.0009	k.0000	k.0039	112.2	k166.2
#2	k-.0005	S31.74	k-.0024	k.0001	k.0038	112.6	k165.8

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0002	k.0071	k.0021	k-.0016	k.0014	k.0053	k-.0018
SDev	.0004	.0083	.0037	.0007	.0008	.0035	.0017
%RSD	164.0	116.8	174.3	44.64	58.05	66.60	95.41
#1	k.0000	k.0129	k-.0005	k-.0021	k.0020	k.0078	k-.0006
#2	k-.0005	k.0012	k.0048	k-.0011	k.0008	k.0028	k-.0031

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.50	k-.0027	k.0012	k.5051	k-.0003	k-.0001	k.0014
SDev	.40	.0085	.0044	.0001	.0017	.0001	.0007
%RSD	.4267	308.7	349.6	.0174	503.1	111.8	52.76
#1	93.21	k-.0087	k.0043	k.5052	k-.0016	k-.0000	k.0019
#2	93.78	k.0032	k-.0018	k.5051	k.0009	k-.0001	k.0009

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	k.0017	k.0005	k-.0017	k-.0156	k-.0003	k-.0004
SDev	.0000	.0042	.0001	.0006	.0153	.0003	.0022
%RSD	45.49	247.8	20.25	36.97	97.92	77.82	522.1
#1	k.0000	k.0047	k.0006	k-.0022	k-.0264	k-.0002	k.0011
#2	k.0000	k-.0013	k.0004	k-.0013	k-.0048	k-.0005	k-.0020

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k-.0002	k-.0006
SDev	.0001	.0002	.0004
%RSD	58.44	89.75	63.09
#1	k.0002	k-.0004	k-.0003
#2	k.0001	k-.0001	k-.0008

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	741356	10000	--	--	--	--	--
SDev	3168.545	.0000000	--	--	--	--	--
%RSD	.4273983	.0000000	--	--	--	--	--
#1	739116	10000	--	--	--	--	--
#2	743597	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230765 Operator:
Run Time: 08/04/03 18:13:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0008	k.0189	k-.0014	k.0085	k.0011	k.0000	k.0039
SDev	.0002	.0009	.0028	.0066	.0000	.0000	.0017
%RSD	23.51	4.878	194.2	77.60	3.172	5.499	42.62
#1	k-.0009	k.0183	k-.0034	.0132	k.0011	k.0000	k.0028
#2	k-.0006	k.0196	k.0005	k.0038	k.0011	k.0000	k.0051

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.1845	k-.0000	k-.0010	k-.0004	k.0015	k.0334	.0382
SDev	.2454	.0003	.0000	.0005	.0009	.0168	.0005
%RSD	133.0	721.7	2.636	123.4	57.92	50.25	1.284
#1	k.0110	k-.0002	k-.0011	k-.0001	k.0022	k.0215	.0378
#2	k.3580	k.0002	k-.0010	k-.0008	k.0009	k.0453	.0385

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0006	S32.06	k.0044	k.0002	k.0047	96.14	k145.2
SDev	.0001	.80	.0015	.0001	.0001	.21	.1
%RSD	10.77	2.480	34.35	61.79	2.766	.2167	.0978
#1	k-.0005	S32.62	k.0055	k.0001	k.0046	95.99	k145.3
#2	k-.0006	S31.50	k.0033	.0004	k.0048	96.29	k145.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	k.0093	k-.0028	k.0025	k.0005	k.0036	k.0004
SDev	.0003	.0224	.0059	.0015	.0019	.0043	.0033
%RSD	122.6	241.1	212.6	62.80	367.8	119.1	847.2
#1	k.0005	k.0251	k-.0069	k.0036	k.0019	k.0067	k-.0020
#2	k.0000	k-.0065	k.0014	k.0014	k-.0008	k.0006	k.0027

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	92.38	k-.0020	k.0006	k.3733	k.0007	k-.0003	k.0004
SDev	1.90	.0001	.0005	.0064	.0009	.0003	.0001
%RSD	2.058	3.903	80.40	1.721	125.0	126.6	13.25
#1	91.04	k-.0021	k.0003	k.3687	k.0001	k-.0005	k.0004
#2	93.73	k-.0019	k.0009	k.3778	k.0014	k-.0000	k.0005

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0000	k.0004	k.0011	k-.0129	k.0003	k-.0000
SDev	.0001	.0015	.0001	.0026	.0151	.0005	.0004
%RSD	90.87	141200.	19.42	231.3	117.6	200.5	1552.
#1	k.0000	k.0010	k.0005	k.0029	k-.0236	k.0007	k-.0003
#2	k.0002	k-.0010	k.0004	k-.0007	k-.0022	k-.0001	k.0002

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0036	k.0003
SDev	.0000	.0010	.0005
%RSD	20.30	29.09	175.4
#1	.0001	k.0029	k.0006
#2	k.0001	k.0043	k-.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	732532	10000	--	--	--	--	--
SDev	15084.71	.0000000	--	--	--	--	--
%RSD	2.059257	.0000000	--	--	--	--	--
#1	721865	10000	--	--	--	--	--
#2	743198	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230765s Operator:
Run Time: 08/04/03 18:18:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0515	k2.103	2.060	k.0101	1.996	k.0505	k-.0012
SDev	.0000	.007	.003	.0017	.002	.0001	.0032
%RSD	.0126	.3525	.1226	16.96	.0790	.1477	253.2
#1	k.0515	k2.098	2.061	k.0089	1.997	k.0505	k.0010
#2	k.0515	k2.108	2.058	k.0113	1.995	k.0506	k-.0035

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k20.28	k.0508	k.5146	k.2009	k.2606	k1.099	27.68
SDev	.11	.0001	.0008	.0006	.0005	.010	.03
%RSD	.5257	.1271	.1598	.3234	.2075	.9197	.1114
#1	k20.20	k.0508	k.5140	k.2004	k.2610	k1.092	27.71
#2	k20.36	k.0507	k.5152	k.2013	k.2602	k1.106	27.66

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	S32.35	20.55	k.5052	k.0039	k120.5	k177.9
SDev	.0001	.26	.01	.0009	.0003	.0	.5
%RSD	180.6	.8117	.0532	.1728	8.521	.0237	.2786
#1	k.0001	S32.17	20.55	k.5046	k.0042	k120.5	k178.2
#2	k-.0000	S32.54	20.56	k.5058	k.0037	k120.5	k177.5

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.5052	k.0119	k.5020	k.5025	k-.0008	k.0014	k.5031
SDev	.0032	.0068	.0047	.0005	.0043	.0021	.0010
%RSD	.6408	57.07	.9463	.1066	551.2	146.0	.2055
#1	k.5029	k.0071	k.5054	k.5021	k-.0038	k.0029	k.5023
#2	k.5075	k.0167	k.4986	k.5028	k.0022	k-.0000	k.5038

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	91.52	k2.106	k2.120	k4.513	k.5023	k2.115	k-.0018
SDev	.83	.015	.002	.002	.0012	.007	.0015
%RSD	.9064	.7271	.1117	.0336	.2449	.3159	86.74
#1	92.11	k2.117	k2.122	k4.514	k.5032	k2.120	k-.0029
#2	90.94	k2.095	k2.118	k4.512	k.5015	k2.111	k-.0007

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0006	k-.0147	k.0006	k2.142	k-.0173	k.5103	k-.0021
SDev	.0000	.0041	.0000	.007	.0001	.0015	.0032
%RSD	6.448	27.55	.3048	.3076	.4301	.2973	152.3
#1	k.0006	k-.0176	k.0006	k2.137	k-.0173	k.5113	k.0002
#2	k.0006	k-.0118	k.0006	k2.147	k-.0172	k.5092	k-.0043

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k-.0001	k.5120	k.0016
SDev	.0001	.0017	.0008
%RSD	80.50	.3317	46.92
#1	k-.0001	k.5108	k.0022
#2	k-.0002	k.5132	k.0011

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	725662	10000	--	--	--	--	--
SDev	6626.298	.0000000	--	--	--	--	--
%RSD	.9131389	.0000000	--	--	--	--	--
#1	730347	10000	--	--	--	--	--
#2	720976	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv2 Operator:
Run Time: 08/04/03 18:28:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9893	10.000	4.904	4.826	9.889	.9969	4.978
SDev	.0005	.0209	.010	.018	.001	.0002	.006
%RSD	.0473	.2092	.2054	.3724	.0117	.0198	.1154
#1	.9889	10.01	4.911	4.814	9.890	.9970	4.982
#2	.9896	9.985	4.897	4.839	9.888	.9968	4.974
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.92	1.007	5.017	1.962	2.002	10.15	18.22
SDev	.10	.001	.001	.000	.001	.05	.00
%RSD	.4868	.0854	.0195	.0240	.0292	.4499	.0193
#1	19.85	1.008	5.018	1.963	2.002	10.18	18.22
#2	19.99	1.007	5.017	1.962	2.003	10.12	18.21
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.878	4.861	20.06	1.013	5.098	28.21	H41.09
SDev	.005	.004	.02	.002	.028	.07	.06
%RSD	.1062	.0826	.0983	.1593	.5525	.2328	.1481
#1	4.882	4.864	20.07	1.012	5.078	28.26	H41.13
#2	4.875	4.858	20.05	1.014	5.118	28.16	H41.05
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.912	5.258	4.860	4.826	.9741	1.008	.9857
SDev	.015	.045	.014	.007	.0030	.011	.0030
%RSD	.2973	.8638	.2903	.1415	.3076	1.136	.3052
#1	4.902	5.226	4.850	4.821	.9763	1.016	.9878
#2	4.922	5.290	4.870	4.831	.9720	.9996	.9835
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	99.10	5.031	5.063	5.009	4.837	5.053	4.879
SDev	.69	.021	.011	.011	.009	.014	.004
%RSD	.6927	.4220	.2181	.2110	.1914	.2858	.0789
#1	99.59	5.016	5.055	5.016	4.831	5.042	4.877
#2	98.62	5.046	5.071	5.001	4.844	5.063	4.882
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.015	.9782	4.821	5.115	.9524	4.962	1.021
SDev	.001	.0027	.001	.026	.0268	.008	.004
%RSD	.0201	.2709	.0266	.5017	2.817	.1523	.3491
#1	5.014	.9800	4.822	5.097	.9714	4.967	1.019
#2	5.015	.9763	4.820	5.133	.9334	4.957	1.024
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.962	1.005	4.861
SDev	.004	.003	.001
%RSD	.0824	.3364	.0151
#1	4.965	1.003	4.861
#2	4.959	1.007	4.860
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	785778	10000	--	--	--	--	--
SDev	5391.689	.0000000	--	--	--	--	--
%RSD	.6861589	.0000000	--	--	--	--	--
#1	789591	10000	--	--	--	--	--
#2	781966	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccb2 Operator:
Run Time: 08/04/03 18:36:05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	-.0043	.0011	-.0021	.0000	.0000	-.0040
SDev	.0003	.0009	.0015	.0022	.0001	.0000	.0000
%RSD	138.0	21.84	129.3	104.9	341.9	335.8	.0467
#1	-.0000	-.0036	.0001	-.0005	-.0001	-.0000	-.0040
#2	-.0004	-.0049	.0022	-.0036	.0001	.0000	-.0040
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0132	.0002	-.0005	.0002	.0004	.0082	.0023
SDev	.0217	.0002	.0012	.0000	.0003	.0094	.0077
%RSD	164.5	146.7	230.3	1.552	76.74	114.0	337.1
#1	-.0022	.0003	-.0014	.0002	.0002	.0149	.0078
#2	.0286	-.0000	.0003	.0002	.0007	.0016	-.0032
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	H.0054	-.0022	-.0001	.0035	L-.1153	.0275
SDev	.0001	.0003	.0023	.0001	.0003	.1886	.0026
%RSD	62.62	4.715	103.5	117.1	7.049	163.7	9.326
#1	.0001	H.0056	-.0006	-.0001	.0037	.0181	.0293
#2	.0002	H.0052	-.0038	-.0000	.0034	L-.2487	.0257
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Low	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0091	-.0006	-.0009	.0008	-.0030	-.0009
SDev	.0002	.0097	.0024	.0009	.0007	.0122	.0004
%RSD	52.47	107.0	394.6	99.40	85.91	400.5	41.45
#1	.0002	.0022	-.0023	-.0015	.0014	.0056	-.0006
#2	.0005	H.0159	.0011	-.0003	.0003	L-.0117	-.0011
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	100.7	-.0026	.0018	-.0008	-.0008	.0003	-.0012
SDev	.0	.0022	.0009	.0002	.0014	.0001	.0008
%RSD	.0457	83.28	47.97	27.37	177.6	42.50	68.12
#1	100.6	-.0011	.0012	-.0009	-.0018	.0004	-.0018
#2	100.7	-.0041	.0024	-.0006	.0002	.0002	-.0006
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0008	.0001	.0030	.0020	-.0002	.0008
SDev	.0000	.0006	.0001	.0010	.0051	.0004	.0011
%RSD	95.15	69.03	152.3	35.12	261.9	210.3	129.2
#1	.0000	.0012	-.0000	.0022	.0056	.0001	.0016
#2	.0001	.0004	.0002	.0037	-.0017	-.0004	.0001
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	-.0005	.0001
SDev	.0001	.0004	.0002
%RSD	153.9	85.38	184.9
#1	-.0000	-.0007	-.0000
#2	.0002	-.0002	.0003
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	798232	10000	--	--	--	--	--
SDev	391.7371	.0000000	--	--	--	--	--
%RSD	.0490756	.0000000	--	--	--	--	--
#1	797955	10000	--	--	--	--	--
#2	798509	10000	--	--	--	--	--

010389

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Method: DAILY2 Sample Name: 230766 Operator:
Run Time: 08/04/03 18:41:19
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0003	k.0191	k-.0004	k.0060	k.0002	k.0001	k.0022
SDev	.0002	.0080	.0006	.0019	.0001	.0000	.0015
%RSD	97.25	41.52	147.3	32.21	54.65	57.02	67.97
#1	k-.0001	k.0135	k.0000	k.0074	k.0002	k.0000	k.0033
#2	k-.0004	k.0248	k-.0008	k.0046	k.0003	k.0001	k.0012

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0300	k.0004	k-.0003	k.0001	k.0014	k.0164	.0396
SDev	.0400	.0001	.0001	.0002	.0002	.0012	.0084
%RSD	133.3	30.18	37.17	246.2	13.97	7.202	21.13
#1	k.0017	k.0003	k-.0002	k-.0001	k.0013	k.0156	.0456
#2	k.0583	k.0004	k-.0004	k.0002	k.0016	k.0172	.0337

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0003	S31.35	k.0008	k-.0000	k.0059	73.84	k114.9
SDev	.0002	.30	.0043	.0001	.0014	.06	.2
%RSD	56.93	.9576	576.4	214.3	24.19	.0754	.1986
#1	k.0002	S31.56	k-.0023	k-.0001	k.0069	73.88	k115.0
#2	k.0004	S31.14	k.0038	k.0000	k.0049	73.80	k114.7

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0017	k.0183	k.0029	k-.0017	k.0012	k.0114	k-.0007
SDev	.0008	.0043	.0001	.0001	.0002	.0082	.0007
%RSD	45.48	23.58	4.163	5.017	18.09	71.69	106.9
#1	k.0022	k.0153	k.0028	k-.0016	k.0014	k.0056	k-.0012
#2	k.0011	k.0214	k.0030	k-.0018	k.0011	k.0171	k-.0002

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.35	k.0043	k-.0001	k.1965	k-.0001	k.0014	k-.0008
SDev	.66	.0005	.0035	.0029	.0000	.0025	.0014
%RSD	.7102	11.92	2935.	1.495	11.41	185.3	175.8
#1	92.88	k.0046	k.0024	k.1944	k-.0001	k.0031	k-.0018
#2	93.82	k.0039	k-.0026	k.1986	k-.0002	k-.0004	k.0002

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	k.0017	k.0006	k.0026	k-.0058	k-.0001	k-.0010
SDev	.0001	.0003	.0007	.0016	.0198	.0002	.0004
%RSD	69.00	18.52	126.6	63.84	343.9	190.6	40.94
#1	k.0001	k.0020	k.0001	k.0014	k.0083	k.0000	k-.0014
#2	k.0002	k.0015	k.0011	k.0037	k-.0198	k-.0002	k-.0007

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0022	k.0024
SDev	.0001	.0006	.0034
%RSD	303.2	25.43	137.4
#1	k.0001	k.0018	k.0001
#2	k-.0000	k.0026	k.0048

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	740146	10000	--	--	--	--	--
SDev	5323.100	.0000000	--	--	--	--	--
%RSD	.7191959	.0000000	--	--	--	--	--
#1	736382	10000	--	--	--	--	--
#2	743910	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230767 Operator:
Run Time: 08/04/03 18:46:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0154	.0063	.0063	.0003	.0001	.0020
SDev	.0010	.0058	.0008	.0001	.0000	.0000	.0001
%RSD	2331.	37.59	12.49	2.036	7.512	28.41	7.656
#1	.0008	.0195	.0069	.0062	.0003	.0001	.0021
#2	-.0007	.0113	.0058	.0064	.0003	.0001	.0019

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0506	.0001	.0016	.0008	.0032	.0450	.0604
SDev	.0144	.0000	.0003	.0004	.0007	.0254	.0316
%RSD	28.46	27.66	20.06	48.78	22.33	56.48	52.31
#1	.0404	.0001	.0018	.0011	.0037	.0629	.0828
#2	.0608	.0001	.0014	.0005	.0027	.0270	.0381

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	41.93	.0079	.0001	.0028	395.1	S324.7
SDev	.0005	.03	.0091	.0001	.0001	1.4	235.0
%RSD	129.1	.0827	115.2	52.49	2.330	.3480	72.37
#1	.0008	41.90	.0144	.0002	.0028	396.1	S158.6
#2	.0000	41.95	.0015	.0001	.0027	394.2	490.9

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0024	.0151	-.0016	-.0001	.0061	.0111	-.0041
SDev	.0008	.0053	.0011	.0014	.0046	.0141	.0115
%RSD	33.90	35.06	72.05	1298.	75.92	127.5	281.7
#1	.0029	.0189	-.0024	.0009	.0094	.0210	.0041
#2	.0018	.0114	-.0008	-.0011	.0028	.0011	-.0123

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.63	.0010	.0018	-.0098	-.0006	.0015	.0011
SDev	1.46	.0012	.0018	.0032	.0005	.0008	.0042
%RSD	1.557	125.9	103.5	32.62	90.87	53.63	376.8
#1	94.66	.0018	.0005	-.0075	-.0002	.0009	.0041
#2	92.60	.0001	.0031	-.0120	-.0010	.0021	-.0019

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0015	.0002	.0028	.0188	.0011	-.0003
SDev	.0000	.0049	.0003	.0006	.0332	.0000	.0005
%RSD	1.951	317.6	175.4	22.04	177.0	2.761	165.8
#1	.0005	.0050	.0004	.0024	.0422	.0010	.0000
#2	.0005	-.0019	-.0000	.0032	-.0047	.0011	-.0006

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0002	.0006	.0004
SDev	.0001	.0001	.0010
%RSD	68.55	20.80	250.3
#1	.0003	.0007	.0011
#2	.0001	.0005	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	742424	10000	--	--	--	--	--
SDev	11527.25	.0000000	--	--	--	--	--
%RSD	1.552651	.0000000	--	--	--	--	--
#1	750575	10000	--	--	--	--	--
#2	734273	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230768 Operator:
Run Time: 08/04/03 18:51:47
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	.0111	-.0001	.0060	.0005	.0001	-.0012
SDev	.0001	.0004	.0022	.0012	.0001	.0000	.0056
%RSD	8.101	3.586	3037.	20.30	28.74	30.36	459.6
#1	-.0007	.0114	.0015	.0051	.0004	.0000	.0027
#2	-.0006	.0108	-.0016	.0068	.0006	.0001	-.0051

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0186	-.0002	-.0005	-.0001	.0021	.0103	.0171
SDev	.0071	.0001	.0001	.0009	.0006	.0091	.0007
%RSD	37.96	88.12	17.50	684.6	27.06	88.88	3.961
#1	.0136	-.0003	-.0004	-.0007	.0017	.0167	.0176
#2	.0236	-.0001	-.0006	.0005	.0025	.0038	.0166

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	65.78	.0011	.0000	.0037	281.6	368.5
SDev	.0000	.24	.0002	.0002	.0007	.5	.1
%RSD	5.639	.3677	19.90	360.2	17.98	.1906	.0197
#1	-.0007	65.61	.0009	-.0001	.0042	281.3	368.5
#2	-.0008	65.96	.0012	.0002	.0032	282.0	368.6

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0027	.0090	.0007	.0002	-.0003	.0069	-.0014
SDev	.0007	.0023	.0013	.0005	.0019	.0010	.0014
%RSD	24.60	25.05	191.7	190.7	698.6	14.51	97.21
#1	.0032	.0074	.0016	-.0001	-.0016	.0062	-.0004
#2	.0022	.0106	-.0002	.0006	.0011	.0076	-.0024

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.23	-.0007	-.0001	-.0052	.0004	-.0003	-.0037
SDev	1.13	.0026	.0013	.0050	.0001	.0018	.0031
%RSD	1.208	354.0	2007.	95.30	29.78	626.0	85.62
#1	94.02	.0011	.0009	-.0088	.0005	.0010	-.0014
#2	92.43	-.0026	-.0010	-.0017	.0003	-.0015	-.0059

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.0005	.0001	.0026	.0003	.0004	-.0019
SDev	.0000	.0047	.0002	.0015	.0130	.0007	.0010
%RSD	2.000	911.5	177.9	56.44	3855.	152.8	51.78
#1	.0003	-.0028	-.0000	.0037	.0095	-.0000	-.0026
#2	.0003	.0039	.0002	.0016	-.0088	.0009	-.0012

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0003	-.0001
SDev	.0002	.0001	.0004
%RSD	195.3	34.86	374.3
#1	-.0000	.0002	-.0004
#2	.0003	.0004	.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	739154	10000	--	--	--	--	--
SDev	8936.415	.0000000	--	--	--	--	--
%RSD	1.209006	.0000000	--	--	--	--	--
#1	745473	10000	--	--	--	--	--
#2	732835	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230769 Operator:
Run Time: 08/04/03 18:57:02
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0003	.0059	.0037	.0016	.0004	.0000	-.0022
SDev	.0004	.0027	.0018	.0015	.0000	.0000	.0040
%RSD	116.3	45.58	47.11	93.90	7.775	64.98	183.8
#1	-.0006	.0078	.0025	.0005	.0004	.0001	.0007
#2	-.0001	.0040	.0050	.0026	.0004	.0000	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0026	.0002	-.0000	-.0007	.0014	.0078	.0205
SDev	.0005	.0001	.0002	.0001	.0001	.0235	.0010
%RSD	18.98	27.90	945.8	8.891	6.554	301.1	4.872
#1	.0030	.0002	-.0002	-.0007	.0013	.0244	.0212
#2	.0023	.0001	.0001	-.0006	.0014	-.0088	.0198

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	80.63	-.0001	.0000	.0040	161.8	225.8
SDev	.0002	.01	.0021	.0001	.0002	.5	.8
%RSD	92.87	.0124	2669.	256.8	5.128	.3144	.3609
#1	.0003	80.63	.0014	.0001	.0041	162.1	226.4
#2	.0001	80.62	-.0016	-.0000	.0038	161.4	225.3

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0036	.0181	-.0008	-.0020	.0004	.0040	-.0005
SDev	.0024	.0001	.0046	.0007	.0031	.0019	.0015
%RSD	66.22	.4261	610.4	36.52	816.9	47.66	319.8
#1	.0019	.0181	-.0040	-.0015	.0026	.0027	.0006
#2	.0053	.0182	.0025	-.0025	-.0018	.0054	-.0015

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.83	.0057	.0015	.0068	-.0016	.0029	-.0009
SDev	.56	.0029	.0004	.0016	.0010	.0012	.0003
%RSD	.5927	50.99	26.24	24.06	66.34	42.32	31.16
#1	95.22	.0036	.0012	.0056	-.0023	.0020	-.0007
#2	94.43	.0078	.0018	.0079	-.0008	.0038	-.0011

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0004	-.0000	.0002	.0029	-.0005	-.0018
SDev	.0000	.0016	.0001	.0037	.0021	.0006	.0015
%RSD	3.790	391.1	247.5	1495.	72.98	130.4	82.39
#1	.0002	.0016	-.0001	.0029	.0014	-.0009	-.0029
#2	.0002	-.0007	.0000	-.0024	.0043	-.0000	-.0008

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0009	-.0004
SDev	.0001	.0002	.0001
%RSD	162.3	25.80	34.18
#1	.0001	.0011	-.0003
#2	-.0000	.0008	-.0005

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	751868	10000	--	--	--	--	--
SDev	4420.832	.0000000	--	--	--	--	--
%RSD	.5879797	.0000000	--	--	--	--	--
#1	754994	10000	--	--	--	--	--
#2	748742	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230770 Operator: **010397**
Run Time: 08/04/03 19:02:16
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	k.0110	k-.0002	k.0033	k.0005	k.0000	k.0006
SDev	.0004	.0053	.0029	.0041	.0000	.0000	.0026
%RSD	108.4	48.58	1608.	123.9	6.913	64.08	460.0
#1	k-.0001	k.0147	k-.0022	k.0062	k.0005	k.0000	k-.0012
#2	k-.0007	k.0072	k.0019	k.0004	k.0006	k.0000	k.0024

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0124	k.0000	k.0044	k-.0005	k.0016	k.0116	.0318
SDev	.0026	.0002	.0011	.0009	.0003	.0045	.0270
%RSD	20.78	475.1	26.23	161.9	16.55	39.15	84.92
#1	k.0143	k.0002	k.0052	k.0001	k.0014	k.0148	.0509
#2	k.0106	k-.0001	k.0036	k-.0011	k.0018	k.0084	.0127

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0001	S31.69	k.0011	k.0003	k.0036	107.5	k159.2
SDev	.0006	.60	.0060	.0001	.0011	.7	.1
%RSD	1020.	1.908	562.5	14.45	29.92	.6332	.0738
#1	k.0004	S32.12	k.0053	k.0003	k.0043	107.0	k159.2
#2	k-.0003	S31.27	k-.0032	k.0003	k.0028	107.9	k159.3

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0029	k.0036	k.0000	k-.0014	k.0016	k.0100	k-.0011
SDev	.0003	.0055	.0011	.0009	.0030	.0050	.0021
%RSD	8.581	152.0	17950.	66.48	192.5	50.00	201.0
#1	k.0027	k.0075	k-.0008	k-.0007	k.0037	k.0065	k.0004
#2	k.0030	k-.0003	k.0008	k-.0021	k-.0006	k.0136	k-.0026

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.39	k.0022	k.0008	k.0175	k-.0009	k.0013	k-.0007
SDev	1.68	.0010	.0000	.0037	.0003	.0003	.0004
%RSD	1.795	45.05	2.238	21.44	27.87	25.22	57.22
#1	92.20	k.0015	k.0008	k.0201	k-.0007	k.0010	k-.0004
#2	94.57	k.0029	k.0008	k.0148	k-.0011	k.0015	k-.0010

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	k-.0003	k-.0000	k-.0003	k.0017	k-.0004	k.0018
SDev	.0000	.0022	.0000	.0026	.0276	.0000	.0010
%RSD	20.18	683.1	94.21	874.5	1654.	5.364	56.72
#1	k.0002	k.0012	k-.0000	k.0015	k.0212	k-.0004	k.0011
#2	k.0002	k-.0019	k-.0000	k-.0021	k-.0179	k-.0005	k.0025

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Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0005	k-.0001
SDev	.0000	.0003	.0005
%RSD	16.67	55.99	562.7
#1	k.0001	k.0006	k.0003
#2	k.0001	k.0003	k-.0005

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	740474	10000	--	--	--	--	--
SDev	13247.65	.0000000	--	--	--	--	--
%RSD	1.789075	.0000000	--	--	--	--	--
#1	731107	10000	--	--	--	--	--
#2	749842	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ~~223771~~ 230771 8/5/03 Operator: **010399**
Run Time: 08/04/03 19:07:30
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0004	k.0114	k.0021	k.0002	.0007	k.0001	k.0007
SDev	.0002	.0049	.0014	.0011	.0001	.0000	.0069
%RSD	59.29	43.09	69.83	504.2	13.44	34.11	926.9
#1	k-.0006	k.0149	k.0031	k.0010	.0007	k.0000	k-.0041
#2	k-.0002	k.0079	k.0010	k-.0006	.0006	k.0001	k.0056

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0235	k.0003	k.0013	k.0000	k.0021	k.0107	.0202
SDev	.0009	.0000	.0001	.0004	.0005	.0076	.0010
%RSD	3.819	11.18	8.528	3184.	26.03	71.35	5.099
#1	k.0242	k.0003	k.0014	k.0003	k.0024	k.0160	.0195
#2	k.0229	k.0003	k.0012	k-.0003	k.0017	k.0053	.0209

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0000	S30.04	k.0043	k.0002	k.0048	52.61	k84.14
SDev	.0003	.09	.0012	.0001	.0000	.23	.01
%RSD	6351.	.2883	28.77	25.99	.4186	.4350	.0121
#1	k-.0002	S30.10	k.0052	k.0002	k.0048	52.77	k84.13
#2	k.0002	S29.98	k.0034	k.0002	k.0048	52.45	k84.15

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0044	k.0059	k.0005	k.0018	k.0020	k.0051	k-.0002
SDev	.0012	.0011	.0004	.0009	.0017	.0081	.0004
%RSD	26.83	18.31	80.48	47.56	85.81	160.8	226.7
#1	k.0035	k.0066	k.0002	k.0024	k.0032	k-.0007	k.0001
#2	k.0052	k.0051	k.0008	k.0012	k.0008	k.0108	k-.0005

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	95.46	k-.0021	k.0040	k.0136	k.0014	k.0020	k.0020
SDev	.05	.0017	.0005	.0030	.0004	.0009	.0003
%RSD	.0532	78.29	12.42	21.80	31.09	45.17	14.38
#1	95.42	k-.0033	k.0037	k.0115	k.0017	k.0013	k.0022
#2	95.50	k-.0010	k.0044	k.0157	k.0011	k.0026	k.0018

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	k-.0004	k.0001	k-.0005	k.0002	k.0003	k.0011
SDev	.0000	.0020	.0001	.0024	.0082	.0002	.0004
%RSD	3.694	567.0	199.0	535.3	5068.	82.49	40.37
#1	k.0002	k-.0018	k.0001	k-.0022	k.0059	k.0005	k.0014
#2	k.0002	k.0011	k-.0000	k.0013	k-.0056	k.0001	k.0008

010400

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0000	k.0013	k-.0002
SDev	.0001	.0003	.0000
%RSD	580.0	19.15	18.36
#1	k.0001	k.0015	k-.0002
#2	k-.0001	k.0012	k-.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	756876	10000	--	--	--	--	--
SDev	366.9884	.0000000	--	--	--	--	--
%RSD	.0484873	.0000000	--	--	--	--	--
#1	756616	10000	--	--	--	--	--
#2	757135	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230772 Operator:
Run Time: 08/04/03 19:12:45 **010401**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0000	k.0076	k.0016	k.0011	k.0018	k.0000	k.0008
SDev	.0006	.0011	.0016	.0021	.0018	.0000	.0013
%RSD	1469.	15.14	102.0	186.7	96.99	19.38	178.8
#1	k-.0005	k.0068	k.0027	k-.0004	k.0006	k.0000	k-.0002
#2	k.0004	k.0084	k.0004	k.0026	.0031	k.0001	k.0017

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0121	k.0002	k.0008	k-.0003	k.0016	k.0195	.0140
SDev	.0018	.0000	.0000	.0006	.0002	.0148	.0108
%RSD	15.11	2.042	.7534	179.3	12.58	75.89	76.99
#1	k.0108	k.0002	k.0008	k-.0007	k.0015	k.0091	.0064
#2	k.0134	k.0002	k.0008	k.0001	k.0018	k.0300	.0217

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k-.0002	S30.15	k.0028	k.0001	k.0056	k-.1536	k.0953
SDev	.0009	.45	.0055	.0000	.0003	.0092	.0023
%RSD	501.0	1.488	194.1	8.627	4.858	5.970	2.455
#1	k-.0008	S29.83	k-.0011	k.0001	k.0058	k-.1601	k.0969
#2	k.0005	S30.46	k.0067	k.0001	k.0055	k-.1472	k.0936

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0050	k.0131	k.0021	k-.0003	k.0006	k.0110	k-.0044
SDev	.0010	.0058	.0025	.0007	.0019	.0051	.0015
%RSD	20.66	44.51	118.8	218.1	342.9	46.43	32.97
#1	k.0042	k.0172	k.0003	k.0002	k-.0008	k.0074	k-.0055
#2	.0057	k.0090	k.0039	k-.0009	k.0019	k.0146	k-.0034

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	94.68	k.0016	k-.0001	k.0257	k.0005	k.0005	k-.0006
SDev	1.69	.0009	.0028	.0047	.0003	.0022	.0004
%RSD	1.783	52.43	2510.	18.28	70.00	446.0	62.72
#1	95.87	k.0010	k-.0021	k.0223	k.0003	k-.0010	k-.0009
#2	93.48	k.0022	k.0019	k.0290	k.0007	k.0020	k-.0004

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	k.0002	k.0001	k.0001	k-.0006	k.0012	k-.0001	k-.0005
SDev	.0002	.0011	.0000	.0011	.0115	.0003	.0011
%RSD	100.7	1060.	60.96	175.5	952.0	375.8	218.3
#1	k.0000	k.0009	k.0001	k.0001	k-.0069	k.0001	k-.0013
#2	k.0003	k-.0007	k.0000	k-.0013	k.0094	k-.0003	k.0003

010402

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	k.0001	k.0007	k-.0002
SDev	.0001	.0000	.0005
%RSD	232.6	4.238	214.2
#1	k-.0000	k.0006	k-.0006
#2	.0002	k.0007	k.0001

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	750720	10000	--	--	--	--	--
SDev	13399.67	.0000000	--	--	--	--	--
%RSD	1.784910	.0000000	--	--	--	--	--
#1	760195	10000	--	--	--	--	--
#2	741245	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230773 Operator:
Run Time: 08/04/03 19:17:59
Comment:
Mode: CONC Corr. Factor: 1

010403

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0019	.0014	-.0086	.0001	.0000	.0025
SDev	.0001	.0017	.0038	.0006	.0000	.0000	.0003
%RSD	82.60	88.37	271.0	7.437	38.86	35.43	12.50
#1	.0001	.0031	-.0013	-.0090	.0000	.0000	.0023
#2	.0003	.0007	.0040	-.0081	.0001	.0000	.0028

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0134	-.0001	.0011	-.0002	.0011	.0031	14.81
SDev	.0007	.0003	.0004	.0000	.0001	.0003	.03
%RSD	5.050	255.3	39.87	23.66	8.459	10.68	.2039
#1	.0139	-.0004	.0014	-.0002	.0012	.0033	14.84
#2	.0129	.0001	.0008	-.0002	.0011	.0029	14.79

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0322	-.0016	-.0001	.0005	8.169	11.64
SDev	.0005	.0310	.0049	.0000	.0009	.061	.05
%RSD	887.8	96.45	299.2	28.22	201.8	.7506	.4362
#1	-.0004	.0541	-.0051	-.0001	-.0002	8.213	11.67
#2	.0003	.0102	.0018	-.0001	.0011	8.126	11.60

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0141	.0019	-.0029	-.0000	-.0025	.0017
SDev	.0004	.0116	.0038	.0020	.0006	.0146	.0006
%RSD	7633.	82.54	201.4	70.86	2611.	587.3	36.59
#1	-.0003	.0223	-.0008	-.0043	.0004	.0078	.0021
#2	.0003	.0058	.0046	-.0014	-.0004	-.0128	.0012

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	98.09	.0002	.0009	.0123	-.0013	.0007	.0016
SDev	.82	.0011	.0017	.0004	.0026	.0015	.0013
%RSD	.8344	556.2	177.9	3.435	206.9	211.7	81.70
#1	97.51	.0010	.0021	.0120	-.0031	.0018	.0007
#2	98.66	-.0006	-.0002	.0126	.0006	-.0004	.0025

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0012	-.0000	-.0020	-.0093	-.0001	-.0014
SDev	.0000	.0006	.0000	.0027	.0167	.0001	.0004
%RSD	.9253	53.26	469.2	134.3	179.2	115.3	26.94
#1	.0004	.0008	-.0000	-.0038	.0025	-.0000	-.0012
#2	.0004	.0017	.0000	-.0001	-.0212	-.0002	-.0017

010404

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0012	-.0005
SDev	.0001	.0002	.0003
%RSD	123.1	17.32	65.78
#1	.0001	.0014	-.0007
#2	.0000	.0011	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	777704	10000	--	--	--	--	--
SDev	6449.521	.0000000	--	--	--	--	--
%RSD	.8293033	.0000000	--	--	--	--	--
#1	773143	10000	--	--	--	--	--
#2	782264	10000	--	--	--	--	--

Method: DAILY2 Sample Name: 230774 Operator:
Run Time: 08/04/03 19:23:13 **010405**
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	.0046	-.0001	-.0078	.0001	.0000	.0006
SDev	.0002	.0000	.0009	.0012	.0000	.0000	.0049
%RSD	46.26	.1730	1618.	15.86	15.60	30.18	779.3
#1	-.0005	.0046	-.0007	-.0070	.0001	.0000	-.0028
#2	-.0002	.0046	.0006	-.0087	.0001	.0000	.0041

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0180	.0003	-.0006	.0003	.0015	.0387	14.81
SDev	.0026	.0001	.0008	.0003	.0002	.0437	.02
%RSD	14.16	53.68	134.8	101.9	16.54	112.8	.1380
#1	.0198	.0002	-.0011	.0005	.0016	.0696	14.80
#2	.0162	.0004	-.0000	.0001	.0013	.0078	14.83

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0075	.0008	.0002	.0005	8.544	11.60
SDev	.0003	.0004	.0018	.0001	.0001	.268	.03
%RSD	142.2	5.530	217.4	63.25	15.81	3.137	.2445
#1	.0004	.0078	-.0004	.0001	.0006	8.733	11.58
#2	-.0000	.0072	.0021	.0002	.0004	8.354	11.62

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	.0192	.0013	-.0023	.0065	.0530	-.0028
SDev	.0014	.0199	.0020	.0001	.0076	.0082	.0018
%RSD	233.7	103.8	149.0	4.261	116.4	15.47	66.95
#1	.0016	.0332	.0028	-.0022	.0119	.0588	-.0041
#2	-.0004	.0051	-.0001	-.0024	.0012	.0472	-.0015

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	98.60	-.0032	.0023	.0125	-.0011	.0005	-.0003
SDev	.58	.0021	.0006	.0023	.0007	.0011	.0014
%RSD	.5869	67.56	26.91	18.21	69.37	242.1	471.5
#1	98.19	-.0017	.0027	.0108	-.0005	.0013	.0007
#2	99.01	-.0047	.0018	.0141	-.0016	-.0003	-.0013

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	-.0018	.0001	-.0002	-.0022	-.0000	-.0006
SDev	.0000	.0026	.0001	.0024	.0069	.0002	.0019
%RSD	3.230	147.0	110.3	1390.	314.1	1091.	311.7
#1	.0004	-.0036	.0000	-.0019	.0027	.0001	.0008
#2	.0004	.0001	.0002	.0015	-.0071	-.0002	-.0020

010406

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0923	-.0001
SDev	.0001	.0003	.0001
%RSD	202.5	.2943	156.4
#1	-.0000	.0921	-.0001
#2	.0001	.0925	.0000

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	781748	10000	--	--	--	--	--
SDev	4584.173	.0000000	--	--	--	--	--
%RSD	.5864000	.0000000	--	--	--	--	--
#1	778507	10000	--	--	--	--	--
#2	784990	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230868 Operator: **010407**
Run Time: 08/04/03 19:28:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0092	.0015	-.0070	.0002	.0000	.0010
SDev	.0004	.0003	.0003	.0026	.0000	.0000	.0040
%RSD	869.4	3.695	19.57	36.80	5.247	25.88	399.8
#1	-.0003	.0090	.0013	-.0088	.0002	.0001	-.0018
#2	.0004	.0095	.0017	-.0052	.0002	.0000	.0038

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0084	.0001	-.0001	.0003	.0008	.0116	.0379
SDev	.0009	.0002	.0010	.0004	.0004	.0142	.0069
%RSD	10.41	232.2	833.6	167.3	49.06	122.5	18.26
#1	.0078	.0003	-.0008	.0006	.0005	.0016	.0330
#2	.0090	-.0001	.0006	-.0000	.0011	.0217	.0428

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	13.36	.0011	-.0000	.0018	143.4	190.1
SDev	.0001	.02	.0008	.0000	.0000	.4	.7
%RSD	30.86	.1331	70.98	3.307	2.024	.2809	.3497
#1	.0002	13.37	.0005	-.0000	.0019	143.7	190.5
#2	.0004	13.34	.0016	-.0000	.0018	143.1	189.6

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	.0058	.0030	-.0015	.0017	.0003	-.0022
SDev	.0001	.0031	.0022	.0002	.0011	.0080	.0016
%RSD	16.63	53.80	73.92	14.73	64.70	2333.	74.14
#1	-.0005	.0080	.0045	-.0013	.0009	-.0053	-.0010
#2	-.0004	.0036	.0014	-.0016	.0025	.0060	-.0033

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	98.28	.0001	-.0023	.3244	.0000	-.0015	.0001
SDev	.90	.0028	.0024	.0013	.0009	.0007	.0033
%RSD	.9182	4771.	106.6	.3901	2573.	44.98	4636.
#1	98.92	.0021	-.0040	.3235	.0007	-.0020	.0024
#2	97.64	-.0019	-.0006	.3253	-.0006	-.0010	-.0022

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0005	-.0000	-.0007	.0096	-.0000	-.0007
SDev	.0000	.0004	.0000	.0006	.0003	.0003	.0000
%RSD	20.53	85.41	728.4	84.47	3.051	3621.	6.810
#1	.0000	-.0008	-.0000	-.0012	.0094	-.0002	-.0007
#2	.0001	-.0002	.0000	-.0003	.0098	.0002	-.0007

010408

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0000	.0004	-.0003
SDev	.0000	.0005	.0002
%RSD	208.9	140.8	55.62
#1	-.0000	.0007	-.0005
#2	.0000	.0000	-.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	779213	10000	--	--	--	--	--
SDev	7146.021	.0000000	--	--	--	--	--
%RSD	.9170819	.0000000	--	--	--	--	--
#1	784266	10000	--	--	--	--	--
#2	774160	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv3 Operator: **010409**
Run Time: 08/04/03 19:38:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9857	9.971	4.906	4.824	9.863	.9988	4.962
SDev	.0003	.006	.007	.013	.010	.0001	.006
%RSD	.0355	.0558	.1510	.2610	.0971	.0130	.1142
#1	.9854	9.967	4.901	4.815	9.870	.9987	4.958
#2	.9859	9.975	4.912	4.833	9.857	.9989	4.966
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.89	1.011	5.024	1.963	2.004	10.13	18.15
SDev	.02	.002	.006	.001	.001	.01	.03
%RSD	.0796	.1586	.1163	.0396	.0407	.1220	.1496
#1	19.88	1.012	5.028	1.963	2.003	10.14	18.13
#2	19.90	1.010	5.019	1.964	2.005	10.12	18.17
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.880	4.859	20.07	1.012	5.115	28.30	H40.89
SDev	.001	.001	.02	.002	.023	.12	.03
%RSD	.0270	.0272	.1200	.1524	.4548	.4077	.0681
#1	4.879	4.858	20.05	1.011	5.098	28.39	H40.87
#2	4.881	4.860	20.08	1.013	5.131	28.22	H40.91
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.928	5.057	4.880	4.864	.9727	.9962	.9850
SDev	.006	.036	.015	.003	.0005	.0047	.0045
%RSD	.1160	.7084	.3026	.0643	.0524	.4711	.4585
#1	4.932	5.031	4.870	4.862	.9731	.9995	.9882
#2	4.924	5.082	4.891	4.866	.9724	.9929	.9818
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

010410

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	99.54	5.074	5.112	5.010	4.870	5.099	4.888
SDev	.52	.019	.013	.004	.007	.015	.007
%RSD	.5214	.3705	.2611	.0784	.1439	.2974	.1406
#1	99.17	5.061	5.102	5.008	4.865	5.088	4.883
#2	99.91	5.087	5.121	5.013	4.875	5.110	4.892
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.009	.9782	4.820	5.124	.9568	4.963	1.020
SDev	.005	.0033	.004	.005	.0074	.000	.000
%RSD	.0928	.3330	.0812	.1051	.7748	.0010	.0400
#1	5.013	.9759	4.817	5.120	.9516	4.963	1.020
#2	5.006	.9805	4.823	5.127	.9621	4.963	1.020
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.953	1.007	4.873
SDev	.002	.002	.001
%RSD	.0302	.2139	.0205
#1	4.952	1.005	4.873
#2	4.954	1.008	4.874
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

010411

IntStd	1	2	3	4	5	6	
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	789218	10000	--	--	--	--	--
SDev	4084.956	.0000000	--	--	--	--	--
%RSD	.5175950	.0000000	--	--	--	--	--
#1	786330	10000	--	--	--	--	--
#2	792107	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccb3 Operator: **010412**
Run Time: 08/04/03 19:46:05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	-.0057	.0016	-.0061	.0002	.0001	-.0034
SDev	.0000	.0010	.0019	.0016	.0001	.0000	.0003
%RSD	8.969	16.86	114.9	27.06	57.00	23.64	7.676
#1	-.0005	-.0064	.0003	-.0049	.0001	.0001	-.0036
#2	-.0005	-.0050	.0030	-.0072	.0002	.0001	-.0033
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0327	-.0000	-.0005	-.0001	-.0003	.0069	-.0080
SDev	.0497	.0000	.0008	.0013	.0001	.0101	.0006
%RSD	152.1	153.7	151.1	1264.	27.58	146.0	7.343
#1	-.0025	-.0001	-.0011	-.0010	-.0004	.0141	-.0084
#2	H.0678	.0000	.0000	.0008	-.0003	-.0002	-.0076
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	H.0050	-.0013	-.0001	.0033	L-.0619	.0411
SDev	.0000	.0003	.0003	.0000	.0006	.0071	.0010
%RSD	2.893	5.817	20.42	26.15	18.77	11.40	2.485
#1	.0002	H.0053	-.0015	-.0001	.0037	L-.0669	.0404
#2	.0002	.0048	-.0011	-.0001	.0028	L-.0569	.0419
Errors	LC Pass	LC High	LC Pass	LC Pass	LC Pass	LC Low	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	H.0146	-.0005	-.0004	-.0004	-.0020	-.0009
SDev	.0001	.0036	.0008	.0006	.0001	.0000	.0017
%RSD	13.33	24.27	165.7	133.8	28.18	2.037	194.2
#1	.0006	H.0171	-.0011	-.0008	-.0003	-.0020	.0003
#2	.0005	H.0121	.0001	-.0000	-.0005	-.0020	-.0020
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	103.2	-.0029	.0017	-.0016	-.0004	.0002	-.0018
SDev	.5	.0003	.0008	.0009	.0006	.0006	.0012
%RSD	.5134	9.370	45.17	55.26	150.5	293.8	66.11
#1	102.8	-.0031	.0012	-.0010	-.0009	-.0002	-.0026
#2	103.5	-.0027	.0023	-.0022	.0000	.0006	-.0010
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0003	.0001	.0040	-.0049	-.0000	-.0003
SDev	.0001	.0020	.0001	.0007	.0246	.0002	.0010
%RSD	135.6	611.2	277.2	17.17	505.3	15230.	326.8
#1	.0000	.0017	-.0000	.0044	-.0223	-.0001	.0004
#2	.0001	-.0011	.0001	.0035	.0125	.0001	-.0011
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	-.0002	-.0000
SDev	.0001	.0006	.0001
%RSD	107.1	238.5	238.2
#1	.0000	-.0007	-.0001
#2	.0002	.0002	.0000
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	817871	10000	--	--	--	--	--
SDev	4266.682	.0000000	--	--	--	--	--
%RSD	.5216816	.0000000	--	--	--	--	--
#1	814854	10000	--	--	--	--	--
#2	820888	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230868d Operator:
Run Time: 08/04/03 19:51:20
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	.0235	.0021	-.0002	.0005	.0001	.0012
SDev	.0002	.0003	.0024	.0022	.0000	.0000	.0029
%RSD	283.3	1.145	115.4	1194.	6.982	1.025	246.8
#1	.0001	.0233	.0004	.0014	.0005	.0001	.0032
#2	-.0002	.0237	.0038	-.0017	.0005	.0001	-.0009

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0546	.0001	-.0008	.0001	.0034	.0140	.0316
SDev	.0548	.0002	.0003	.0003	.0001	.0027	.0038
%RSD	100.5	131.5	36.44	397.5	3.719	19.07	11.96
#1	.0158	.0000	-.0006	-.0001	.0033	.0122	.0290
#2	.0933	.0002	-.0010	.0003	.0035	.0159	.0343

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	13.44	.0029	.0001	.0033	143.8	191.2
SDev	.0000	.00	.0057	.0000	.0016	.2	.2
%RSD	5.233	.0356	194.8	46.33	48.83	.1659	.0968
#1	.0003	13.44	-.0011	.0001	.0044	143.6	191.4
#2	.0003	13.43	.0069	.0001	.0022	143.9	191.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0011	.0070	.0014	.0006	.0023	.0036	.0004
SDev	.0004	.0048	.0011	.0006	.0004	.0026	.0003
%RSD	36.36	68.77	79.86	98.59	17.49	71.43	79.15
#1	.0013	.0036	.0006	.0002	.0020	.0054	.0002
#2	.0008	.0104	.0022	.0011	.0026	.0018	.0006

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	96.54	.0024	.0031	.3263	.0009	.0029	-.0014
SDev	.26	.0002	.0054	.0012	.0008	.0037	.0020
%RSD	.2642	9.087	174.2	.3607	86.77	127.7	142.2
#1	96.72	.0022	-.0007	.3271	.0004	.0003	.0000
#2	96.36	.0026	.0069	.3254	.0015	.0055	-.0028

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0031	.0002	.0013	.0082	-.0001	.0006
SDev	.0000	.0010	.0001	.0057	.0080	.0000	.0007
%RSD	29.41	32.54	26.35	430.9	98.15	39.56	118.3
#1	.0001	.0024	.0003	-.0027	.0139	-.0001	.0011
#2	.0001	.0038	.0002	.0054	.0025	-.0001	.0001

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0017	.0000
SDev	.0001	.0008	.0004
%RSD	51.05	50.29	241900.
#1	.0001	.0011	.0003
#2	.0001	.0023	-.0003

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	765438	10000	--	--	--	--	--
SDev	2004.648	.0000000	--	--	--	--	--
%RSD	.2618957	.0000000	--	--	--	--	--
#1	766855	10000	--	--	--	--	--
#2	764020	10000	--	--	--	--	--

010417

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Method: DAILY2 Sample Name: 230868~~0~~S Operator:
Run Time: 08/04/03 19:56:34
Comment:
Mode: CONC Corr. Factor: 1

JR 8/5/03

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0508	2.095	2.066	.0048	2.031	.0512	-.0005
SDev	.0007	.003	.003	.0003	.001	.0000	.0006
%RSD	1.348	.1551	.1247	5.820	.0402	.0113	132.8
#1	.0513	2.097	2.065	.0050	2.031	.0512	-.0000
#2	.0503	2.093	2.068	.0046	2.030	.0512	-.0009

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	20.30	.0517	.5228	.2034	.2614	1.095	23.78
SDev	.00	.0001	.0005	.0002	.0006	.028	.01
%RSD	.0207	.1664	.1018	.0782	.2308	2.575	.0254
#1	20.29	.0516	.5225	.2035	.2609	1.115	23.78
#2	20.30	.0518	.5232	.2033	.2618	1.075	23.77

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	14.02	20.63	.5122	.0020	172.7	228.0
SDev	.0001	.03	.04	.0002	.0005	.4	1.0
%RSD	16.88	.2132	.1864	.0472	22.67	.2592	.4549
#1	-.0005	14.04	20.66	.5121	.0017	173.1	228.8
#2	-.0007	13.99	20.60	.5124	.0024	172.4	227.3

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5139	.0296	.5080	.4969	-.0001	.0176	.5004
SDev	.0040	.0045	.0010	.0026	.0029	.0023	.0034
%RSD	.7743	15.16	.2040	.5314	1948.	13.12	.6753
#1	.5167	.0328	.5073	.4987	.0019	.0160	.4980
#2	.5110	.0264	.5088	.4950	-.0022	.0192	.5028

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	93.68	2.136	2.118	4.596	.5006	2.124	-.0012
SDev	.35	.009	.012	.010	.0014	.011	.0006
%RSD	.3687	.4416	.5721	.2191	.2826	.5283	51.81
#1	93.44	2.143	2.127	4.603	.5016	2.132	-.0008
#2	93.93	2.129	2.110	4.589	.4996	2.116	-.0017

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0006	-.0135	-.0000	2.150	-.0090	.5157	-.0018
SDev	.0000	.0028	.0001	.003	.0049	.0009	.0001
%RSD	.2649	20.65	255.7	.1557	55.10	.1815	5.956
#1	.0006	-.0155	.0000	2.148	-.0055	.5164	-.0018
#2	.0006	-.0115	-.0001	2.153	-.0124	.5151	-.0017

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0001	.5215	.0020
SDev	.0000	.0008	.0011
%RSD	19.47	.1455	54.37
#1	-.0001	.5209	.0027
#2	-.0001	.5220	.0012

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	742800	10000	--	--	--	--	--
SDev	2810.749	.0000000	--	--	--	--	--
%RSD	.3783995	.0000000	--	--	--	--	--
#1	740812	10000	--	--	--	--	--
#2	744787	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: 230869 Operator:
Run Time: 08/04/03 20:01:49
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0002	.0125	.0021	-.0024	.0004	.0001	.0012
SDev	.0006	.0016	.0017	.0013	.0000	.0000	.0040
%RSD	380.3	12.69	80.40	55.89	7.132	34.63	348.0
#1	.0006	.0136	.0033	-.0033	.0004	.0000	.0040
#2	-.0003	.0114	.0009	-.0015	.0004	.0001	-.0017

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0270	-.0001	.0051	.0003	.0012	.0209	.0412
SDev	.0104	.0001	.0002	.0011	.0003	.0069	.0050
%RSD	38.33	50.89	3.421	339.1	25.01	33.15	12.25
#1	.0197	-.0001	.0052	-.0004	.0010	.0160	.0447
#2	.0344	-.0002	.0050	.0011	.0014	.0258	.0376

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	19.82	.0017	.0001	.0023	119.3	162.0
SDev	.0007	.04	.0050	.0000	.0014	.6	.4
%RSD	168.3	.1980	295.5	58.61	62.13	.5279	.2662
#1	.0009	19.84	.0052	.0000	.0033	119.7	162.3
#2	-.0001	19.79	-.0018	.0001	.0013	118.8	161.7

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0159	-.0005	.0003	.0021	.0084	.0007
SDev	.0004	.0143	.0013	.0000	.0007	.0070	.0002
%RSD	420.0	89.50	251.6	14.05	34.06	83.24	33.64
#1	-.0002	.0260	-.0014	.0003	.0026	.0035	.0005
#2	.0004	.0058	.0004	.0002	.0016	.0133	.0008

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	97.19	.0022	.0009	.4259	.0000	.0013	-.0024
SDev	.20	.0084	.0034	.0042	.0004	.0005	.0001
%RSD	.2083	386.4	383.3	.9830	1229.	40.97	5.879
#1	97.33	.0081	-.0015	.4229	-.0003	.0017	-.0025
#2	97.05	-.0038	.0033	.4288	.0003	.0009	-.0023

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	-.0005	.0001	.0009	.0134	-.0001	.0011
SDev	.0000	.0011	.0000	.0032	.0127	.0001	.0020
%RSD	.8021	202.1	44.55	356.1	95.22	52.96	181.2
#1	.0003	-.0013	.0001	.0032	.0224	-.0002	-.0003
#2	.0003	.0002	.0001	-.0014	.0044	-.0001	.0025

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	-.0000	.0012	-.0002
SDev	.0000	.0003	.0003
%RSD	222.0	23.65	135.9
#1	.0000	.0010	-.0000
#2	-.0000	.0014	-.0004

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	770634	10000	--	--	--	--	--
SDev	1608.668	.0000000	--	--	--	--	--
%RSD	.2087459	.0000000	--	--	--	--	--
#1	771772	10000	--	--	--	--	--
#2	769497	10000	--	--	--	--	--

010421

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Method: DAILY2 Sample Name: 230870 Operator:
Run Time: 08/04/03 20:07:03
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	.0389	-.0006	-.0039	.0007	.0001	-.0028
SDev	.0003	.0009	.0010	.0032	.0000	.0000	.0058
%RSD	47.93	2.268	148.5	81.96	1.738	68.13	207.6
#1	-.0003	.0396	.0000	-.0016	.0007	.0001	.0013
#2	-.0007	.0383	-.0013	-.0062	.0007	.0000	-.0069

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0204	.0001	-.0004	.0002	.0016	.0100	.0261
SDev	.0084	.0002	.0003	.0002	.0007	.0015	.0006
%RSD	41.02	276.2	72.27	90.37	41.41	15.49	2.355
#1	.0145	.0002	-.0006	.0003	.0020	.0089	.0256
#2	.0263	-.0001	-.0002	.0001	.0011	.0111	.0265

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	28.61	.0015	.0001	.0019	82.99	118.1
SDev	.0003	.06	.0023	.0000	.0001	.08	.1
%RSD	95.37	.2248	150.8	19.27	5.914	.0965	.0750
#1	.0001	28.65	.0032	.0001	.0020	83.05	118.2
#2	.0004	28.56	-.0001	.0001	.0018	82.94	118.1

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.0061	.0009	-.0006	.0008	-.0023	-.0014
SDev	.0000	.0142	.0022	.0012	.0013	.0118	.0063
%RSD	9.865	230.5	252.2	201.0	170.6	509.8	434.7
#1	.0003	-.0039	.0024	.0002	.0017	.0060	-.0059
#2	.0003	.0162	-.0007	-.0014	-.0002	-.0107	.0030

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899
Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	97.89	.0015	.0007	.3924	-.0001	.0010	-.0016
SDev	.83	.0015	.0008	.0017	.0015	.0010	.0001
%RSD	.8520	98.13	107.1	.4369	1676.	101.4	5.852
#1	97.30	.0005	.0002	.3936	.0010	.0003	-.0015
#2	98.48	.0026	.0013	.3912	-.0012	.0017	-.0016

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0011	.0006	.0013	.0065	.0004	.0005
SDev	.0000	.0006	.0003	.0040	.0032	.0001	.0001
%RSD	16.42	58.99	57.56	314.7	49.00	16.42	27.85
#1	.0001	.0015	.0004	.0041	.0043	.0003	.0006
#2	.0001	.0006	.0009	-.0016	.0088	.0004	.0004

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	.0009	.0001
SDev	.0001	.0002	.0002
%RSD	71.26	23.36	208.9
#1	.0002	.0007	-.0000
#2	.0001	.0010	.0002

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	776142	10000	--	--	--	--	--
SDev	6624.883	.0000000	--	--	--	--	--
%RSD	.8535653	.0000000	--	--	--	--	--
#1	771458	10000	--	--	--	--	--
#2	780827	10000	--	--	--	--	--

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Method: DAILY2 Sample Name: ccv4 Operator:
Run Time: 08/04/03 20:17:03
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9848	9.969	4.898	4.816	9.882	.9941	4.958
SDev	.0008	.021	.001	.009	.002	.0006	.008
%RSD	.0810	.2126	.0207	.1795	.0211	.0594	.1534
#1	.9853	9.984	4.898	4.810	9.881	.9946	4.964
#2	.9842	9.954	4.899	4.822	9.884	.9937	4.953
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	1.100	11.00	5.500	5.500	11.00	1.100	5.500
Low	.9000	9.000	4.500	4.500	9.000	.9000	4.500

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19.78	1.007	5.003	1.957	2.003	10.10	18.17
SDev	.04	.000	.005	.002	.002	.00	.03
%RSD	.2097	.0483	.1047	.1253	.1068	.0052	.1395
#1	19.75	1.008	5.007	1.955	2.004	10.10	18.19
#2	19.81	1.007	5.000	1.958	2.001	10.10	18.15
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	22.00	1.100	5.500	2.200	2.200	11.00	22.00
Low	18.00	.9000	4.500	1.800	1.800	9.000	18.00

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.880	4.870	19.99	1.010	5.109	28.10	H40.98
SDev	.003	.002	.04	.001	.010	.14	.06
%RSD	.0549	.0391	.2019	.0917	.1883	.5085	.1351
#1	4.878	4.872	20.01	1.009	5.102	28.20	H41.02
#2	4.881	4.869	19.96	1.011	5.116	28.00	H40.94
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC High
High	5.500	5.500	22.00	1.100	5.500	33.00	33.00
Low	4.500	4.500	18.00	.9000	4.500	27.00	27.00

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.897	5.037	4.867	4.834	.9737	1.008	.9852
SDev	.015	.036	.006	.022	.0003	.012	.0033
%RSD	.3129	.7086	.1180	.4627	.0256	1.201	.3364
#1	4.907	5.062	4.871	4.850	.9739	.9998	.9828
#2	4.886	5.012	4.863	4.818	.9735	1.017	.9875
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	5.500	5.500			1.100	1.100	1.100
Low	4.500	4.500			.9000	.9000	.9000

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	101.2	5.092	5.112	4.994	4.845	5.106	4.866
SDev	.2	.003	.015	.008	.017	.009	.004
%RSD	.2400	.0626	.2873	.1597	.3473	.1710	.0914
#1	101.4	5.090	5.123	4.999	4.857	5.112	4.869
#2	101.1	5.094	5.102	4.988	4.833	5.099	4.862
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				5.500	5.500	5.500	5.500
Low				4.500	4.500	4.500	4.500

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.005	.9768	4.812	5.122	.9552	4.947	1.015
SDev	.001	.0007	.000	.013	.0130	.002	.003
%RSD	.0296	.0740	.0040	.2586	1.358	.0405	.3310
#1	5.004	.9763	4.812	5.113	.9460	4.948	1.012
#2	5.006	.9773	4.812	5.131	.9643	4.945	1.017
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500	5.500	1.100	5.500	1.100
Low	4.500	.9000	4.500	4.500	.9000	4.500	.9000

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	4.953	1.002	4.862
SDev	.001	.001	.002
%RSD	.0110	.0568	.0343
#1	4.953	1.002	4.861
#2	4.952	1.002	4.863
Errors	LC Pass	LC Pass	LC Pass
High	5.500	1.100	5.500
Low	4.500	.9000	4.500

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	802846	10000	--	--	--	--	--
SDev	1921.209	.0000000	--	--	--	--	--
%RSD	.2393000	.0000000	--	--	--	--	--
#1	804204	10000	--	--	--	--	--
#2	801487	10000	--	--	--	--	--

Analysis Report 08/04/03 08:29:44 PM page 1

Method: DAILY2 Sample Name: ccb4 Operator:
Run Time: 08/04/03 20:24:41
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Bi2230
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	-.0034	.0006	-.0049	.0000	.0000	-.0011
SDev	.0002	.0034	.0022	.0011	.0000	.0000	.0032
%RSD	79.58	99.26	363.1	22.98	67.60	73.56	280.3
#1	-.0001	-.0058	.0021	-.0041	.0000	.0000	.0011
#2	-.0004	-.0010	-.0009	-.0056	.0000	.0000	-.0034
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0500	.0050	.0500	.0050	.0050	.0050
Low	-.0050	-.0500	-.0050	-.0500	-.0050	-.0050	-.0050

Elem	Ca3179	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.0001	-.0002	-.0003	.0002	.0165	.0003
SDev	.0026	.0002	.0000	.0004	.0001	.0123	.0075
%RSD	943.1	332.1	1.240	105.1	32.33	74.72	2695.
#1	-.0016	.0002	-.0002	-.0006	.0003	H.0252	.0056
#2	.0021	-.0001	-.0002	-.0001	.0002	.0078	-.0050
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0500	.0050	.0050	.0050	.0050	.0250	.1000
Low	-.0500	-.0050	-.0050	-.0050	-.0050	-.0250	-.1000

Elem	La3988	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Na5889
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	.0038	-.0031	-.0001	.0039	.0136	.0365
SDev	.0004	.0002	.0053	.0000	.0005	.0678	.0003
%RSD	533.3	4.654	170.0	21.52	13.47	497.2	.6878
#1	-.0002	.0039	-.0068	-.0001	.0035	H.0616	.0366
#2	.0004	.0036	.0006	-.0001	.0043	-.0343	.0363
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0500	.0050	.0050	.0500	.0500
Low	-.0050	-.0050	-.0500	-.0050	-.0050	-.0500	-.0500

Elem	Ni2316	P_1782	2203/1	2203/2	Pd3404	S_1820	Sb2068
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	H.0136	.0000	-.0002	.0008	-.0024	.0010
SDev	.0006	.0050	.0010	.0023	.0004	.0087	.0009
%RSD	107.0	37.09	36540.	1268.	52.40	364.5	91.36
#1	-.0001	H.0171	.0007	.0014	.0011	-.0085	.0004
#2	-.0010	.0100	-.0007	-.0018	.0005	.0037	.0017
Errors	LC Pass	LC High	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass
High	.0050	.0100			.0050	.0100	.0100
Low	-.0050	-.0100			-.0050	-.0100	-.0100

Elem	Sc3613	1960/1	1960/2	Si2881	Pb220	Se196	Sn1899

Units	%R	ppm	ppm	ppm	ppm	ppm	ppm
Avge	103.4	.0025	.0010	-.0004	-.0001	.0015	-.0026
SDev	.6	.0020	.0013	.0014	.0018	.0002	.0002
%RSD	.6069	80.71	134.8	339.0	1773.	14.57	6.449
#1	103.0	.0039	.0000	-.0014	.0012	.0013	-.0025
#2	103.9	.0011	.0019	.0006	-.0014	.0016	-.0027
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High				.0100	.0030	.0050	.0050
Low				-.0100	-.0030	-.0050	-.0050

Elem	Sr4215	Th2837	Ti3349	Tl1908	U_4090	V_2924	W_2079
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0002	.0001	.0004	.0016	-.0003	-.0017
SDev	.0000	.0032	.0001	.0019	.0091	.0002	.0017
%RSD	50.20	1758.	192.7	534.1	584.0	75.91	102.6
#1	.0000	.0024	.0002	-.0010	-.0049	-.0005	-.0029
#2	.0000	-.0020	-.0000	.0017	.0080	-.0002	-.0005
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.0050	.0100	.0050	.0100	.1000	.0050	.0100
Low	-.0050	-.0100	-.0050	-.0100	-.1000	-.0050	-.0100

Elem	Y_3710	Zn2062	Zr3496
Units	ppm	ppm	ppm
Avge	.0001	-.0006	-.0002
SDev	.0001	.0001	.0002
%RSD	87.46	20.69	109.7
#1	.0000	-.0005	-.0003
#2	.0002	-.0007	-.0000
Errors	LC Pass	LC Pass	LC Pass
High	.0050	.0050	.0050
Low	-.0050	-.0050	-.0050

IntStd	1	2	3	4	5	6	7
Mode	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Sc	--	--	--	--	--	--
Wavlen	361.384	--	--	--	--	--	--
Avge	820112	10000	--	--	--	--	--
SDev	4975.203	.0000000	--	--	--	--	--
%RSD	.6066493	.0000000	--	--	--	--	--
#1	816594	10000	--	--	--	--	--
#2	823630	10000	--	--	--	--	--

ICP ANALYSIS

K + Na

PROJ. NO.	PROJECT	WO#	DATE	MATRIX	LOGBK PG
06002.01.141	A.V 20	030721-18	8/5/03	Liq	54 141

INSTRUMENT: Spectro FILENAME: 030805

INSTRUMENT DL _____

010429

EVOLUTION by Micro-Active Australia Pty Ltd 10:55:26 AM August 5, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 10:48:50 AM August 5, 2003

	K_766	Li670	Na589	Sc361
# 1	11.0	-2.5	34.0	4681.0
# 2	11.0	-2.5	40.0	4474.0
Mean	11.0	-2.5	37.0	4577.5
SD	0.0	0.0	4.2	146.4
%RSD	0.0	0.0	11.5	3.2

INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 10:48:52 AM August 5, 2003

	K_766	Li670	Na589	Sc361
# 1	0.0	-0.0	0.0	4681.0
# 2	0.0	-0.0	0.0	4474.0
Mean	0.0	-0.0	0.0	4577.5
SD	0.0	0.0	0.0	146.4
%RSD	3.2	3.2	14.6	3.2

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 10:51:58 AM August 5, 2003

	K_766	Li670	Na589
# 1	4294.0	34841.5	20884.5
# 2	4275.0	34554.5	20718.5
Mean	4284.5	34698.0	20801.5
SD	13.4	202.9	117.4
%RSD	0.3	0.6	0.6

INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 10:51:58 AM August 5, 2003

	K_766	Li670	Na589
# 1	0.9	7.3	4.4
# 2	0.9	7.3	4.4
Mean	0.9	7.3	4.4
SD	0.0	0.0	0.0
%RSD	0.6	0.3	0.3

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 10:55:06 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1687.5	17546.5	12417.0	4771.0	4771.0
# 2	1672.5	17383.5	12303.0	4709.0	4709.0
Mean	1680.0	17465.0	12360.0	4740.0	4740.0
SD	10.6	115.3	80.6	43.8	43.8
%RSD	0.6	0.7	0.7	0.9	0.9

4-5-03
8/5/03

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 10:55:06 AM August 5, 2003

010430

EVOLUTION by Micro-Active Australia Pty Ltd 11:02:56 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.4490	5.0154	29.5617	4771.000 H	104.2332
# 2	19.5304	5.0343	29.6763	4709.000 H	102.8768
Mean	19.4897	5.0248	29.6190	4740.000 H	103.5550
SD	0.0576	0.0133	0.0810	43.841	0.9591
%RSD	0.2956	0.2649	0.2736	0.925	0.9262

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.490	22.000
Li670	4.500	5.025	5.500
Na589	27.000	29.619	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 10:59:20 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.5	3.5	51.0	4784.0	4784.0
# 2	12.5	3.5	40.0	4646.0	4646.0
Mean	19.0	3.5	45.5	4715.0	4715.0
SD	9.2	0.0	7.8	97.6	97.6
%RSD	48.4	0.0	17.1	2.1	2.1

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 10:59:20 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.1621	0.0017	0.0294	4784.000 H	104.5176
# 2	0.0159	0.0018	0.0060	4646.000 H	101.4986
Mean	0.0890	0.0018	0.0177	4715.000 H	103.0081
SD	0.1033	0.0000	0.0165	97.581	2.1348
%RSD	116.1317	1.1924	93.4428	2.070	2.0724

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	0.089
Li670	0.010	0.002
Na589	0.050	0.018
Sc361	0.000	103.008

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-H05W1 Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:02:28 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.0	-6.5	22.0	4546.0	4546.0
# 2	22.0	-9.5	20.0	4508.0	4508.0
Mean	22.0	-8.0	21.0	4527.0	4527.0
SD	0.0	2.1	1.4	26.9	26.9

%RSD	0.0	26.5	6.7	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : pbw-H05W1 Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:02:28 AM August 5, 2003 **010431**
EVOLUTION by Micro-Active Australia Pty Ltd 11:12:00 AM August 5, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1349 L	-0.0012 L	-0.0370	4546.000	99.3109
# 2	0.1371 L	-0.0021 L	-0.0415	4508.000	98.4795
Mean	0.1360 L	-0.0017 L	-0.0393	4527.000	98.8952
SD	0.0016	0.0007	0.0032	26.870	0.5878
%RSD	1.1741	39.1911	8.2689	0.594	0.5944

BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-H05W1 Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:05:36 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1618.5	-6.0	8076.5	4487.0	4487.0
# 2	1620.5	-9.0	8001.5	4414.0	4414.0
Mean	1619.5	-7.5	8039.0	4450.5	4450.5
SD	1.4	2.1	53.0	51.6	51.6
%RSD	0.1	28.3	0.7	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : lcsw-H05W1 Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:05:36 AM August 5, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	19.8370 L	-0.0011	20.4167	4487.000	98.0201
# 2	20.1924 L	-0.0020	20.5623	4414.000	96.4231
Mean	20.0147 L	-0.0016	20.4895	4450.500	97.2216
SD	0.2513	0.0007	0.1029	51.619	1.1293
%RSD	1.2555	43.4550	0.5024	1.160	1.1615

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230773 Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:08:44 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	801.5	-18.5	2005.0	4590.0	4590.0
# 2	781.5	-3.5	2003.0	4519.0	4519.0
Mean	791.5	-11.0	2004.0	4554.5	4554.5
SD	14.1	10.6	1.4	50.2	50.2
%RSD	1.8	96.4	0.1	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : 230773 Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:08:44 AM August 5, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	9.5344 L	-0.0048	4.8850	4590.000 H	100.2735
# 2	9.4413 L	-0.0003	4.9581	4519.000	98.7202
Mean	9.4879 L	-0.0025	4.9216	4554.500	99.4968
SD	0.0659	0.0031	0.0517	50.205	1.0983
%RSD	0.6941	124.0245	1.0510	1.102	1.1039

Keep last result visible enabled ...
BACKGROUND CORRECTED INTENSITIES
Identity 1 : ~~230773\4~~ 230774 OH Identity 2 : pg54-141 Type : SAMPLE **010432**
Weight : 1.0000 Volume : 1.00 Printed : 11:11:52 AM August 5, 2003
EVOLUTION by Micro-Active Australia Pty Ltd 11:21:34 AM August 5, 2003
230774 OH 8-5-03

	K_766	Li670	Na589	Sc	Sc361
# 1	807.5	-6.0	2019.5	4643.5	4643.5
# 2	788.5	-10.0	1988.5	4569.5	4569.5
Mean	798.0	-8.0	2004.0	4606.5	4606.5
SD	13.4	2.8	21.9	52.3	52.3
%RSD	1.7	35.4	1.1	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : ~~230773\4~~ Identity 2 : pg54-141 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 11:11:52 AM August 5, 2003
230774 OH 8-5-03

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	9.4946 L	-0.0010	4.8632	4643.500 H	101.4439
# 2	9.4203 L	-0.0022	4.8662	4569.500	99.8250
Mean	9.4575 L	-0.0016	4.8647	4606.500 H	100.6344
SD	0.0525	0.0009	0.0021	52.326	1.1447
%RSD	0.5554	53.0744	0.0429	1.136	1.1375

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 11:17:10 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1696.0	17531.5	12409.5	4754.5	4754.5
# 2	1678.0	17359.5	12260.5	4673.5	4673.5
Mean	1687.0	17445.5	12335.0	4714.0	4714.0
SD	12.7	121.6	105.4	57.3	57.3
%RSD	0.8	0.7	0.9	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 11:17:10 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.6159	5.0285	29.6467	4754.500 H	103.8722
# 2	19.7449	5.0655	29.7988	4673.500 H	102.1002
Mean	19.6804	5.0470	29.7227	4714.000 H	102.9862
SD	0.0913	0.0261	0.1076	57.276	1.2530
%RSD	0.4637	0.5178	0.3620	1.215	1.2167

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.680	22.000
Li670	4.500	5.047	5.500
Na589	27.000	29.723	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 11:21:24 AM August 5, 2003

	K_766	Li670	Na589	Sc	Sc361

# 1	24.5	1.5	28.0	4789.0	4789.0
# 2	29.5	-6.5	36.0	4671.0	4671.0
Mean	27.0	-2.5	32.0	4730.0	4730.0
SD	3.5	5.7	5.7	83.4	83.4

010433

EVOLUTION by Micro-Active Australia Pty Ltd 11:32:00 AM August 5, 2003

%RSD	13.1	226.3	17.7	1.8	1.8

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 11:21:24 AM August 5, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.1502	0.0012 L	-0.0255	4789.000 H	104.6270
# 2	0.2166 L	-0.0012 L	-0.0043	4671.000 H	102.0455
Mean	0.1834	0.0000 L	-0.0149	4730.000 H	103.3363
SD	0.0470	0.0016	0.0150	83.439	1.8254
%RSD	25.6077	17280.0367	100.7209	1.764	1.7665

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	0.183	Contaminated
Li670	0.010	0.000	
Na589	0.050	-0.015	
Sc361	0.000	103.336	

ICP ANALYSIS

Li only.

PROJ. NO.	PROJECT	TO#	DATE	MATRIX	LOGBK PG
06002.01.141	Div 20	030721-18 030722-12	8-27-03	water	54 172
06002.01.141	Div 20	↓	8-27-03	water	54 173

INSTRUMENT: Spectro FILENAME: 030827

INSTRUMENT DL:

010434

EVOLUTION by Micro-Active Australia Pty Ltd 4:08:54 PM August 27, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 4:02:22 PM August 27, 2003

	K_766	Li670	Na589	Sc361
# 1	19.5	-15.5	17.0	4990.0
# 2	20.5	-23.5	24.0	4862.0
Mean	20.0	-19.5	20.5	4926.0
SD	0.7	5.7	4.9	90.5
%RSD	3.5	29.0	24.1	1.8

INTENSITIES
Identity 1 : BLK_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 4:02:24 PM August 27, 2003

	K_766	Li670	Na589	Sc361
# 1	0.0	-0.0	0.0	4990.0
# 2	0.0	-0.0	0.0	4862.0
Mean	0.0	-0.0	0.0	4926.0
SD	0.0	0.0	0.0	90.5
%RSD	5.4	30.8	25.9	1.8

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 4:05:30 PM August 27, 2003

	K_766	Li670	Na589
# 1	4770.0	39546.0	23648.0
# 2	4729.0	39462.0	23505.0
Mean	4749.5	39504.0	23576.5
SD	29.0	59.4	101.1
%RSD	0.6	0.2	0.4

INTENSITIES
Identity 1 : CLP_STD1_SC Identity 2 : Type : STD
Weight : 1.0000 Volume : 1.00 Printed : 4:05:30 PM August 27, 2003

	K_766	Li670	Na589
# 1	1.0	7.9	4.7
# 2	1.0	8.0	4.7
Mean	1.0	7.9	4.7
SD	0.0	0.0	0.0
%RSD	0.1	0.4	0.1

8/29/03

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:08:38 PM August 27, 2003

SWD 4 Sept 03

	K_766	Li670	Na589	Sc	Sc361
# 1	1886.5	20039.5	14155.0	5024.5	5024.5
# 2	1868.5	19756.5	13966.0	4957.5	4957.5
Mean	1877.5	19898.0	14060.5	4991.0	4991.0
SD	12.7	200.1	133.6	47.4	47.4
%RSD	0.7	1.0	1.0	0.9	0.9

8-27-03

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:08:38 PM August 27, 2003

EVOLUTION by Micro-Active Australia Pty Ltd 4:16:24 PM August 27, 2003 **010435**

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	19.5505	5.0293	29.7296	5024.500 H	102.0022
# 2	19.6265	5.0253	29.7291	4957.500 H	100.6403
Mean	19.5885	5.0273	29.7294	4991.000 H	101.3213
SD	0.0537	0.0028	0.0004	47.376	0.9630
%RSD	0.2743	0.0564	0.0013	0.949	0.9505

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.589	22.000
Li670	4.500	5.027	5.500
Na589	27.000	29.729	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:12:52 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	19.0	-11.5	32.5	5086.0	5086.0
# 2	17.0	-2.5	32.5	5042.0	5042.0
Mean	18.0	-7.0	32.5	5064.0	5064.0
SD	1.4	6.4	0.0	31.1	31.1
%RSD	7.9	90.9	0.0	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:12:52 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0171	0.0021	0.0236	5086.000 H	103.2524
# 2	L	-0.0362	0.0044	0.0241	5042.000 H	102.3580
Mean	L	-0.0267	0.0033	0.0238	5064.000 H	102.8052
SD		0.0136	0.0016	0.0004	31.113	0.6324
%RSD		50.8384	48.3791	1.7475	0.614	0.6152

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.027
Li670	0.010	0.003
Na589	0.050	0.024
Sc361	0.000	102.805

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:16:00 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	2.5	-10.5	16.0	2.0	2.0
# 2	13.5	-13.5	37.0	2.0	2.0
Mean	8.0	-12.0	26.5	2.0	2.0
SD	7.8	2.1	14.8	0.0	0.0
%RSD	97.2	17.7	56.0	0.0	0.0

APPARENT CONCENTRATIONS
Identity 1 : pbw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:16:00 PM August 27, 2003

010436

EVOLUTION by Micro-Active Australia Pty Ltd 4:26:54 PM August 27, 2003

		K_766 ppm		Li670 ppm		Na589 ppm		Sc		Sc361 ppm
# 1	H	65.5864	L	-6.6087	H	84.5043		2.000	L	-0.0915
# 2	H	355.1069	L	-8.4983	H	195.4739		2.000	L	-0.0915
Mean	H	210.3467	L	-7.5535	H	139.9891		2.000	L	-0.0915
SD		204.7219		1.3362		78.4673		0.000		0.0000
%RSD		97.3260		17.6893		56.0525		0.000		0.0000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : LCSWw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:19:08 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.0	-15.5	35.0	-0.5	-0.5
# 2	15.0	-12.5	25.0	2.5	2.5
Mean	13.0	-14.0	30.0	1.0	1.0
SD	2.8	2.1	7.1	2.1	2.1
%RSD	21.8	15.2	23.6	212.1	212.1

APPARENT CONCENTRATIONS
Identity 1 : LCSWw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:19:08 PM August 27, 2003

		K_766 ppm		Li670 ppm		Na589 ppm		Sc		Sc361 ppm
# 1	L	-1158.2958	H	39.0572	L	-739.8412	L	-0.500	L	-0.1423
# 2	H	315.6268	L	-6.2938	H	105.6413		2.500	L	-0.0813
Mean	L	-421.3345	H	16.3817	L	-317.0999		1.000	L	-0.1118
SD		1042.2207		32.0680		597.8464		2.121		0.0431
%RSD		247.3618		195.7546		188.5357		212.132		38.5695

Keep last result visible enabled ...
Starting run ...
Creating high priority queue entries ...

EVOLUTION by Micro-Active Australia Pty Ltd 4:32:24 PM August 27, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:27:48 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1882.0	19801.5	13998.5	4979.5	4979.5
# 2	1849.0	19238.5	13702.5	4815.5	4815.5
Mean	1865.5	19520.0	13850.5	4897.5	4897.5
SD	23.3	398.1	209.3	116.0	116.0
%RSD	1.3	2.0	1.5	2.4	2.4

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 4:27:48 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.6816	5.0145	29.6665	4979.500 H	101.0875
# 2	19.9984	5.0378	30.0288	4815.500	97.7538
Mean	19.8400	5.0262	29.8477	4897.500	99.4207
SD	0.2240	0.0165	0.2561	115.966	2.3573
%RSD	1.1292	0.3282	0.8581	2.368	2.3710

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.840	22.000
Li670	4.500	5.026	5.500
Na589	27.000	29.848	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:32:00 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.0	3.0	46.0	5118.5	5118.5
# 2	15.0	-1.0	43.0	5033.5	5033.5
Mean	13.0	1.0	44.5	5076.0	5076.0
SD	2.8	2.8	2.1	60.1	60.1
%RSD	21.8	282.8	4.8	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 4:32:00 PM August 27, 2003

		K_766	Li670	Na589	Sc	Sc361
		ppm	ppm	ppm		ppm
# 1	L	-0.1006	0.0057	0.0510	5118.500 H	103.9130
# 2	L	-0.0569	0.0047	0.0463	5033.500 H	102.1852
Mean	L	-0.0787	0.0052	0.0487	5076.000 H	103.0491
SD		0.0309	0.0007	0.0033	60.104	1.2218
%RSD		39.2890	13.3642	6.8240	1.184	1.1856

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.079
Li670	0.010	0.005
Na589	0.050	0.049

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EVOLUTION by Micro-Active Australia Pty Ltd 4:41:40 PM August 27, 2003

Sc361	0.000	103.049

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:35:08 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1.5	-9.0	13.0	4885.5	4885.5
# 2	18.5	-19.0	15.0	4842.5	4842.5
Mean	10.0	-14.0	14.0	4864.0	4864.0
SD	12.0	7.1	1.4	30.4	30.4
%RSD	120.2	50.5	10.1	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : pbw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:35:08 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L -0.1976	0.0027	L -0.0159	4885.500	99.1767
# 2	L -0.0126	0.0000	L -0.0112	4842.500	98.3027
Mean	L -0.1051	0.0014	L -0.0136	4864.000	98.7397
SD	0.1308	0.0019	0.0033	30.406	0.6181
%RSD	124.4380	136.8207	24.0771	0.625	0.6260

BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:38:16 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	28.0	15214.5	-17.5	4927.5	4927.5
# 2	17.0	15066.5	25.5	4870.5	4870.5
Mean	22.5	15140.5	4.0	4899.0	4899.0
SD	7.8	104.7	30.4	40.3	40.3
%RSD	34.6	0.7	760.1	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : lcsw-H25W2 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:38:16 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0854	3.8947	L -0.0815	4927.500	H 100.0305
# 2	L -0.0300	3.9019	0.0114	4870.500	98.8718
Mean	0.0277	3.8983	L -0.0351	4899.000	99.4512
SD	0.0816	0.0051	0.0657	40.305	0.8193
%RSD	294.4989	0.1314	187.1771	0.823	0.8238

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:41:24 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	23.0	6247.5	7661.5	4945.0	4945.0
# 2	15.0	6267.5	7708.5	4937.0	4937.0
Mean	19.0	6257.5	7685.0	4941.0	4941.0

SD	5.7	14.1	33.2	5.7	5.7
%RSD	29.8	0.2	0.4	0.1	0.1

APPARENT CONCENTRATIONS

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EVOLUTION by Micro-Active Australia Pty Ltd 4:51:04 PM August 27, 2003

Identity 1 : 230742 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:41:24 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1		0.0311	1.5966	16.3303	4945.000	H	100.3862
# 2	L	-0.0538	1.6042	16.4574	4937.000	H	100.2236
Mean	L	-0.0113	1.6004	16.3939	4941.000	H	100.3049
SD		0.0600	0.0054	0.0899	5.657		0.1150
%RSD		529.5519	0.3394	0.5484	0.114		0.1146

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742D Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:44:30 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.0	6233.0	7662.0	4963.5	4963.5
# 2	10.0	6215.0	7650.0	4952.5	4952.5
Mean	14.0	6224.0	7656.0	4958.0	4958.0
SD	5.7	12.7	8.5	7.8	7.8
%RSD	40.4	0.2	0.1	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230742D Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:44:30 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.0228	1.5869	16.2703	4963.500	H	100.7623
# 2	L	-0.1074	1.5859	16.2810	4952.500	H	100.5387
Mean	L	-0.0651	1.5864	16.2756	4958.000	H	100.6505
SD		0.0598	0.0008	0.0075	7.778		0.1581
%RSD		91.8582	0.0475	0.0462	0.157		0.1571

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230742s Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:47:38 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.5	21255.0	7802.0	4960.0	4960.0
# 2	22.5	21244.0	7732.0	4944.0	4944.0
Mean	19.5	21249.5	7767.0	4952.0	4952.0
SD	4.2	7.8	49.5	11.3	11.3
%RSD	21.8	0.0	0.6	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230742s Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:47:40 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.0386	5.4034	16.5801	4960.000	H	100.6911
# 2		0.0258	5.4180	16.4843	4944.000	H	100.3659
Mean	L	-0.0064	5.4107	16.5322	4952.000	H	100.5285
SD		0.0456	0.0104	0.0670	11.314		0.2200

%RSD	713.7429	0.1917	0.4099	0.228	0.2288

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230744 Identity 2 : pg54-172 Type : SAMPLE

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EVOLUTION by Micro-Active Australia Pty Ltd 4:57:26 PM August 27, 2003

Weight : 1.0000 Volume : 1.00 Printed : 4:50:46 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	24.0	21945.5	919.0	4920.0	4920.0
# 2	18.0	21957.5	902.0	4900.0	4900.0
Mean	21.0	21951.5	910.5	4910.0	4910.0
SD	4.2	8.5	12.0	14.1	14.1
%RSD	20.2	0.0	1.3	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230744 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:50:48 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0431	5.6241	1.9301	4920.000	99.8780
# 2	L	-0.0204	5.6501	1.9015	4900.000	99.4715
Mean		0.0114	5.6371	1.9158	4910.000	99.6748
SD		0.0448	0.0184	0.0202	14.142	0.2875
%RSD		394.9400	0.3264	1.0559	0.288	0.2884

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230745 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:53:52 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	7.0	22562.0	740.0	4958.0	4958.0
# 2	12.0	22361.0	734.0	4887.0	4887.0
Mean	9.5	22461.5	737.0	4922.5	4922.5
SD	3.5	142.1	4.2	50.2	50.2
%RSD	37.2	0.6	0.6	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230745 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:53:52 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.1394	5.7376	1.5334	4958.000 H	100.6505
# 2	L	-0.0845	5.7691	1.5434	4887.000	99.2072
Mean	L	-0.1119	5.7534	1.5384	4922.500	99.9289
SD		0.0388	0.0223	0.0070	50.205	1.0205
%RSD		34.7045	0.3868	0.4570	1.020	1.0212

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230746 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:57:00 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.5	23085.5	645.5	4919.0	4919.0
# 2	12.5	22903.5	626.5	4875.0	4875.0
Mean	13.0	22994.5	636.0	4897.0	4897.0
SD	0.7	128.7	13.4	31.1	31.1
%RSD	5.4	0.6	2.1	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230746 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 4:57:00 PM August 27, 2003

010441

EVOLUTION by Micro-Active Australia Pty Ltd 5:07:56 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0693	5.9172	1.3429	4919.000	99.8577
# 2	L	-0.0787	5.9235	1.3142	4875.000	98.9633
Mean	L	-0.0740	5.9203	1.3285	4897.000	99.4105
SD		0.0067	0.0045	0.0203	31.113	0.6324
%RSD		9.0718	0.0756	1.5261	0.635	0.6362

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230747 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:00:08 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.5	23423.5	458.0	4948.5	4948.5
# 2	10.5	23332.5	467.0	4937.5	4937.5
Mean	12.0	23378.0	462.5	4943.0	4943.0
SD	2.1	64.3	6.4	7.8	7.8
%RSD	17.7	0.3	1.4	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230747 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:00:08 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0701	5.9680	0.9342	4948.500 H	100.4574
# 2	L	-0.1018	5.9580	0.9556	4937.500 H	100.2338
Mean	L	-0.0859	5.9630	0.9449	4943.000 H	100.3456
SD		0.0224	0.0070	0.0152	7.778	0.1581
%RSD		26.0504	0.1178	1.6047	0.157	0.1576

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230748 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:03:16 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	17.5	23656.0	347.0	4922.5	4922.5
# 2	11.5	23638.0	316.0	4898.5	4898.5
Mean	14.5	23647.0	331.5	4910.5	4910.5
SD	4.2	12.7	21.9	17.0	17.0
%RSD	29.3	0.1	6.6	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230748 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:03:16 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0266	6.0590	0.7010	4922.500	99.9289
# 2	L	-0.0901	6.0840	0.6378	4898.500	99.4410
Mean	L	-0.0584	6.0715	0.6694	4910.500	99.6849
SD		0.0449	0.0177	0.0447	16.971	0.3450
%RSD		77.0080	0.2915	6.6794	0.346	0.3461

010442

EVOLUTION by Micro-Active Australia Pty Ltd 5:13:04 PM August 27, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 5:08:34 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1920.0	19932.5	14185.5	5073.5	5073.5
# 2	1910.0	20007.5	14193.5	5042.5	5042.5
Mean	1915.0	19970.0	14189.5	5058.0	5058.0
SD	7.1	53.0	5.7	21.9	21.9
%RSD	0.4	0.3	0.0	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 5:08:34 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.7072	4.9542	29.5056	5073.500 H	102.9983
# 2	19.7253	5.0034	29.7041	5042.500 H	102.3681
Mean	19.7163	4.9788	29.6048	5058.000 H	102.6832
SD	0.0128	0.0348	0.1403	21.920	0.4456
%RSD	0.0648	0.6982	0.4739	0.433	0.4339

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.716	22.000
Li670	4.500	4.979	5.500
Na589	27.000	29.605	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 5:12:48 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	8.0	-12.5	39.5	5142.5	5142.5
# 2	16.0	-5.5	18.5	5081.5	5081.5
Mean	12.0	-9.0	29.0	5112.0	5112.0
SD	5.7	4.9	14.8	43.1	43.1
%RSD	47.1	55.0	51.2	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 5:12:48 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.1318	0.0019	0.0372	5142.500 H	104.4009
# 2 L	-0.0480	0.0036 L	-0.0055	5081.500 H	103.1609
Mean L	-0.0899	0.0028	0.0158	5112.000 H	103.7809
SD	0.0593	0.0012	0.0302	43.134	0.8768
%RSD	65.9534	43.2979	190.5590	0.844	0.8448

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.090
Li670	0.010	0.003
Na589	0.050	0.016

EVOLUTION by Micro-Active Australia Pty Ltd 5:22:30 PM August 27, 2003 **010443**

Sc361	0.000	103.781

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230749 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:15:56 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	23773.5	254.0	4945.5	4945.5
# 2	2.5	23561.5	258.0	4888.5	4888.5
Mean	7.5	23667.5	256.0	4917.0	4917.0
SD	7.1	149.9	2.8	40.3	40.3
%RSD	94.3	0.6	1.1	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230749 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:15:56 PM August 27, 2003

		K_766	Li670	Na589	Sc	Sc361
		ppm	ppm	ppm		ppm
# 1	L	-0.0807	6.0607	0.4988	4945.500 H	100.3964
# 2	L	-0.1868	6.0767	0.5138	4888.500	99.2377
Mean	L	-0.1337	6.0687	0.5063	4917.000	99.8171
SD		0.0750	0.0113	0.0106	40.305	0.8193
%RSD		56.1137	0.1862	2.0917	0.820	0.8208

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230750 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:19:04 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	23917.0	224.0	4908.5	4908.5
# 2	13.5	23839.0	205.0	4881.5	4881.5
Mean	13.0	23878.0	214.5	4895.0	4895.0
SD	0.7	55.2	13.4	19.1	19.1
%RSD	5.4	0.2	6.3	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230750 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:19:04 PM August 27, 2003

		K_766	Li670	Na589	Sc	Sc361
		ppm	ppm	ppm		ppm
# 1	L	-0.0797	6.1432	0.4383	4908.500	99.6443
# 2	L	-0.0681	6.1570	0.3998	4881.500	99.0954
Mean	L	-0.0739	6.1501	0.4191	4895.000	99.3699
SD		0.0081	0.0098	0.0272	19.092	0.3881
%RSD		11.0265	0.1589	6.4906	0.390	0.3905

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230751 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:22:12 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.5	24243.5	100.5	4958.0	4958.0
# 2	13.5	23969.5	133.5	4904.0	4904.0
Mean	17.0	24106.5	117.0	4931.0	4931.0

SD		4.9	193.7	23.3	38.2	38.2
%RSD		29.1	0.8	19.9	0.8	0.8

APPARENT CONCENTRATIONS

010444

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Identity 1 : 230751 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:22:12 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0039	6.1649	0.1702	4958.000 H	100.6505
# 2	L	-0.0688	6.1623	0.2437	4904.000	99.5528
Mean	L	-0.0324	6.1636	0.2070	4931.000 H	100.1016
SD		0.0514	0.0018	0.0520	38.184	0.7762
%RSD		158.5495	0.0293	25.1015	0.774	0.7754

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230752 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:25:20 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.0	24195.5	62.0	4907.5	4907.5
# 2	5.0	24150.5	69.0	4882.5	4882.5
Mean	11.5	24173.0	65.5	4895.0	4895.0
SD	9.2	31.8	4.9	17.7	17.7
%RSD	79.9	0.1	7.6	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230752 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:25:20 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0206	6.2159	0.0895	4907.500	99.6239
# 2	L	-0.1598	6.2361	0.1054	4882.500	99.1158
Mean	L	-0.0902	6.2260	0.0975	4895.000	99.3699
SD		0.0984	0.0143	0.0112	17.678	0.3593
%RSD		109.0607	0.2293	11.4898	0.361	0.3616

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230753 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:28:28 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	22.5	9402.0	6434.5	4933.0	4933.0
# 2	12.5	9358.0	6398.5	4896.0	4896.0
Mean	17.5	9380.0	6416.5	4914.5	4914.5
SD	7.1	31.1	25.5	26.2	26.2
%RSD	40.4	0.3	0.4	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230753 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:28:28 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0264	2.4060	13.7414	4933.000 H	100.1423
# 2	L	-0.0793	2.4128	13.7679	4896.000	99.3902
Mean	L	-0.0265	2.4094	13.7546	4914.500	99.7662

%RSD	282.2950	0.2003	0.1361	0.532	0.5331

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230754 Identity 2 : pg54-172 Type : SAMPLE

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Weight : 1.0000 Volume : 1.00 Printed : 5:31:34 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	16.5	24503.0	61.5	4956.0	4956.0
# 2	19.5	24324.0	66.5	4895.0	4895.0
Mean	18.0	24413.5	64.0	4925.5	4925.5
SD	2.1	126.6	3.5	43.1	43.1
%RSD	11.8	0.5	5.5	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : 230754 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:31:34 PM August 27, 2003

		K_766	Li670	Na589	Sc	Sc361
		ppm	ppm	ppm		ppm
# 1	L	-0.0385	6.2333	0.0872	4956.000 H	100.6098
# 2	L	-0.0040	6.2649	0.0996	4895.000	99.3699
Mean	L	-0.0212	6.2491	0.0934	4925.500	99.9898
SD		0.0244	0.0223	0.0088	43.134	0.8768
%RSD		114.6402	0.3570	9.4121	0.876	0.8769

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230755 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:34:42 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	25.5	24352.0	52.5	4947.0	4947.0
# 2	8.5	24350.0	43.5	4912.0	4912.0
Mean	17.0	24351.0	48.0	4929.5	4929.5
SD	12.0	1.4	6.4	24.7	24.7
%RSD	70.7	0.0	13.3	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230755 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:34:42 PM August 27, 2003

		K_766	Li670	Na589	Sc	Sc361
		ppm	ppm	ppm		ppm
# 1		0.0576	6.2062	0.0682	4947.000 H	100.4269
# 2	L	-0.1226	6.2499	0.0496	4912.000	99.7154
Mean	L	-0.0325	6.2280	0.0589	4929.500 H	100.0711
SD		0.1275	0.0309	0.0131	24.749	0.5031
%RSD		392.0809	0.4958	22.2899	0.502	0.5027

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230756 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:37:50 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	19.0	24469.0	36.0	4986.0	4986.0
# 2	10.0	24319.0	25.0	4940.0	4940.0
Mean	14.5	24394.0	30.5	4963.0	4963.0
SD	6.4	106.1	7.8	32.5	32.5
%RSD	43.9	0.4	25.5	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230756 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:37:50 PM August 27, 2003

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		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0131	6.1873	0.0323	4986.000 H	101.2196
# 2	L	-0.1072	6.2066	0.0095	4940.000 H	100.2846
Mean	L	-0.0601	6.1969	0.0209	4963.000 H	100.7521
SD		0.0665	0.0137	0.0161	32.527	0.6612
%RSD		110.5506	0.2204	77.1642	0.655	0.6562

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230757 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:40:58 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	26.0	21082.0	1892.0	4941.0	4941.0
# 2	30.0	20834.0	1872.0	4883.0	4883.0
Mean	28.0	20958.0	1882.0	4912.0	4912.0
SD	2.8	175.4	14.1	41.0	41.0
%RSD	10.1	0.8	0.8	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230757 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:40:58 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0633	5.3800	4.0029	4941.000 H	100.3049
# 2	0.1097	5.3799	4.0077	4883.000	99.1259
Mean	0.0865	5.3800	4.0053	4912.000	99.7154
SD	0.0328	0.0001	0.0034	41.012	0.8337
%RSD	37.9487	0.0018	0.0844	0.835	0.8360

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230758 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:44:06 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.0	24207.0	100.0	4945.5	4945.5
# 2	23.0	23977.0	73.0	4893.5	4893.5
Mean	21.5	24092.0	86.5	4919.5	4919.5
SD	2.1	162.6	19.1	36.8	36.8
%RSD	9.9	0.7	22.1	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230758 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:44:06 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0008	6.1712	0.1697	4945.500 H	100.3964
# 2		0.0337	6.1775	0.1137	4893.500	99.3394
Mean		0.0164	6.1743	0.1417	4919.500	99.8679
SD		0.0244	0.0045	0.0396	36.770	0.7474
%RSD		148.6776	0.0723	27.9660	0.747	0.7484

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BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 5:49:24 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1926.5	20041.0	14312.0	5119.0	5119.0
# 2	1900.5	19799.0	14123.0	5025.0	5025.0
Mean	1913.5	19920.0	14217.5	5072.0	5072.0
SD	18.4	171.1	133.6	66.5	66.5
%RSD	1.0	0.9	0.9	1.3	1.3

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 5:49:24 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.5970	4.9369	29.5041	5119.000 H	103.9232
# 2	19.6952	4.9685	29.6594	5025.000 H	102.0124
Mean	19.6461	4.9527	29.5818	5072.000 H	102.9678
SD	0.0695	0.0223	0.1098	66.468	1.3511
%RSD	0.3535	0.4510	0.3711	1.310	1.3122

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.646	22.000
Li670	4.500	4.953	5.500
Na589	27.000	29.582	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 5:53:36 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.5	-8.0	26.0	5110.0	5110.0
# 2	19.5	-3.0	40.0	5082.0	5082.0
Mean	19.0	-5.5	33.0	5096.0	5096.0
SD	0.7	3.5	9.9	19.8	19.8
%RSD	3.7	64.3	30.0	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 5:53:36 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0231	0.0030	0.0098	5110.000 H	103.7402
# 2 L	-0.0117	0.0042	0.0392	5082.000 H	103.1711
Mean L	-0.0174	0.0036	0.0245	5096.000 H	103.4556
SD	0.0081	0.0009	0.0208	19.799	0.4025
%RSD	46.2446	23.9390	84.8948	0.389	0.3890

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value
K_766	0.100	-0.017
Li670	0.010	0.004
Na589	0.050	0.024

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Sc361	0.000	103.456

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230759 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:56:40 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	0.0	-9.0	10.0	5070.5	5070.5
# 2	19.0	-3.0	25.0	5054.5	5054.5
Mean	9.5	-6.0	17.5	5062.5	5062.5
SD	13.4	4.2	10.6	11.3	11.3
%RSD	141.4	70.7	60.6	0.2	0.2

APPARENT CONCENTRATIONS
Identity 1 : 230759 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 5:56:40 PM August 27, 2003

		K_766 ppm		Li670 ppm		Na589 ppm		Sc		Sc361 ppm
# 1	L	-0.2137		0.0028	L	-0.0231		5070.500	H	102.9373
# 2	L	-0.0158		0.0042		0.0083		5054.500	H	102.6121
Mean	L	-0.1148		0.0035	L	-0.0074		5062.500	H	102.7747
SD		0.1399		0.0011		0.0222		11.314		0.2300
%RSD		121.8959		30.1119		299.3603		0.223		0.2238

BACKGROUND CORRECTED INTENSITIES
Identity 1 : pbw-H25W3 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:02:00 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.5	-6.5	24.0	4961.0	4961.0
# 2	5.5	-10.5	21.0	4877.0	4877.0
Mean	9.5	-8.5	22.5	4919.0	4919.0
SD	5.7	2.8	2.1	59.4	59.4
%RSD	59.5	33.3	9.4	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : pbw-H25W3 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:02:00 PM August 27, 2003

		K_766 ppm		Li670 ppm		Na589 ppm		Sc		Sc361 ppm
# 1	L	-0.0705		0.0033		0.0071		4961.000	H	100.7115
# 2	L	-0.1544		0.0023		0.0015		4877.000		99.0040
Mean	L	-0.1124		0.0028		0.0043		4919.000		99.8577
SD		0.0593		0.0008		0.0040		59.397		1.2074
%RSD		52.7608		26.7584		91.6651		1.208		1.2091

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BACKGROUND CORRECTED INTENSITIES
Identity 1 : lcsw-H25W3 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:05:08 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	29.0	15094.5	23.0	4940.0	4940.0
# 2	18.0	15057.5	25.0	4912.0	4912.0
Mean	23.5	15076.0	24.0	4926.0	4926.0
SD	7.8	26.2	1.4	19.8	19.8
%RSD	33.1	0.2	5.9	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : lcsw-H25W3 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:05:08 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	0.0953	3.8542	0.0052	4940.000 H	100.2846
# 2 L	-0.0208	3.8667	0.0098	4912.000	99.7154
Mean	0.0372	3.8605	0.0075	4926.000	100.0000
SD	0.0821	0.0088	0.0032	19.799	0.4025
%RSD	220.5095	0.2281	43.1251	0.402	0.4025

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:08:16 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	20.0	12156.0	5518.0	4958.0	4958.0
# 2	22.0	12089.0	5555.0	4929.0	4929.0
Mean	21.0	12122.5	5536.5	4943.5	4943.5
SD	1.4	47.4	26.2	20.5	20.5
%RSD	6.7	0.4	0.5	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230760 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:08:16 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0014	3.0936	11.7183	4958.000 H	100.6505
# 2	0.0212	3.0947	11.8668	4929.000 H	100.0610
Mean	0.0099	3.0942	11.7925	4943.500 H	100.3557
SD	0.0160	0.0007	0.1050	20.506	0.4168
%RSD	161.0768	0.0240	0.8907	0.415	0.4154

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760d Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:11:24 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.5	12095.5	5537.0	4933.5	4933.5
# 2	6.5	12012.5	5456.0	4882.5	4882.5
Mean	9.0	12054.0	5496.5	4908.0	4908.0
SD	3.5	59.7	57.3	36.1	36.1

%RSD	39.3	0.5	1.0	0.7	0.7

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APPARENT CONCENTRATIONS
Identity 1 : 230760d Identity 2 : pg54-173 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 6:12:30 PM August 27, 2003

Weight : 1.0000 Volume : 1.00 Printed : 6:11:24 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0910	3.0935	11.8174	4933.500 H	100.1525
# 2	L	-0.1436	3.1044	11.7659	4882.500	99.1158
Mean	L	-0.1173	3.0989	11.7916	4908.000	99.6341
SD		0.0372	0.0077	0.0364	36.062	0.7331
%RSD		31.7149	0.2475	0.3084	0.735	0.7357

EVOLUTION by Micro-Active Australia Pty Ltd 6:21:02 PM August 27, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230760s Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:14:30 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.0	27371.5	5576.5	4948.5	4948.5
# 2	16.0	26811.5	5453.5	4827.5	4827.5
Mean	17.0	27091.5	5515.0	4888.0	4888.0
SD	1.4	396.0	87.0	85.6	85.6
%RSD	8.3	1.5	1.6	1.8	1.8

APPARENT CONCENTRATIONS
Identity 1 : 230760s Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:14:30 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0222	6.9730	11.8658	4948.500 H	100.4574
# 2	L	-0.0393	7.0015	11.8950	4827.500	97.9978
Mean	L	-0.0308	6.9873	11.8804	4888.000	99.2276
SD		0.0120	0.0202	0.0207	85.560	1.7392
%RSD		39.1111	0.2886	0.1740	1.750	1.7527

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230761 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:17:38 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	24.5	14807.5	4844.5	4957.0	4957.0
# 2	17.5	14653.5	4801.5	4889.0	4889.0
Mean	21.0	14730.5	4823.0	4923.0	4923.0
SD	4.9	108.9	30.4	48.1	48.1
%RSD	23.6	0.7	0.6	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230761 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:17:38 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0465	3.7681	10.2847	4957.000 H	100.6301
# 2	L	-0.0253	3.7808	10.3354	4889.000	99.2479
Mean		0.0106	3.7744	10.3100	4923.000	99.9390
SD		0.0507	0.0090	0.0359	48.083	0.9774
%RSD		479.7598	0.2372	0.3478	0.977	0.9780

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230762 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:20:46 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	33.5	17277.0	3356.0	4945.0	4945.0
# 2	15.5	17278.0	3373.0	4925.0	4925.0
Mean	24.5	17277.5	3364.5	4935.0	4935.0
SD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

%RSD	52.0	0.0	0.4	0.3	0.3

APPARENT CONCENTRATIONS
Identity 1 : 230762 Identity 2 : pg54-173 Type : SAMPLE

010452

EVOLUTION by Micro-Active Australia Pty Ltd 6:31:32 PM August 27, 2003

Weight : 1.0000 Volume : 1.00 Printed : 6:20:46 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.1429	4.4063	7.1285	4945.000 H	100.3862
# 2	L	-0.0481	4.4245	7.1941	4925.000	99.9797
Mean		0.0474	4.4154	7.1613	4935.000 H	100.1829
SD		0.1350	0.0128	0.0464	14.142	0.2875
%RSD		284.7434	0.2903	0.6478	0.287	0.2869

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230763 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:23:54 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.5	18568.0	2903.5	4984.0	4984.0
# 2	9.5	18326.0	2844.5	4915.0	4915.0
Mean	10.5	18447.0	2874.0	4949.5	4949.5
SD	1.4	171.1	41.7	48.8	48.8
%RSD	13.5	0.9	1.5	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230763 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:23:54 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0923	4.6982	6.1129	4984.000 H	101.1790
# 2	L	-0.1120	4.7021	6.0724	4915.000	99.7764
Mean	L	-0.1021	4.7001	6.0927	4949.500 H	100.4777
SD		0.0139	0.0027	0.0286	48.790	0.9918
%RSD		13.6512	0.0581	0.4692	0.986	0.9871

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230764 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:27:02 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.0	20125.0	2205.5	4986.0	4986.0
# 2	29.0	19845.0	2194.5	4921.0	4921.0
Mean	21.0	19985.0	2200.0	4953.5	4953.5
SD	11.3	198.0	7.8	46.0	46.0
%RSD	53.9	1.0	0.4	0.9	0.9

APPARENT CONCENTRATIONS
Identity 1 : 230764 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:27:02 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0765	5.0897	4.6309	4986.000 H	101.2196
# 2		0.0965	5.0852	4.6690	4921.000	99.8984
Mean		0.0100	5.0875	4.6499	4953.500 H	100.5590
SD		0.1223	0.0032	0.0270	45.962	0.9343
%RSD		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

EVOLUTION by Micro-Active Australia Pty Ltd 6:37:02 PM August 27, 2003 010453

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 6:32:20 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1925.0	20033.0	14234.5	5105.5	5105.5
# 2	1897.0	19844.0	14076.5	5018.5	5018.5
Mean	1911.0	19938.5	14155.5	5062.0	5062.0
SD	19.8	133.6	111.7	61.5	61.5
%RSD	1.0	0.7	0.8	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 6:32:20 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.6339	4.9480	29.4218	5105.500 H	103.6487
# 2	19.6843	4.9863	29.5999	5018.500 H	101.8803
Mean	19.6591	4.9671	29.5109	5062.000 H	102.7645
SD	0.0356	0.0270	0.1259	61.518	1.2505
%RSD	0.1812	0.5445	0.4267	1.215	1.2169

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.659	22.000
Li670	4.500	4.967	5.500
Na589	27.000	29.511	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 6:36:34 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	0.5	-10.0	40.5	5125.5	5125.5
# 2	19.5	-6.0	18.5	5069.5	5069.5
Mean	10.0	-8.0	29.5	5097.5	5097.5
SD	13.4	2.8	15.6	39.6	39.6
%RSD	134.4	35.4	52.7	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 6:36:34 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.2086	0.0025	0.0395	5125.500 H	104.0553
# 2 L	-0.0112	0.0035 L	-0.0054	5069.500 H	102.9170
Mean L	-0.1099	0.0030	0.0171	5097.500 H	103.4861
SD	0.1395	0.0007	0.0318	39.598	0.8049
%RSD	126.9574	22.6944	186.3147	0.777	0.7778

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	-0.110	Contaminated
Li670	0.010	0.003	
Na589	0.050	0.017	

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EVOLUTION by Micro-Active Australia Pty Ltd 6:46:14 PM August 27, 2003

Sc361	0.000	103.486

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230765 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:39:42 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	15.5	21140.5	1874.5	4994.0	4994.0
# 2	19.5	20881.5	1845.5	4927.0	4927.0
Mean	17.5	21011.0	1860.0	4960.5	4960.5
SD	2.8	183.1	20.5	47.4	47.4
%RSD	16.2	0.9	1.1	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230765 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:39:42 PM August 27, 2003

		K_766	Li670	Na589	Sc		Sc361
		ppm	ppm	ppm			ppm
# 1	L	-0.0503	5.3377	3.9229	4994.000	H	101.3823
# 2	L	-0.0054	5.3440	3.9147	4927.000	H	100.0203
Mean	L	-0.0279	5.3409	3.9188	4960.500	H	100.7013
SD		0.0318	0.0045	0.0058	47.376		0.9630
%RSD		114.0886	0.0834	0.1491	0.955		0.9563

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230766 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:42:50 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	19.0	21899.5	1466.5	5009.0	5009.0
# 2	22.0	21830.5	1460.5	4955.0	4955.0
Mean	20.5	21865.0	1463.5	4982.0	4982.0
SD	2.1	48.8	4.2	38.2	38.2
%RSD	10.3	0.2	0.3	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230766 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:42:50 PM August 27, 2003

		K_766	Li670	Na589	Sc		Sc361
		ppm	ppm	ppm			ppm
# 1	L	-0.0141	5.5127	3.0502	5009.000	H	101.6872
# 2		0.0200	5.5551	3.0711	4955.000	H	100.5895
Mean		0.0030	5.5339	3.0607	4982.000	H	101.1383
SD		0.0241	0.0300	0.0148	38.184		0.7762
%RSD		809.7998	0.5428	0.4834	0.766		0.7674

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230767 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:45:58 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	19.5	15467.0	14492.0	5021.5	5021.5
# 2	9.5	15255.0	14342.0	4919.5	4919.5
Mean	14.5	15361.0	14417.0	4970.5	4970.5

SD		7.1	149.9	106.1	72.1	72.1
%RSD		48.8	1.0	0.7	1.5	1.5

APPARENT CONCENTRATIONS

EVOLUTION by Micro-Active Australia Pty Ltd 6:55:38 PM August 27, 2003

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Identity 1 : 230767 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:45:58 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.0093	3.8852	30.4567	5021.500	H	101.9413
# 2	L	-0.1121	3.9114	30.7668	4919.500		99.8679
Mean	L	-0.0607	3.8983	30.6118	4970.500	H	100.9046
SD		0.0727	0.0185	0.2193	72.125		1.4661
%RSD		119.7355	0.4746	0.7164	1.451		1.4530

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230768 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:49:06 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	11.0	13075.0	5240.5	4969.0	4969.0
# 2	6.0	12928.0	5148.5	4916.0	4916.0
Mean	8.5	13001.5	5194.5	4942.5	4942.5
SD	3.5	103.9	65.1	37.5	37.5
%RSD	41.6	0.8	1.3	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : 230768 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:49:06 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.0972	3.3198	11.1020	4969.000	H	100.8741
# 2	L	-0.1495	3.3179	11.0244	4916.000		99.7967
Mean	L	-0.1233	3.3188	11.0632	4942.500	H	100.3354
SD		0.0370	0.0014	0.0549	37.477		0.7618
%RSD		29.9753	0.0412	0.4961	0.758		0.7593

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230769 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:52:14 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	15.0	18121.0	3121.5	4994.5	4994.5
# 2	19.0	18053.0	3078.5	4967.5	4967.5
Mean	17.0	18087.0	3100.0	4981.0	4981.0
SD	2.8	48.1	30.4	19.1	19.1
%RSD	16.6	0.3	1.0	0.4	0.4

APPARENT CONCENTRATIONS
Identity 1 : 230769 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:52:14 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.0556	4.5756	6.5612	4994.500	H	101.3924
# 2	L	-0.0124	4.5832	6.5056	4967.500	H	100.8436
Mean	L	-0.0340	4.5794	6.5334	4981.000	H	101.1180
SD		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

%RSD	89.9262	0.1173	0.6016	0.383	0.3838

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230770 Identity 2 : pg54-173 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 7:02:04 PM August 27, 2003

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Weight : 1.0000 Volume : 1.00 Printed : 6:55:22 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	4.5	20623.5	2141.5	4951.0	4951.0
# 2	8.5	20551.5	2089.5	4941.0	4941.0
Mean	6.5	20587.5	2115.5	4946.0	4946.0
SD	2.8	50.9	36.8	7.1	7.1
%RSD	43.5	0.2	1.7	0.1	0.1

APPARENT CONCENTRATIONS
Identity 1 : 230770 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:55:22 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.1659	5.2525	4.5273	4951.000	H	100.5082
# 2	L	-0.1232	5.2448	4.4253	4941.000	H	100.3049
Mean	L	-0.1445	5.2486	4.4763	4946.000	H	100.4065
SD		0.0302	0.0055	0.0721	7.071		0.1437
%RSD		20.8976	0.1042	1.6108	0.143		0.1432

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230771 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:58:30 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	31.0	23508.5	1104.0	4975.5	4975.5
# 2	25.0	23267.5	1067.0	4906.5	4906.5
Mean	28.0	23388.0	1085.5	4941.0	4941.0
SD	4.2	170.4	26.2	48.8	48.8
%RSD	15.2	0.7	2.4	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230771 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 6:58:30 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	0.1143	5.9571	2.3010	4975.500	H	101.0062
# 2	0.0545	5.9789	2.2543	4906.500		99.6036
Mean	0.0844	5.9680	2.2777	4941.000	H	100.3049
SD	0.0423	0.0154	0.0330	48.790		0.9918
%RSD	50.0832	0.2586	1.4504	0.987		0.9888

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230772 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:01:38 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	15.0	24632.0	26.0	4984.0	4984.0
# 2	16.0	24519.0	28.0	4952.0	4952.0
Mean	15.5	24575.5	27.0	4968.0	4968.0
SD	0.7	79.9	1.4	22.6	22.6
%RSD	4.6	0.3	5.2	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230772 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:01:38 PM August 27, 2003

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		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0553	6.2309	0.0112	4984.000 H	101.1790
# 2	L	-0.0436	6.2424	0.0158	4952.000 H	100.5285
Mean	L	-0.0495	6.2367	0.0135	4968.000 H	100.8537
SD		0.0082	0.0081	0.0033	22.627	0.4600
%RSD		16.6578	0.1302	24.2894	0.455	0.4561

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230773 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:04:44 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	4747.0	10.5	11816.5	5200.0	5200.0
# 2	4686.0	15.5	11743.5	5124.0	5124.0
Mean	4716.5	13.0	11780.0	5162.0	5162.0
SD	43.1	3.5	51.6	53.7	53.7
%RSD	0.9	27.2	0.4	1.0	1.0

APPARENT CONCENTRATIONS
Identity 1 : 230773 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:04:44 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	47.8406	0.0075	23.9720	5200.000 H	105.5697
# 2	47.9267	0.0088	24.1776	5124.000 H	104.0248
Mean	47.8836	0.0082	24.0748	5162.000 H	104.7972
SD	0.0609	0.0009	0.1454	53.740	1.0924
%RSD	0.1271	10.9737	0.6040	1.041	1.0424

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230774 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:07:52 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	4698.5	-10.5	11753.0	5217.0	5217.0
# 2	4679.5	-1.5	11628.0	5167.0	5167.0
Mean	4689.0	-6.0	11690.5	5192.0	5192.0
SD	13.4	6.4	88.4	35.4	35.4
%RSD	0.3	106.1	0.8	0.7	0.7

APPARENT CONCENTRATIONS
Identity 1 : 230774 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:07:52 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	47.1946	0.0025	23.7651	5217.000 H	105.9152
# 2	47.4598	0.0046	23.7398	5167.000 H	104.8989
Mean	47.3272	0.0035	23.7525	5192.000 H	105.4071
SD	0.1875	0.0015	0.0179	35.355	0.7187
%RSD	0.3962	43.3857	0.0753	0.681	0.6818

EVOLUTION by Micro-Active Australia Pty Ltd 7:17:40 PM August 27, 2003

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 7:13:10 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1909.5	20239.0	14262.5	5100.5	5100.5
# 2	1907.5	20038.0	14157.5	5019.5	5019.5
Mean	1908.5	20138.5	14210.0	5060.0	5060.0
SD	1.4	142.1	74.2	57.3	57.3
%RSD	0.1	0.7	0.5	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 7:13:10 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1	19.4934	5.0037	29.5087	5100.500 H	103.5471
# 2	19.7905	5.0339	29.7646	5019.500 H	101.9006
Mean	19.6419	5.0188	29.6367	5060.000 H	102.7239
SD	0.2100	0.0214	0.1809	57.276	1.1643
%RSD	1.0693	0.4258	0.6104	1.132	1.1334

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.642	22.000
Li670	4.500	5.019	5.500
Na589	27.000	29.637	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 7:17:24 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	18.5	-11.0	8.0	5123.0	5123.0
# 2	20.5	1.0	36.0	5039.0	5039.0
Mean	19.5	-5.0	22.0	5081.0	5081.0
SD	1.4	8.5	19.8	59.4	59.4
%RSD	7.3	169.7	90.0	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 7:17:24 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
	ppm	ppm	ppm		ppm
# 1 L	-0.0236	0.0023 L	-0.0275	5123.000 H	104.0045
# 2	0.0004	0.0052	0.0315	5039.000 H	102.2970
Mean L	-0.0116	0.0038	0.0020	5081.000 H	103.1507
SD	0.0170	0.0021	0.0417	59.397	1.2074
%RSD	146.6696	55.5793	2063.1302	1.169	1.1705

Checking calibration blank ...

Report name	CRDL	Value
K_766	0.100	-0.012
Li670	0.010	0.004
Na589	0.050	0.002

EVOLUTION by Micro-Active Australia Pty Ltd 7:27:04 PM August 27, 2003 **010459**

Sc361	0.000	103.151

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:20:32 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	26.0	12922.5	15581.0	5006.0	5006.0
# 2	16.0	12846.5	15521.0	4974.0	4974.0
Mean	21.0	12884.5	15551.0	4990.0	4990.0
SD	7.1	53.7	42.4	22.6	22.6
%RSD	33.7	0.4	0.3	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230868 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:20:32 PM August 27, 2003

		K_766	Li670	Na589	Sc		Sc361
		ppm	ppm	ppm			ppm
# 1		0.0597	3.2569	32.8502	5006.000	H	101.6262
# 2	L	-0.0444	3.2586	32.9343	4974.000	H	100.9757
Mean		0.0076	3.2577	32.8923	4990.000	H	101.3009
SD		0.0736	0.0012	0.0595	22.627		0.4600
%RSD		963.0745	0.0363	0.1809	0.453		0.4540

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868d Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:23:40 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	23.5	12780.0	15499.5	5017.0	5017.0
# 2	17.5	12708.0	15360.5	4978.0	4978.0
Mean	20.5	12744.0	15430.0	4997.5	4997.5
SD	4.2	50.9	98.3	27.6	27.6
%RSD	20.7	0.4	0.6	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : 230868d Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:23:40 PM August 27, 2003

		K_766	Li670	Na589	Sc		Sc361
		ppm	ppm	ppm			ppm
# 1		0.0328	3.2140	32.6064	5017.000	H	101.8498
# 2	L	-0.0287	3.2209	32.5671	4978.000	H	101.0570
Mean		0.0021	3.2175	32.5867	4997.500	H	101.4534
SD		0.0435	0.0049	0.0278	27.577		0.5606
%RSD		2082.3896	0.1521	0.0853	0.552		0.5525

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230868s Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:26:48 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	12.5	28298.0	15505.0	4978.0	4978.0
# 2	11.5	28272.0	15507.0	4960.0	4960.0
Mean	12.0	28285.0	15506.0	4969.0	4969.0

SD		0.7	18.4	1.4	12.7	12.7
%RSD		5.9	0.1	0.0	0.3	0.3

APPARENT CONCENTRATIONS

010460

EVOLUTION by Micro-Active Australia Pty Ltd 7:36:36 PM August 27, 2003

Identity 1 : 230868s Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:26:48 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	L	-0.0815	7.1662	32.8739	4978.000 H	101.0570
# 2	L	-0.0917	7.1856	32.9976	4960.000 H	100.6911
Mean	L	-0.0866	7.1759	32.9357	4969.000 H	100.8741
SD		0.0072	0.0137	0.0875	12.728	0.2587
%RSD		8.2732	0.1910	0.2656	0.256	0.2565

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230869 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:29:56 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	21.5	19421.5	13010.0	5029.5	5029.5
# 2	30.5	19193.5	12819.0	4952.5	4952.5
Mean	26.0	19307.5	12914.5	4991.0	4991.0
SD	6.4	161.2	135.1	54.4	54.4
%RSD	24.5	0.8	1.0	1.1	1.1

APPARENT CONCENTRATIONS
Identity 1 : 230869 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:29:56 PM August 27, 2003

	K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1	0.0113	4.8695	27.2940	5029.500 H	102.1039
# 2	0.1105	4.8872	27.3115	4952.500 H	100.5387
Mean	0.0609	4.8784	27.3028	4991.000 H	101.3213
SD	0.0701	0.0125	0.0123	54.447	1.1068
%RSD	115.1695	0.2556	0.0452	1.091	1.0923

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230870 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:33:04 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	21.0	11306.5	3598.5	4953.0	4953.0
# 2	17.0	11101.5	3529.5	4867.0	4867.0
Mean	19.0	11204.0	3564.0	4910.0	4910.0
SD	2.8	145.0	48.8	60.8	60.8
%RSD	14.9	1.3	1.4	1.2	1.2

APPARENT CONCENTRATIONS
Identity 1 : 230870 Identity 2 : pg54-173 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:33:04 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc	Sc361 ppm
# 1		0.0095	2.8807	7.6344	4953.000 H	100.5488
# 2	L	-0.0299	2.8784	7.6202	4867.000	98.8007
Mean	L	-0.0102	2.8796	7.6273	4910.000	99.6748
SD		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

%RSD	272.6647	0.0552	0.1312	1.239	1.2402

010461

BACKGROUND CORRECTED INTENSITIES
Identity 1 : 230743 Identity 2 : pg54-172 Type : SAMPLE
EVOLUTION by Micro-Active Australia Pty Ltd 7:46:06 PM August 27, 2003

Weight : 1.0000 Volume : 1.00 Printed : 7:36:12 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	13.0	21546.5	1162.5	4964.0	4964.0
# 2	23.0	21387.5	1142.5	4931.0	4931.0
Mean	18.0	21467.0	1152.5	4947.5	4947.5
SD	7.1	112.4	14.1	23.3	23.3
%RSD	39.3	0.5	1.2	0.5	0.5

APPARENT CONCENTRATIONS
Identity 1 : 230743 Identity 2 : pg54-172 Type : SAMPLE
Weight : 1.0000 Volume : 1.00 Printed : 7:36:12 PM August 27, 2003

		K_766	Li670	Na589	Sc		Sc361
		ppm	ppm	ppm			ppm
# 1	L	-0.0759	5.4730	2.4310	4964.000	H	100.7724
# 2		0.0318	5.4690	2.4047	4931.000	H	100.1016
Mean	L	-0.0220	5.4710	2.4179	4947.500	H	100.4370
SD		0.0761	0.0028	0.0186	23.335		0.4743
%RSD		345.6330	0.0520	0.7692	0.472		0.4723

BACKGROUND CORRECTED INTENSITIES
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 7:41:30 PM August 27, 2003

	K_766	Li670	Na589	Sc	Sc361
# 1	1923.5	20114.0	14158.0	5085.0	5085.0
# 2	1921.5	20104.0	14181.0	5039.0	5039.0
Mean	1922.5	20109.0	14169.5	5062.0	5062.0
SD	1.4	7.1	16.3	32.5	32.5
%RSD	0.1	0.0	0.1	0.6	0.6

APPARENT CONCENTRATIONS
Identity 1 : CLP_CCV_SC Identity 2 : Type : CV
Weight : 1.0000 Volume : 1.00 Printed : 7:41:30 PM August 27, 2003

	K_766	Li670	Na589	Sc		Sc361
	ppm	ppm	ppm			ppm
# 1	19.6984	4.9880	29.3816	5085.000	H	103.2320
# 2	19.8593	5.0310	29.6985	5039.000	H	102.2970
Mean	19.7789	5.0095	29.5401	5062.000	H	102.7645
SD	0.1138	0.0304	0.2241	32.527		0.6612
%RSD	0.5752	0.6068	0.7585	0.643		0.6434

Checking calibration verification ...
Identity 1 : CLP_CCV_SC Identity 2 :

Report name	Low limit	Value	High limit
K_766	18.000	19.779	22.000
Li670	4.500	5.009	5.500
Na589	27.000	29.540	33.000

BACKGROUND CORRECTED INTENSITIES
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 7:45:44 PM August 27, 2003

K_766 Li670 Na589 Sc Sc361

# 1	12.0	-5.0	32.5	5085.0	5085.0
# 2	7.0	-7.0	40.5	5028.0	5028.0
Mean	9.5	-6.0	36.5	5056.5	5056.5

010462

EVOLUTION by Micro-Active Australia Pty Ltd 7:56:36 PM August 27, 2003

SD	3.5	1.4	5.7	40.3	40.3
%RSD	37.2	23.6	15.5	0.8	0.8

APPARENT CONCENTRATIONS
Identity 1 : Calibration blank Identity 2 : Type : CB
Weight : 1.0000 Volume : 1.00 Printed : 7:45:44 PM August 27, 2003

		K_766 ppm	Li670 ppm	Na589 ppm	Sc		Sc361 ppm
# 1	L	-0.0895	0.0037	0.0236	5085.000	H	103.2320
# 2	L	-0.1404	0.0032	0.0411	5028.000	H	102.0734
Mean	L	-0.1150	0.0035	0.0324	5056.500	H	102.6527
SD		0.0360	0.0004	0.0124	40.305		0.8193
%RSD		31.3295	10.4354	38.4221	0.797		0.7981

Checking calibration blank ...
Identity 1 : Calibration blank Identity 2 :

Report name	CRDL	Value	
K_766	0.100	-0.115	Contaminated
Li670	0.010	0.003	
Na589	0.050	0.032	
Sc361	0.000	102.653	

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

Certificates of Analysis

010463

FISHER SCIENTIFIC
TRACEMETAL GRADE NITRIC ACID

CERTIFICATE OF ANALYSIS

Catalog No. A509 Lot No: 1103030
Date: March, 2003

Tests	Units	Value
Assay	%	70%
Color	APHA	<10
Aluminum	ppb	<0.2
Antimony	ppb	<0.1
Arsenic	ppb	<0.1
Barium	ppb	<0.1
Beryllium	ppb	<0.1
Bismuth	ppb	<0.1
Boron	ppb	<1
Cadmium	ppb	<0.1
Calcium	ppb	<0.5
Chromium	ppb	<0.1
Cobalt	ppb	<0.1
Copper	ppb	<0.1
Iron	ppb	<0.5
Lead	ppb	<0.1
Lithium	ppb	<0.1
Magnesium	ppb	<0.2
Manganese	ppb	<0.1
Mercury	ppb	<0.2
Molybdenum	ppb	<0.1
Nickel	ppb	<0.1
Potassium	ppb	<0.2
Selenium	ppb	<0.1
Silver	ppb	<0.1
Sodium	ppb	<0.2
Strontium	ppb	<0.1
Thorium	ppb	<0.1
Tin	ppb	<0.1
Titanium	ppb	<0.1
Uranium	ppb	<0.1
Vanadium	ppb	<0.1
Zinc	ppb	<0.2
Zirconium	ppb	<0.1

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 5/22/03
DATE EXPIRED: 5/22/2003
DATE OPENED: 5/22/03
INORG: 4092-4097 PO: F52352

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

B McKelvey

Dr. B. McKelvey
QA/QC Manager

Fisher Scientific Chemical Division
Pittsburgh, PA., 15275 Phone (412) 490-8300

Fisher Chemical
A Fisher Scientific Company

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FISHER SCIENTIFIC
TRACEMETAL GRADE NITRIC ACID

CERTIFICATE OF ANALYSIS

Catalog No. A509 **Lot No: 1103030**
Date: March, 2003

Tests	Units	Value
Assay	%	70%
Color	APHA	<10
Aluminum	ppb	<0.2
Antimony	ppb	<0.1
Arsenic	ppb	<0.1
Barium	ppb	<0.1
Beryllium	ppb	<0.1
Bismuth	ppb	<0.1
Boron	ppb	<1
Cadmium	ppb	<0.1
Calcium	ppb	<0.5
Chromium	ppb	<0.1
Cobalt	ppb	<0.1
Copper	ppb	<0.1
Iron	ppb	<0.5
Lead	ppb	<0.1
Lithium	ppb	<0.1
Magnesium	ppb	<0.2
Manganese	ppb	<0.1
Mercury	ppb	<0.2
Molybdenum	ppb	<0.1
Nickel	ppb	<0.1
Potassium	ppb	<0.2
Selenium	ppb	<0.1
Silver	ppb	<0.1
Sodium	ppb	<0.2
Strontium	ppb	<0.1
Thorium	ppb	<0.1
Tin	ppb	<0.1
Titanium	ppb	<0.1
Uranium	ppb	<0.1
Vanadium	ppb	<0.1
Zinc	ppb	<0.2
Zirconium	ppb	<0.1

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 6/13/03
DATE EXPIRED: 6/13/2013 DK
DATE OPENED: 9/3/03
INORG: 4164-4169 PO: FS23359

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

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Fisher Chemical
A Fisher Scientific Company

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FISHER SCIENTIFIC
TRACEMETAL GRADE NITRIC ACID

CERTIFICATE OF ANALYSIS

Catalog No. A509 Lot No: 1103030

Date: March, 2003

Tests	Units	Value
Assay	%	70%
Color	APHA	<10
Aluminum	ppb	<0.2
Antimony	ppb	<0.1
Arsenic	ppb	<0.1
Barium	ppb	<0.1
Beryllium	ppb	<0.1
Bismuth	ppb	<0.1
Boron	ppb	<1
Cadmium	ppb	<0.1
Calcium	ppb	<0.5
Chromium	ppb	<0.1
Cobalt	ppb	<0.1
Copper	ppb	<0.1
Iron	ppb	<0.5
Lead	ppb	<0.1
Lithium	ppb	<0.1
Magnesium	ppb	<0.2
Manganese	ppb	<0.1
Mercury	ppb	<0.2
Molybdenum	ppb	<0.1
Nickel	ppb	<0.1
Potassium	ppb	<0.2
Selenium	ppb	<0.1
Silver	ppb	<0.1
Sodium	ppb	<0.2
Strontium	ppb	<0.1
Thorium	ppb	<0.1
Tin	ppb	<0.1
Titanium	ppb	<0.1
Uranium	ppb	<0.1
Vanadium	ppb	<0.1
Zinc	ppb	<0.2
Zirconium	ppb	<0.1

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 07/28/03
DATE EXPIRED: 07/28/2013
DATE OPENED: 07/29/03
INORG: 4193-4198 PO: F52386

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

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FISHER SCIENTIFIC
TRACEMETAL GRADE HYDROCHLORIC ACID

CERTIFICATE OF ANALYSIS

Catalog No. A508 **Lot No: 4102110**
Date: December, 2002

Tests	Units	Value
Assay	%	36%
Color	APHA	<10
Aluminum	ppb	<0.5
Antimony	ppb	<0.1
Arsenic	ppb	<0.1
Barium	ppb	<0.1
Beryllium	ppb	<0.1
Bismuth	ppb	<0.1
Boron	ppb	<1
Cadmium	ppb	<0.1
Calcium	ppb	<0.5
Chromium	ppb	<0.1
Cobalt	ppb	<0.1
Copper	ppb	<0.1
Iron	ppb	<0.5
Lead	ppb	<0.1
Lithium	ppb	<0.1
Magnesium	ppb	<0.5
Manganese	ppb	<0.1
Mercury	ppb	<0.2
Molybdenum	ppb	<0.1
Nickel	ppb	<0.1
Potassium	ppb	<0.1
Selenium	ppb	<0.1
Silver	ppb	<0.1
Sodium	ppb	<0.5
Strontium	ppb	<0.1
Thorium	ppb	<0.1
Tin	ppb	<0.1
Titanium	ppb	<0.1
Uranium	ppb	<0.1
Vanadium	ppb	<0.1
Zinc	ppb	<0.5
Zirconium	ppb	<0.1

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 5/6/03
DATE EXPIRED: 5/6/2013 OK
DATE OPENED: 5/6/03
INORG: 40E7-4082 PO: F52181

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

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FISHER SCIENTIFIC
TRACEMETAL GRADE HYDROCHLORIC ACID

CERTIFICATE OF ANALYSIS

Catalog No. A508 **Lot No: 4102110**
Date: December, 2002

Tests	Units	Value
Assay	%	36%
Color	APHA	<10
Aluminum	ppb	<0.5
Antimony	ppb	<0.1
Arsenic	ppb	<0.1
Barium	ppb	<0.1
Beryllium	ppb	<0.1
Bismuth	ppb	<0.1
Boron	ppb	<1
Cadmium	ppb	<0.1
Calcium	ppb	<0.5
Chromium	ppb	<0.1
Cobalt	ppb	<0.1
Copper	ppb	<0.1
Iron	ppb	<0.5
Lead	ppb	<0.1
Lithium	ppb	<0.1
Magnesium	ppb	<0.5
Manganese	ppb	<0.1
Mercury	ppb	<0.2
Molybdenum	ppb	<0.1
Nickel	ppb	<0.1
Potassium	ppb	<0.1
Selenium	ppb	<0.1
Silver	ppb	<0.1
Sodium	ppb	<0.5
Strontium	ppb	<0.1
Thorium	ppb	<0.1
Tin	ppb	<0.1
Titanium	ppb	<0.1
Uranium	ppb	<0.1
Vanadium	ppb	<0.1
Zinc	ppb	<0.5
Zirconium	ppb	<0.1

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

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INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 09/16/03
DATE EXPIRED: 06/16/2013
DATE OPENED: 06/25/03
INORG: 4156-4161 PO: F59368

FISHER SCIENTIFIC
TRACEMETAL GRADE HYDROCHLORIC ACID

CERTIFICATE OF ANALYSIS

Catalog No. A508 **Lot No: 4103030**
Date: March, 2003

Tests	Units	Value
Assay	%	36%
Color	APHA	<10
Aluminum	ppb	<0.5
Antimony	ppb	<0.1
Arsenic	ppb	<0.1
Barium	ppb	<0.1
Beryllium	ppb	<0.1
Bismuth	ppb	<0.1
Boron	ppb	<1
Cadmium	ppb	<0.1
Calcium	ppb	<0.5
Chromium	ppb	<0.1
Cobalt	ppb	<0.1
Copper	ppb	<0.1
Iron	ppb	<0.5
Lead	ppb	<0.1
Lithium	ppb	<0.1
Magnesium	ppb	<0.5
Manganese	ppb	<0.1
Mercury	ppb	<0.2
Molybdenum	ppb	<0.1
Nickel	ppb	<0.1
Potassium	ppb	<0.1
Selenium	ppb	<0.1
Silver	ppb	<0.1
Sodium	ppb	<0.5
Strontium	ppb	<0.1
Thorium	ppb	<0.1
Tin	ppb	<0.1
Titanium	ppb	<0.1
Uranium	ppb	<0.1
Vanadium	ppb	<0.1
Zinc	ppb	<0.5
Zirconium	ppb	<0.1

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 07/28/03
DATE EXPIRED: 07/28/2013
DATE OPENED: 07/29/03
INORG: 4187-4192 PO: F52386

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

B McKelvey

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SPEXertificate™

010469

Certificate of Reference Material

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 05/15/03
DATE EXPIRED: 05/15/2004
DATE OPENED: 05/15/03
INORG: 4074 PO: F52351

Catalog Number: SPIKE-1 **Lot No.:** 25-23AS
Description: **Spike Sample Standard 1**
Matrix: 5% Nitric Acid/tr Tartaric Acid - HF

This **ASSURANCE** ®certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. 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 element 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 ICP Spectrometer:

Element	Labeled (mg/L)	Measured (mg/L)	NIST SRM	Element	Labeled (mg/L)	Measured (mg/L)	NIST SRM
Al	200	199.51	3101a	Pb	50	49.98	3128
As	200	199.89	3103a	Sb	50	50.02	3102a
Ba	200	199.68	3104a	V	50	49.95	3165
Se	200	200.10	3149	Zn	50	50.02	3168a
TL	200	200.07	3158	Cu	25	25.34	3114
Fe	100	99.91	3126a	Cr	20	20.04	3112a
Co	50	50.25	3113	Ag	5	5.00	3151
Mn	50	49.98	3132	Be	5	5.00	3105a
Ni	50	50.11	3136	Cd	5	4.99	3108

Spex Reference Multi: Lot #2-61BD, 17-55AS, 19-85ASREF

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: MAY '03 Certifying Officer: N. Kocherakota

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010470

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Certificate of Reference Material

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 05/09/03
DATE EXPIRED: 05/15/2004
DATE OPENED: 05/13/03
INORG: 4070 PO: #52180

Catalog Number: ICAL-1 **Lot No.:** 6-104VY
Description: **Instrument Calibration Standard 1**
Matrix: 5% Nitric Acid

This **ASSURANCE** ®certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. 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 element 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 ICP Spectrometer:

Element	Labeled (mg/L)	Measured (mg/L)	NIST SRM
Ca	5,000	4,984.92	3109a
K	5,000	4,990.26	3141a
Mg	5,000	4,991.82	3131a
Na	5,000	4,998.07	3152a

Spex Reference Multi: Lot #10-100AS, 12-113AS, 5-198VY, 6-28VY-REF

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 element exceeding +/-2%. This includes uncertainty of measurements and other effects, such as transpiration losses. 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: MAY '03 Certifying Officer: N. Kocherlakota

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Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Scandium IN 5% HNO_3 (abs)

010471

Catalog Number: CGSC1-1and CGSC1-5

Lot Number: **W-SC02055**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 06/20/03
DATE EXPIRED: 07/01/2004
DATE OPENED: 06/23/03
INORG: 4151 PO: F52370

Starting Material:	Sc_2O_3
Starting Material Purity:	99.99%
Starting Material Lot No:	632-5721

CERTIFIED CONCENTRATION: 1000 ± 5 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1000 ± 5 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 995 ± 5 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3148a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	<0.070	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	0.0028
M	Be	<0.000050	M	Ga	<0.00010	O	Hg	i	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	0.0043	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.020	M	Au	<0.00030	M	Nd	<0.00020	s	Sc		M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	0.0030	O	Ni	<0.084	O	Se	<0.67	M	W	<0.0010
O	Ca	0.016	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.034	M	U	<0.00020
M	Ce	<0.00050	M	In	<0.00010	n	Os		M	Ag	0.0050	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.16	M	Yb	<0.00010
M	Cr	<0.00050	O	Fe	<0.16	O	P	i	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	n	S		M	Zn	0.0075
M	Cu	<0.00060	M	Pb	0.00050	O	K	<5.01	M	Ta	<0.00070	M	Zr	0.032

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.038 g/mL **(over)**

QA:KL Rev.031303JTS

Paul R. Haines

Inorganic Ventures, Inc.
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799

Quality Assurance Manager

EXPIRES 01/2004

Certificate of Analysis

CUSTOM-GRADE SOLUTION 10,000 μg/mL Scandium IN 5% HNO_3 (abs 010472

Catalog Number: CGSC10-1and CGSC10-5

Lot Number: **T-QSC01104**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 9/4/02
DATE EXPIRED: 10/1/2003 DR
DATE OPENED: 9/4/02
INORG: 3683 PO: F52048

Starting Material:	Sc_2O_3
Starting Material Purity:	99.999%
Starting Material Lot No:	632-5721

CERTIFIED VALUE: 10,056 μg/mL

The certified value is the average of the classical wet assay and instrument analysis unless otherwise specified. All standards are accurate to a relative precision of ± 0.5% at the 95% confidence level for a period of 1 year. (See expiration date below)

Classical Wet Assay: 10,040 μg/mL

Method: EDTA Titration vs NIST SRM 928 Lead Nitrate

Sufficient number of sample measurements were made to give a minimum relative precision of ± 0.3% at the 95% confidence level.

Instrument Analysis: 10,071 μg/mL

Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3148a

Sufficient number of sample measurements were made to give a minimum relative precision of ± 0.5% at the 95% confidence level.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	<0.07	M	Dy	<0.006	M	Li	<0.01	M	Pr	<0.0003	M	Te	<0.03
M	Sb	<0.0005	M	Er	<0.005	M	Lu	<0.0004	M	Re	<0.001	M	Tb	<0.0003
M	As	<0.01	M	Eu	<0.003	M	Mg	<0.03	M	Rh	<0.001	M	Tl	<0.001
M	Ba	<0.01	M	Gd	<0.001	M	Mn	<0.004	M	Rb	<0.001	M	Th	0.028
M	Be	<0.0005	M	Ga	<0.001	O	Hg	i	M	Ru	<0.002	M	Tm	<0.0004
M	Bi	0.043	M	Ge	<0.006	M	Mo	<0.002	M	Sm	<0.001	M	Sn	<0.005
O	B	<0.034	M	Au	<0.003	M	Nd	<0.002	s	Sc		n	Ti	
M	Cd	<0.003	M	Hf	0.03	O	Ni	<0.084	O	Se	<0.67	M	W	<0.01
O	Ca	0.17	M	Ho	<0.0005	M	Nb	<0.0005	O	Si	<0.034	M	U	<0.002
M	Ce	<0.005	M	In	<0.001	n	Os		M	Ag	0.005	M	V	<0.002
M	Cs	<0.0003	M	Ir	<0.005	M	Pd	<0.005	O	Na	<0.16	M	Yb	<0.001
M	Cr	<0.005	O	Fe	<0.16	O	P	i	M	Sr	<0.0005	M	Y	<0.04
M	Co	<0.003	M	La	<0.0005	M	Pt	<0.002	n	S		M	Zn	0.075
M	Cu	<0.006	M	Pb	0.005	O	K	<5.01	M	Ta	<0.007	M	Zr	0.32

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.062 g/mL

QA:KL Rev.050302DN

(over)

Inorganic Ventures, Inc.
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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 2003

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010473

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 06/09/03
DATE EXPIRED: 06/30/2004
DATE OPENED: 06/23/03
INORG: 4139 PO: F52370

Catalog Number: PLB9-2X/2Y/2T **Lot No.** 9-143B

Description: 1000 mg/L Boron

Matrix: H2O

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 999.5 mg/L

Uncertainty Associated with Measurement: +/-3.0mg/L

Certified Value is Traceable to: NIST SRM 3107

The CRM is prepared gravimetrically using high purity (NH4)2(B4O7)-4H2O Lot# 08001E. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1001 mg/L

Method: Titration with Sodium Hydroxide using Phenolphthalein as indicator. Sodium Hydroxide standardized against Potassium Biphthalate NIST SRM #84K.

Instrumentation Analysis By ICP spectrometer: 998 mg/L

Uncertified Properties:

Density: 1.000 @ 23.7 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.06	Cu	<0.001	Pb	<0.001
As	<0.001	Fe	0.001	Re	<0.001
Ag	<0.002	Ga	<0.001	Rb	<0.001
Ba	<0.001	In	<0.001	Sr	<0.001
Be	<0.001	K	<0.01	Sb	<0.001
Bi	<0.001	Li	<0.001	Sn	<0.001
Cd	<0.001	Mn	<0.001	Ti	<0.001
Co	<0.001	Mo	<0.001	Tl	<0.001
Ca	0.003	Mg	<0.001	V	0.004
Cr	<0.003	Na	0.026	Zr	<0.001
		Ni	<0.001	Zn	<0.007

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: JUN '03 Certifying Officer: N. Kocherlakota

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010474

Certificate of Reference Material

Catalog Number: PLLI2-2X/2Y **Lot No.** 9-102LI

Description: 1000 mg/L Lithium

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1002 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3129a

The CRM is prepared gravimetrically using high purity Lithium Carbonate Lot# 03021A. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1002 mg/L

Method: Evaporate to dryness. Fume with Sulfuric Acid. Ignite and weigh as Li2SO4.

Instrumentation Analysis By ICP spectrometer: 1002 mg/L

Uncertified Properties:

Density: 1.014 @ 24.5 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.009	Cu	0.01	Pb	0.001
As	0.004	Fe	0.045	Re	0.002
Ag	<0.001	Ga	<0.001	Rb	<0.001
B	<0.004	In	<0.001	Sr	0.001
Ba	0.004	K	0.05	Sb	0.002
Be	0.002	Mn	<0.001	Sn	<0.001
Bi	<0.001	Mo	0.002	Ti	0.005
Ca	0.03	Mg	0.003	Tl	<0.001
Cr	<0.001	Na	0.02	V	<0.001
Cd	<0.001	Ni	<0.001	Zr	<0.001
Co	0.002			Zn	0.20

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

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 05/12/03
DATE EXPIRED: 05/15/2004
DATE OPENED: 05/12/03
INORG: 4065 PO: F52181

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010475

Certificate of Reference Material

Catalog Number: PLMO9-2X/2Y/2T **Lot No.** 9-49MO

Description: 1000 mg/L Molybdenum

Matrix: H2O

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 05/12/03
DATE EXPIRED: 05/15/2004
DATE OPENED: 05/12/03
INORG: 4066 PO: F52181

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1000 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3134

The CRM is prepared gravimetrically using high purity Ammonium Molybdate Lot# 03011C. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 999 mg/L

Method: Precipitation using 8-Hydroxyquinoline. Filter, dry, and weigh as MoO2(C9H6NO)2

Instrumentation Analysis By ICP spectrometer: 1001 mg/L

Uncertified Properties:

Density: 0.9987 @ 24.6 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.001	Cu	0.004	Pb	0.001
As	0.04	Fe	<0.01	Re	0.03
Ag	<0.001	Ga	<0.001	Rb	<0.001
B	<0.003	In	<0.001	Sr	<0.001
Ba	<0.001	K	0.02	Sb	<0.001
Be	<0.001	Li	<0.001	Sn	<0.001
Bi	<0.001	Mg	0.007	Ti	0.004
Ca	0.006	Mn	<0.001	Tl	<0.001
Cr	<0.005	Na	0.009	V	0.004
Cd	<0.05	Ni	<0.001	Zr	<0.001
Co	<0.001			Zn	<0.001

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

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Certificate of Reference Material

Catalog Number: PLP9-2X/2Y/2T **Lot No.** 9-29P

Description: 1000 mg/L Phosphorus

Matrix: H2O

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 01/16/03
DATE EXPIRED: 01/15/2004
DATE OPENED: 01/23/03
INORG: 3927 PO: F52073

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1003.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3139a

The CRM is prepared gravimetrically using high purity (NH4)H2(PO4) Lot# A158. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1004 mg/L

Method: Precipitation using Magnesia mixture. Filter, ignite, and weigh as Mg2O2.

Instrumentation Analysis By ICP spectrometer: 1003 mg/L

Uncertified Properties:

Density: 0.9997 @ 22.9 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.05	Cu	<0.001	Pb	<0.001
As	<0.001	Fe	0.019	Rb	<0.001
Ag	<0.001	Ga	<0.001	Re	<0.001
B	<0.005	In	<0.001	Sn	0.006
Ba	<0.001	K	0.17	Sr	0.004
Be	<0.001	Li	0.004	Sb	0.01
Bi	<0.001	Mg	0.3	Ti	0.016
Ca	0.65	Mn	<0.001	Tl	<0.001
Cr	<0.001	Mo	<0.001	V	<0.001
Cd	<0.001	Na	0.5	Zr	<0.001
Co	<0.001	Ni	<0.001	Zn	6.7

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: JAN.-- '03 Certifying Officer: N. Kocherlakota

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INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 12/19/02
DATE EXPIRED: 12/19/03
DATE OPENED: 12/19/03
INORG: 3858 PO: FS2066

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010477

Certificate of Reference Material

Catalog Number: PLSI9-2X/2Y/2T **Lot No.** 9-66SI

Description: 1000 mg/L Silicon

Matrix: H2O / Tr HF

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1001.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3150

The CRM is prepared gravimetrically using high purity Ammonium HexafluorosiliLot# 02021D. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1003 mg/L

Method: Precipitation using Ammonium Molybdate and 8-Hydroxy Quinoline. Filter, dry, and weigh as (C9H7ON)4(H4)[Si(Mo12O40)]

Instrumentation Analysis By ICP spectrometer: 1000 mg/L

Uncertified Properties:

Density: 1.001 @ 24.5 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.002	Cu	0.01	Pb	<0.001
As	<0.001	Fe	0.006	Rb	<0.001
Ag	0.009	Ga	<0.001	Re	<0.001
B	<0.05	In	<0.001	Sn	<0.001
Ba	<0.001	K	0.014	Sr	<0.001
Be	<0.001	Li	<0.001	Sb	<0.001
Bi	<0.001	Mg	<0.001	Ti	<0.002
Ca	0.004	Mn	<0.001	Tl	<0.001
Cr	<0.002	Mo	<0.001	V	<0.001
Cd	<0.001	Na	0.006	Zr	0.008
Co	<0.001	Ni	<0.001	Zn	0.02

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

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INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 12/9/02
DATE EXPIRED: 12/15/2003
DATE OPENED: 12/9/02
INORG: 3854 PO: F50069

SPEXertificate™

Certificate of Reference Material

010478

Catalog Number: PLTI9-2X/2Y/2T **Lot No.** 9-52TI

Description: 1000 mg/L Titanium

Matrix: H2O

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 995.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3162a

The CRM is prepared gravimetrically using high purity (NH4)2TiF6 Lot# 02021E. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 996 mg/L

Method: Precipitation using Ammonium Hydroxide. Filter, ignite, and weigh as TiO2.

Instrumentation Analysis By ICP spectrometer: 995 mg/ L

Uncertified Properties:

Density: 1.000 @ 23.9 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.01	Cu	0.35	Pb	0.002
As	<0.001	Fe	0.01	Rb	<0.001
Ag	<0.001	Ga	<0.001	Re	<0.001
B	<0.005	In	<0.001	Sn	<0.001
Ba	<0.001	K	<0.05	Sr	<0.001
Be	<0.002	Li	<0.001	Sb	0.005
Bi	0.008	Mg	0.008	Tl	<0.001
Ca	0.095	Mn	0.001	V	<0.001
Cr	<0.001	Mo	<0.001	Zr	0.20
Cd	<0.001	Na	0.009	Zn	0.030
Co	<0.001	Ni	0.001		

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

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SPEXertificate™

010479

Certificate of Reference Material

Catalog Number: PLSR2-2X/2Y/2T **Lot No.** 9-166SR

Description: 1000 mg/L Strontium in 2% HNO3

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1002.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3153a

The CRM is prepared gravimetrically using high purity Strontium Carbonate Lot# 02001B. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1002 mg/L

Method: EDTA titration using Methyl Thymol Blue as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumentation Analysis By ICP spectrometer: 1003 mg/L

Uncertified Properties:

Density: 1.010 @ 22.7 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.02	Cu	<0.001	Pb	<0.001
As	<0.001	Fe	0.001	Rb	<0.001
Ag	<0.002	Ga	<0.001	Re	<0.001
B	<0.003	In	<0.001	Si	0.043
Ba	0.008	K	0.10	Sb	<0.001
Be	<0.001	Li	0.007	Ti	<0.002
Bi	<0.001	Mg	<0.003	Tl	<0.001
Ca	0.014	Mn	<0.001	V	<0.001
Cr	0.001	Mo	<0.001	Zr	<0.001
Cd	<0.001	Na	0.01	Zn	0.04
Co	<0.001	Ni	<0.001		

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: FEB -- '03 Certifying Officer: N. Kocherlakota

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Catalog Number: PLSN5-2X/2Y/2T **Lot No.** 9-62SN

Description: 1000 mg/L Tin

Matrix: 20% HCL

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1000 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3161a

The CRM is prepared gravimetrically using high purity Tin Metal Lot# 02891N. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 999 mg/L

Method: Precipitation using Ammonium Hydroxide. Filter, ignite, and weigh as SnO2.

Instrumentation Analysis By ICP spectrometer: 1001 mg/L

Uncertified Properties:

Density: 1.034 @ 24.8 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.007	Cu	<0.001	Pb	0.001
As	0.01	Fe	0.02	Rb	<0.001
Ag	0.002	Ga	<0.001	Re	<0.001
B	<0.03	In	<0.001	Sr	<0.001
Ba	<0.001	K	0.10	Sb	0.002
Be	<0.001	Li	<0.001	Ti	<0.001
Bi	<0.001	Mg	<0.001	Tl	<0.001
Ca	0.004	Mn	<0.001	V	<0.001
Cr	<0.005	Mo	<0.001	Zr	<0.001
Cd	<0.001	Na	0.02	Zn	0.03
Co	0.008	Ni	<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.

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Catalog Number: PLBI4-2X/2Y **Lot No.** 9-36BI
Description: 1000 mg/L Bismuth
Matrix: 10% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1001 mg/L
Uncertainty Associated with Measurement: +/- 3 mg/L
Certified Value is Traceable to: NIST SRM 3106

The CRM is prepared gravimetrically using high purity Bismuth Metal Lot# 04941B. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1001 mg/L

Method: EDTA titration using Xylenol Orange as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumentation Analysis By ICP spectrometer: 1001 mg/L

Uncertified Properties:

Density: 1.052 @ 23.1 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.002	Cu	0.034	Pb	0.006
As	<0.001	Fe	0.001	Re	<0.001
Ag	0.002	Ga	<0.001	Rb	<0.001
B	<0.04	In	<0.001	Sr	<0.001
Ba	<0.001	K	0.001	Sb	<0.001
Be	<0.001	Li	<0.001	Sn	<0.001
Cd	<0.001	Mn	<0.001	Ti	<0.001
Co	<0.001	Mo	<0.001	Tl	<0.001
Ca	0.006	Mg	<0.001	V	<0.002
Cr	<0.005	Na	0.005	Zr	<0.001
		Ni	<0.001	Zn	0.02

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.

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Catalog Number: PLLA2-2X/2Y **Lot No.** 10-17LA

Description: 1000 mg/L Lanthanum

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 996.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3127a

The CRM is prepared gravimetrically using high purity Lanthanum Oxide Lot# 06981D. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 998 mg/L

Method: EDTA titration using Methyl Thymol Blue as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumentation Analysis By ICP spectrometer: 995 mg/L

Uncertified Properties:

Density: 1.010 @ 23.8 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Ce	0.009	Lu	<0.001	Tm	<0.001
Ca	0.05	Mn	<0.001	Ti	<0.001
Dy	<0.001	Mo	<0.001	Tb	<0.001
Er	<0.001	Nd	<0.001	Ta	<0.001
Eu	<0.001	Ni	<0.001	Tl	<0.001
Fe	0.006	Na	0.006	V	<0.001
Gd	<0.2	Pr	<0.001	W	<0.001
Ga	<0.001	Rb	<0.001	Y	<0.001
Hf	<0.001	Sc	<0.003	Yb	<0.001
Ho	<0.001	Sm	<0.001	Zr	<0.001
In	<0.001	Th	<0.001		

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.

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Catalog Number: PLY2-2X/2Y/2T **Lot No.** 9-152Y

Description: 1,000 mg/L Yttrium

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1001.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3167a.

The CRM is prepared gravimetrically using high purity Yttrium Oxide Lot# 08001A. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1002 mg/L

Method: EDTA titration using Methyl Thymol Blue as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumentation Analysis By ICP spectrometer: 1001 mg/L

Uncertified Properties:

Density: 1.010 @ 24.8 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Ce	<0.001	La	<0.001	Tb	<0.001
Ca	0.007	Lu	<0.001	Tm	<0.001
Dy	<0.001	Mn	<0.001	Tl	<0.001
Er	<0.001	Mo	<0.001	Th	<0.001
Eu	<0.001	Nd	<0.001	Ta	<0.001
Fe	0.003	Ni	<0.001	Ti	<0.001
Gd	<0.001	Na	0.005	V	<0.001
Ga	<0.001	Pr	<0.001	W	<0.001
Hf	<0.001	Rb	<0.001	Yb	<0.001
Ho	<0.001	Sc	<0.001	Zr	0.003
In	<0.001	Sm	<0.001		

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

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Catalog Number: PLPD3-2X/2Y **Lot No.** 9-74PD

Description: 1000 mg/L Palladium

Matrix: 10% HCl

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 995 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3138

The CRM is prepared gravimetrically using high purity Palladium Powder Lot# 07991E. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 990 mg/L

Method: Precipitation using dimethyl glyoxime,filter,dry and weigh as Pd(C4H702N2)2.

Instrumentation Analysis By ICP spectrometer: 1000 mg/L

Uncertified Properties:

Density: 1.025 @ 26.3 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	<0.004	Cr	<0.009	Pt	<0.004
Au	0.03	Fe	0.02	Re	<0.001
Ag	0.007	Ga	<0.001	Rh	0.002
B	<0.05	Ir	<0.001	Rb	<0.001
Be	<0.002	In	<0.001	Ru	<0.001
Bi	<0.001	Mg	<0.005	Sn	0.08
Ca	0.02	Mn	<0.001	Te	<0.001
Cd	<0.001	Na	<0.03	Ti	<0.001
Co	<0.001	Ni	0.004	W	<0.001
Cu	<0.006	Pb	<0.04	Zr	<0.001
				Zn	0.16

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.

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INORG: 4140 PO: 52370

Catalog Number: PLS9-2X/2Y/2T **Lot No.** 8-74S

Description: 1000 mg/L Sulfur

Matrix: H2O

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1003 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3154

The CRM is prepared gravimetrically using high purity Ammonium Sulfate Lot# 05891M. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1003 mg/L

Method: Precipitation using barium chloride,filter,ignite and weigh as BaS04.

Instrumentation Analysis By ICP spectrometer: 1003 mg/L

Uncertified Properties:

Density: 1.007 @ 23.6 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	<0.001	Cu	<0.001	Pb	0.002
As	<0.001	Fe	0.008	Rb	<0.001
Ag	<0.001	Ga	<0.001	Re	<0.001
B	<0.004	In	<0.001	Sn	<0.001
Ba	<0.001	K	<0.001	Sr	<0.001
Be	<0.001	Li	<0.001	Sb	<0.001
Bi	<0.001	Mg	0.005	Ti	<0.002
Ca	0.009	Mn	<0.001	Tl	<0.001
Cr	<0.004	Mo	<0.001	V	<0.001
Cd	<0.001	Na	0.02	Zr	<0.001
Co	<0.001	Ni	<0.001	Zn	0.0075

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.

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Catalog Number: PLTH2-2X/2Y **Lot No.** 9-95TH

Description: 1000 mg/Lthorium

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1000 mg/L +/- 3 mg/L

Uncertainty Associated with Measurement:

Certified Value is Traceable to: NIST SRM 3159

The CRM is prepared gravimetrically using high purity Th(NO3)4-4H2O Lot# 01851R. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1001 mg/L

Method: EDTA titration using Xylenol Orange as indicator. EDTA standardized against Pb(NO3)2 NIST SRM #928.

Instrumentation Analysis By ICP spectrometer: 999 mg/L

Uncertified Properties:

Density: 1.043 @ 25.2 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Ce	0.008	La	0.002	Tb	<0.001
Ca	0.01	Lu	<0.001	Tm	<0.001
Dy	<0.001	Mn	<0.001	Ti	<0.002
Er	<0.001	Mo	<0.001	Ta	<0.001
Eu	<0.001	Nd	0.002	Tl	<0.001
Fe	<0.01	Ni	<0.001	V	<0.001
Gd	<0.001	Na	0.03	W	<0.001
Ga	<0.001	Pr	<0.001	Y	0.001
Hf	<0.001	Rb	<0.001	Yb	<0.001
Ho	<0.001	Sc	0.002	Zr	0.002
In	<0.001	Sm	<0.001		

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: SEP -- '02 Certifying Officer: N. Kocherlakota

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Catalog Number: PLU2-2X/2Y **Lot No.** 9-179U

Description: 1000 mg/L Uranium

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 999.5 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3164.

The CRM is prepared gravimetrically using high purity Uranium Oxide Lot# 04001D. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 999 mg/L

Method: Evaporate to dryness. Ignite and weigh as U3O8.

Instrumentation Analysis By ICP spectrometer: 1000 mg/L

Uncertified Properties:

Density: 1.010 @ 23.6 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.005	Cu	0.02	Pb	0.004
As	0.06	Fe	0.011	Rb	<0.001
Ag	<0.001	Ga	<0.001	Re	<0.001
B	<0.005	In	<0.001	Si	<0.10
Ba	0.004	K	0.008	Sr	0.003
Be	<0.001	Li	<0.001	Sb	0.003
Bi	<0.001	Mg	0.003	Ti	<0.001
Ca	0.012	Mn	0.003	Tl	<0.001
Cr	<0.010	Mo	0.006	V	<0.003
Cd	<0.001	Na	0.10	Zr	<0.001
Co	<0.001	Ni	<0.001	Zn	0.008

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: JUN '03 Certifying Officer: N. Kocherlakota

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Catalog Number: PLW9-2X/2Y **Lot No.** 8-135W

Description: 1000 mg/L Tungsten

Matrix: H2O

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 999.5 mg/L +/- 3 mg/L

Traceable to: NIST SRM 3163

The CRM is prepared gravimetrically using high purity Ammonium Tungstate Lot# 02001H. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 997 mg/L

Method: Fume with Sulfuric Acid to dryness, ignite and weigh as WO3.

Instrumentation Analysis By ICP spectrometer: 1002 mg/L

Uncertified Properties:

Density: 1.006 @ 25.2 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.005	Cu	<0.001	Pb	<0.008
As	0.006	Fe	0.003	Rb	<0.001
Ag	<0.004	Ga	<0.001	Re	0.009
B	<0.004	In	<0.001	Sn	0.001
Ba	<0.001	K	0.07	Sr	<0.001
Be	<0.001	Li	0.04	Sb	0.002
Bi	<0.001	Mg	0.006	Ti	<0.002
Ca	0.008	Mn	<0.001	Tl	<0.001
Cr	<0.005	Mo	0.005	V	<0.001
Cd	<0.001	Na	0.03	Zr	<0.001
Co	<0.001	Ni	<0.001	Zn	<0.2

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: AUG -- '02 Certifying Officer: N. Kocherlakota

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Catalog Number: PLZR2-2X/2Y/2T **Lot No.** 9-07ZR

Description: 1000 mg/L Zirconium

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. 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 mg/L

Certified Value is Traceable to: NIST SRM 3169

The CRM is prepared gravimetrically using high purity Zirconyl Nitrate Lot# 11011C. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 996 mg/L

Method: Fume with Sulfuric Acid to dryness,ignite and weigh as ZrO2.

Instrumentation Analysis By ICP spectrometer: 998 mg/L

Uncertified Properties:

Density: 1.009 @ 25.0 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.02	Cu	<0.001	Pb	<0.001
As	<0.002	Fe	0.039	Rb	<0.001
Ag	0.2	Ga	<0.001	Re	<0.001
B	<0.05	In	<0.001	Sn	<0.001
Ba	<0.001	K	<0.08	Sr	<0.001
Be	<0.001	Li	<0.005	Sb	<0.001
Bi	<0.001	Mg	<0.002	Ti	<0.002
Ca	0.04	Mn	<0.001	Tl	<0.001
Cr	<0.005	Mo	<0.001	V	<0.001
Cd	0.004	Na	<0.03	Zn	0.005
Co	<0.001	Ni	<0.001		

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: AUG -- '02 Certifying Officer: N. Kocherlakota

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 8/20/02
DATE EXPIRED: 8/15/03
DATE OPENED: 8/20/02
INORG: 3643 PO: 152039

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SPEXertificate™

010490

Certificate of Reference Material

Catalog Number: PLNA2-3X/3Y **Lot No.** T8-73NA

Description: 10,000 mg/L Sodium

Matrix: 5% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 10,036.5 mg/L

Uncertainty Associated with Measurement: +/- 30 mg/L

Certified Value is Traceable to: NIST SRM 3152a

The CRM is prepared gravimetrically using high purity Sodium Carbonate Lot# 02021A. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 10,039 mg/L

Method: Evaporate to dryness. Fume with Sulfuric Acid. Ignite and weigh as Na2SO4.

Instrumentation Analysis By ICP spectrometer: 10,034 mg/ L

Uncertified Properties:

Density: 1.048 @ 23.9 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.02	Cu	<0.002	Pb	<0.001
As	<0.08	Fe	0.03	Re	<0.001
Ag	<0.02	Ga	<0.001	Rb	<0.001
B	<0.1	In	<0.001	Sr	<0.001
Ba	0.008	K	1.36	Sb	<0.001
Be	<0.01	Li	<0.002	Sn	<0.001
Bi	<0.001	Mg	0.60	Ti	<0.03
Ca	0.60	Mn	<0.02	Tl	<0.001
Cr	0.002	Mo	<0.001	V	<0.001
Cd	<0.01	Ni	<0.003	Zr	<0.001
Co	<0.001			Zn	<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: FEB -- '03 Certifying Officer: N. Kocherlakota

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/13/03
DATE EXPIRED: 02/15/2004
DATE OPENED: 02/13/03
INORG: 3951 PO: E52060

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Certificate of Reference Material

010491

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 11/19/02
DATE EXPIRED: 11/30/2003
DATE OPENED: 11/19/02
INORG: 3773 PO: F52064

Catalog Number: ICV-2A **Lot No.:** 22-12AS
Description: **Initial Calibration Verification Standard II**
Matrix: 5% Nitric Acid

This **ASSURANCE** ®certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. 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 element 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 ICP Spectrometer:

Element	Labeled (mg/L)	Measured (mg/L)	NIST SRM	Element	Labeled (mg/L)	Measured (mg/L)	NIST SRM
Ca	2,000	2,005.40	3109a	Ni	500	500.58	3136
K	2,000	1,997.89	3141a	V	500	504.23	3165
Mg	2,000	1,992.26	3131a	Cr	200	203.21	3112a
Na	2,000	1,992.99	3152a	Cu	200	199.75	3114
Al	1,000	1,005.90	3101a	Ag	100	100.46	3151
Ba	1,000	1,001.51	3104a	Be	100	100.04	3105a
Fe	1,000	1,003.17	3126a	Mn	100	100.64	3132
Co	500	505.10	3113	Zn	100	100.52	3168a

Spex Reference Multi: Lot #4-63BD, 14-125AS

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: NOV -- '02 Certifying Officer: N. Kocherlakota

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INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 11/19/02
DATE EXPIRED: 11/30/2003 DK
DATE OPENED: 11/19/02
INORG: 3224 PO: E52064

010492

SPECertificate™

Certificate of Reference Material

Catalog Number: PLSB7-2X/2Y/2T **Lot No.:** 8-175SB-X/Y/T
Description: 1000 mg/L Antimony
Matrix: Water/0.6% Tartaric Acid/tr HNO_3

This **ASSURANCE** ®certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: Antimony(Sb): 999 mg/L ± 3 mg/L
Traceable to: NIST SRM 3102a

The CRM is prepared gravimetrically using high purity Antimony Metal (Sb) Lot#R1198A. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.
Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 998 mg/L
Method: Gravimetric analysis by evaporating to dryness, fuming with Nitric Acid, igniting and weighing as Sb_2O_4.
Instrumental Analysis by ICP spectrometer: 1000 mg/L
Uncertified Properties:
Density: 1.007 at 24.0°C

Trace Metallic Impurities in the Actual Solution via ICP Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Ag	<0.001	Cu	<0.001	Pb	<0.001
Al	0.030	Fe	0.013	Rb	<0.001
As	0.001	Ga	<0.001	Re	<0.001
B	<0.001	In	<0.001	Sn	<0.001
Ba	<0.001	K	0.030	Sr	<0.001
Be	<0.001	Li	<0.001	Ti	0.001
Bi	<0.001	Mg	0.003	Tl	<0.001
Ca	0.012	Mn	<0.001	V	<0.001
Cd	<0.001	Mo	<0.001	Zn	<0.010
Co	<0.001	Na	0.005	Zr	<0.001
Cr	<0.001	Ni	<0.001		

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: NOV -- '02 Certifying Officer: N. Kocherlakota

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010493

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 11/19/02
DATE EXPIRED: 11/30/2003
DATE OPENED: 11/19/02
INORG: 3775 PO: F50064

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Certificate of Reference Material

Catalog Number: ICV-2C **Lot No.:** 22-13AS
Description: **Initial Calibration Verification Standard II**
Matrix: 5% Nitric Acid

This **ASSURANCE** ®certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. 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 element 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 ICP Spectrometer:

Element	Labeled (mg/L)	Measured (mg/L)	NIST SRM
As	500	497.85	3103a
Pb	500	495.41	3128
Se	500	501.98	3149
TL	500	501.89	3158
Cd	100	99.77	3108

Spex Reference Multi: Lot #4-51BDREF, 15-39AS, 11-173AS

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 element exceeding +/- 2%. This includes uncertainty of measurements and other effects, such as transpiration losses. 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: NOV -- '02 Certifying Officer: N. Kocherlakota

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Certificate of Reference Material

010494

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 08/11/03
DATE EXPIRED: 08/15/2004
DATE OPENED: 08/13/03
INORG: 4212 PO: E52918

Catalog Number: PLW9-2X/2Y **Lot No.** 9-177W

Description: 1000 mg/L Tungsten

Matrix: H2O

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. It can be employed in USEPA, ASTM and other methods relevent to the certified properties listed below.

Certified Value: 1,000 mg/L

Uncertainty Associated with Measurement: +/- 3 mg/L

Certified Value is Traceable to: NIST SRM 3163

The CRM is prepared gravimetrically using high purity Ammonium Tungstate Lot# 02001H. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1000 mg/L

Method: Fume with Sulfuric Acid to dryness. Ignite and weigh as WO3.

Instrumentation Analysis By ICP spectrometer: 1000 mg/L

Uncertified Properties:

Density: 0.9979 @ 23.7 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.002	Cu	<0.001	Pb	<0.001
As	0.01	Fe	<0.01	Rb	<0.001
Ag	<0.003	Ga	<0.001	Re	0.004
B	<0.005	In	<0.001	Si	.56
Ba	<0.001	K	0.05	Sr	<0.001
Be	<0.001	Li	<0.001	Sb	0.001
Bi	<0.001	Mg	<0.001	Ti	<0.001
Ca	0.009	Mn	<0.001	Tl	<0.001
Cr	<0.001	Mo	0.005	V	0.001
Cd	<0.001	Na	0.03	Zr	<0.001
Co	0.001	Ni	<0.001	Zn	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: AUG '03 Certifying Officer: N. Kocherakota

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010495

Certificate of Reference Material

Catalog Number: PLZR2-2X/2Y/2T **Lot No.** 10-05ZR

Description: 1000 mg/L Zirconium

Matrix: 2% HNO3

This **ASSURANCE** ® certified reference material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICPOES, DCP, AA, ICPMS, and XRF. 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/L

Certified Value is Traceable to: NIST SRM 3169

The CRM is prepared gravimetrically using high purity Zirconyl Nitrate Lot# 11011C. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 997 mg/L

Method: Evaporate to dryness. Fume with Sulfuric Acid. Ignite and weigh as ZrO2.

Instrumentation Analysis By ICP spectrometer: 997 mg/L

Uncertified Properties:

Density: 1.010 @ 23.6 Degrees Celsius

Trace Metallic Impurities in the Actual Solution via ICP / ICPMS Analysis:

Element	mg/L	Element	mg/L	Element	mg/L
Al	0.03	Cu	0.002	Pb	0.002
As	<0.001	Fe	0.017	Rb	<0.001
Ag	<0.05	Ga	<0.001	Re	<0.001
B	<0.004	In	<0.001	Si	0.10
Ba	<0.001	K	0.10	Sr	<0.001
Be	<0.001	Li	0.002	Sb	<0.001
Bi	<0.001	Mg	0.003	Ti	<0.001
Ca	0.11	Mn	<0.001	Tl	<0.001
Cr	<0.009	Mo	<0.001	V	<0.001
Cd	0.004	Na	0.04	Zn	0.02
Co	<0.001	Ni	<0.001		

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: AUG '03 Certifying Officer: N. Kocherlakota

INORGANIC LABS/KAULCHEM LABS
DATE RECEIVED: 08/11/03
DATE EXPIRED: 08/15/2004
DATE OPENED: 08/13/03
INORG: 4013 PO: F52218

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Certificate of Analysis

CUSTOM-GRADE SOLUTION 10,000 µg/mL Aluminum in 5% HNO_3 (abs) 010496

Catalog Number: CGAL10-1and CGAL10-5

Lot Number: **S-AL03136 (Revised 06/10/02)**

Starting Material:	Aluminum Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	607116

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 08/23/02
DATE EXPIRED: 09/01/2003
DATE OPENED: 08/26/02
INORG: 3649 PO: F52042

CERTIFIED CONCENTRATION: 10,041 ± 25 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 10,041 ± 25 µg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 10,017 ± 102 µg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3101a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm .

s	Al		M	Dy	<0.028	M	Li	<0.047	M	Pr	<0.0014	M	Te	<0.14
M	Sb	<0.0024	M	Er	<0.024	M	Lu	<0.0019	M	Re	<0.0047	M	Tb	<0.0014
M	As	<0.047	M	Eu	<0.014	O	Mg	0.0050	M	Rh	<0.0047	M	Tl	<0.0047
M	Ba	<0.047	M	Gd	<0.0047	M	Mn	<0.019	M	Rb	<0.0047	M	Th	<0.0047
O	Be	<0.00017	M	Ga	<0.0047	O	Hg	<0.0070	M	Ru	<0.0094	M	Tm	<0.0019
M	Bi	<0.0019	M	Ge	<0.028	M	Mo	<0.0094	M	Sm	<0.0047	M	Sn	<0.024
O	B	0.012	M	Au	<0.014	M	Nd	<0.0094	M	Sc	<0.047	M	Ti	<0.24
M	Cd	<0.014	M	Hf	<0.0094	O	Ni	<0.0060	M	Se	<0.036	M	W	<0.047
O	Ca	0.0084	M	Ho	<0.0024	M	Nb	<0.0024	O	Si	0.052	M	U	<0.0094
M	Ce	<0.024	O	In	<0.030	n	Os		M	Ag	<0.0094	M	V	<0.0094
M	Cs	<0.0014	M	Ir	<0.024	M	Pd	<0.024	O	Na	<0.10	M	Yb	<0.0047
O	Cr	0.0026	O	Fe	0.018	O	P	<0.030	M	Sr	<0.0024	M	Y	<0.19
M	Co	<0.014	M	La	<0.0024	M	Pt	<0.0094	O	S	0.086	M	Zn	<0.094
M	Cu	<0.028	M	Pb	<0.014	O	K	<0.0060	M	Ta	<0.033	M	Zr	<0.024

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.061 g/mL

QA:KL Rev.061002DN

(over)

Paul R. Haines
Quality Assurance Manager

Inorganic Ventures, Inc.
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
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EXPIRES 1 SEP 2003

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certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

010497

2.0 DESCRIPTION OF CRM Custom-Grade **10000 µg/mL Calcium in 1.4% (abs) HNO_3**

Catalog Number:	CGCA10-1 AND CGCA10-5
Lot Number:	**T-CA03010**
Starting Material:	CaO
Starting Material Purity (%):	99.9981
Starting Material Lot No	C27L01
Matrix:	1.4% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 01/09/03
DATE EXPIRED: 02/01/2004
DATE OPENED: 01/10/03
INORG: 3900 PO: F52071

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,007 ± 22 µg/mL

Certified Density: 1.037 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
$\sum S$ = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

"Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **10,034 ± 25 µg/mL**
ICP Assay NIST SRM 3109a Lot Number: 000622

Assay Method #2 **10,007 ± 22 µg/mL**
EDTA NIST SRM 928 Lot Number: 880710

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

010498

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 40.078; +2; 6; $Ca(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl and HNO_3. Avoid H_2SO_4, HF, H_3PO_4 and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO_3 / LDPE container.

Ca Containing Samples (Preparation and Solution) - Metal (best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt^0 followed by HCl dissolution); Organic Matrices (dry ash and dissolution in dilute HCl. Do not heat when dissolving to avoid precipitation of SiO_2) .The oxide, hydroxide, carbonate, phosphate, and fluoride of calcium are soluble in % levels of HCl or HNO_3. The sulfates (gypsum, anhydrite, etc.), certain silicates and complex compounds require fusion with Na_2CO_3 followed by HCl / water dissolution. Contamination is a very real problem when analyzing for trace levels.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at= concs.)
ICP-OES	393.366 nm	0.0002 / 0.00004 µg/mL	1	ion	U, Ce
ICP-OES	396.847 nm	0.0005 / 0.00006 µg/mL	1	ion	Th
ICP-OES	422.673 nm	0.01 / 0.001 µg/mL	1	atom	Ge
ICP-MS	44 amu	1200 ppt	n/a	M'	$^{16}O_2$, ^{12}C, $^{28}Si^{16}O$, $^{44}Sr^{+2}$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 01/09/03
DATE EXPIRED: 02/01/2004
DATE OPENED: 01/10/03
INORG: 3900 PO: F52071

inorganic ventures / iv labs

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phone: 800-669-6799 • 732-901-1900 • fax: 732-901-1903
e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

010499

2.0 DESCRIPTION OF CRM

Custom-Grade **10000 µg/mL Iron in 3.5% (abs) HNO_3**

Catalog Number:	CGFE10-1 and CGFE10-5
Lot Number:	**T-FE03028**
Starting Material:	Fe metal
Starting Material Purity (%):	99.9992
Starting Material Lot No	23024
Matrix:	3.5% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 2/28/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 2/28/03
INORG: 3963 PO: E52064

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 9920 ± 22 µg/mL

Certified Density: 1.037 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
$\sum S_i$ = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **9920 ± 22 µg/mL**
ICP Assay NIST SRM 3126a Lot Number: 000606

Assay Method #2 **9962 ± 41 µg/mL**
EDTA NIST SRM 928 Lot Number: 880710

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 55.847; +3; 6; $Fe(H_2O)_6^{3+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4, HF and H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Fe Containing Samples (Preparation and Solution) - Metal (Soluble in HCl); Oxides (If the oxide has been at a high temperature then Na_2CO_3 fusion in Pt^0 followed by HCl dissolution otherwise dissolve in dilute HCl); Ores (See Oxides above using only the fusion approach).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≈ concs.)
ICP-OES	238.204 nm	0.005 / 0.001 µg/mL	1	ion	Ru, Co
ICP-OES	239.562 nm	0.005 / 0.001 µg/mL	1	ion	Co, W, Cr
ICP-OES	259.940 nm	0.006 / 0.001 µg/mL	1	ion	Hf, Nb
ICP-MS	56 amu	970 ppt	n/a	M^+	$^{40}Ar^{15}N^1H$, $^{40}Ar^{16}O$, $^{36}Ar^{17}O^1H$, $^{38}Ar^{18}O$, $^{37}Cl^{18}O^1H$, $^{40}Ca^{16}O$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 2/28/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 2/28/03
INORG: 3963 PO: F52064

Certificate of Analysis

CUSTOM-GRADE SOLUTION

10,000 µg/mL Potassium in 1.4% HNO_3 (abs)

Catalog Number: CGK10-1and CGK10-5

010501

Lot Number: **T-K02102**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/22/02
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/23/02
INORG: 3738 PO: F52057

Starting Material:	Potassium Nitrate
Starting Material Purity:	99.996%
Starting Material Lot No:	K18J19

CERTIFIED CONCENTRATION: 9999 ± 7 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 9999 ± 7 µg/mL
Method: Gravimetric as the Sulfate vs NIST weights #822/254143-94.

Instrument Analysis: 10,002 ± 27 µg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3141a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm .

O	Al	<0.00090	M	Dy	<0.0060	O	Li	<0.000030	M	Pr	<0.00030	M	Te	<0.030
M	Sb	<0.00050	M	Er	<0.0050	M	Lu	<0.00040	M	Re	<0.0010	M	Tb	<0.00030
M	As	<0.010	M	Eu	<0.0030	O	Mg	0.00015	M	Rh	<0.0010	M	Tl	<0.0010
M	Ba	<0.010	M	Gd	<0.0010	O	Mn	<0.000030	M	Rb	0.50	M	Th	<0.0010
O	Be	<0.00020	M	Ga	<0.0010	O	Hg	<0.015	M	Ru	<0.0020	M	Tm	<0.00040
M	Bi	<0.00040	O	Ge	<0.0015	M	Mo	<0.0020	M	Sm	<0.0010	M	Sn	<0.0050
O	B	<0.00060	O	Au	<0.0030	M	Nd	<0.0020	O	Sc	<0.000020	O	Ti	<0.00070
M	Cd	<0.0030	M	Hf	<0.0020	O	Ni	<0.0023	O	Se	<0.05	M	W	<0.0010
O	Ca	0.0016	M	Ho	<0.00050	M	Nb	<0.00050	O	Si	0.0025	M	U	<0.0020
M	Ce	<0.0050	M	In	<0.0010	n	Os		M	Ag	<0.0020	O	V	<0.00090
M	Cs	<0.00030	M	Ir	<0.0050	M	Pd	<0.0050	O	Na	0.61	M	Yb	<0.0010
M	Cr	<0.0050	O	Fe	0.0024	O	P	<0.0025	M	Sr	<0.00050	M	Y	<0.040
M	Co	<0.0030	M	La	<0.00050	M	Pt	<0.0020	O	S	0.021	O	Zn	0.0021
M	Cu	<0.0060	M	Pb	<0.0030	s	K		M	Ta	<0.0070	M	Zr	<0.0050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): **1.023 g/mL** **(over)**

QA:KL Rev.032702DN

Paul R. Haines

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Technical Support: 800-569-6799

Quality Assurance Manager

EXPIRES 1/2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION

10,000 µg/mL Magnesium in 1.4% HNO_3 (abs)

Cataiog Number: CGMG10-1and CGMG10-5

010502

Lot Number: **T-MG02151**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 7/12/02
DATE EXPIRED: 8/01/2003
DATE TESTED: 7/15/02
INORG: 3564 RAD: E51959

Starting Material:	Magnesium Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	91191

CERTIFIED CONCENTRATION: 10,016 ± 22 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 10,016 ± 22 µg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 10,016 ± 52 µg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3131a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm .

O	Al	0.050	M	Dy	<0.025	O	Li	0.0063	M	Pr	<0.0013	M	Te	<0.13
M	Sb	0.0031	M	Er	<0.021	M	Lu	<0.0017	M	Re	<0.0041	M	Tb	<0.0013
M	As	<0.041	M	Eu	<0.013	s	Mg		M	Rh	<0.0041	M	Tl	<0.0041
M	Ba	<0.041	M	Gd	<0.0041	M	Mn	<0.017	M	Rb	<0.0041	M	Th	<0.0041
O	Be	<0.00017	M	Ga	<0.0041	O	Hg	<0.0090	M	Ru	<0.0082	M	Tm	<0.0017
M	Bi	<0.0017	M	Ge	<0.025	M	Mo	<0.0082	M	Sm	<0.0041	M	Sn	<0.021
O	B	0.013	M	Au	<0.013	M	Nd	<0.0082	M	Sc	<0.041	O	Ti	0.17
M	Cd	<0.013	M	Hf	<0.0082	O	Ni	0.015	M	Se	<0.033	M	W	<0.041
O	Ca	0.050	M	Ho	<0.0021	M	Nb	<0.0021	O	Si	0.040	M	U	<0.0082
M	Ce	<0.021	M	In	<0.041	n	Os		M	Ag	<0.0082	M	V	<0.0082
M	Cs	<0.0013	M	Ir	<0.021	M	Pd	<0.021	O	Na	0.025	M	Yb	<0.0041
O	Cr	0.027	O	Fe	0.069	O	P	<0.016	M	Sr	<0.0021	M	Y	<0.17
M	Co	<0.013	M	La	<0.0021	M	Pt	<0.0082	n	S		O	Zn	0.0065
O	Cu	0.0088	O	Pb	0.034	O	K	<0.050	M	Ta	<0.029	M	Zr	<0.021

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.050 g/mL **(over)**

QA:KSL Rev.022202DN

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 Aug 2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION 10,000 µg/mL Sodium in 1.4% HNO_3 (abs) 010503

Catalog Number: CGNA10-1and CGNA10-5

Lot Number: **T-NA02144**

INORGANIC LABS/TechCHEM LABS
DATE RECEIVED: 7/12/02
DATE EXPIRED: 8/01/2003
DATE OPENED: 7/15/02
INORG: 3565 PO: E51959

Starting Material:	Na_2CO_3
Starting Material Purity:	99.999%
Starting Material Lot No:	41355

CERTIFIED CONCENTRATION: 10,029 ± 8 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 10,029 ± 8 µg/mL
Method: Gravimetric as the Sulfate vs NIST weights #822/254143-94.

Instrument Analysis: 10,035 ± 40 µg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3152a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm .

O	Al	<0.00090	M	Dy	<0.026	O	Li	<0.000030	M	Pr	<0.0013	M	Te	<0.13
M	Sb	<0.0022	M	Er	<0.022	M	Lu	<0.0018	M	Re	<0.0044	M	Tb	<0.0013
M	As	<0.044	M	Eu	<0.013	O	Mg	0.00019	M	Rh	<0.0044	M	Tl	<0.0044
M	Ba	<0.044	M	Gd	<0.0044	O	Mn	<0.000030	M	Rb	<0.0044	M	Th	<0.0044
O	Be	<0.00020	M	Ga	<0.0044	O	Hg	<0.015	M	Ru	<0.0087	M	Tm	<0.0018
M	Bi	<0.0018	O	Ge	<0.0015	M	Mo	<0.0087	M	Sm	<0.0044	M	Sn	<0.022
O	B	0.00040	O	Au	<0.0030	M	Nd	<0.0087	O	Sc	<0.000020	O	Ti	<0.00070
M	Cd	<0.013	M	Hf	<0.0087	O	Ni	<0.0023	O	Se	<0.050	M	W	<0.044
O	Ca	0.0026	M	Ho	<0.0022	M	Nb	<0.0022	O	Si	<0.0034	M	U	<0.0087
M	Ce	<0.022	M	In	<0.044	n	Os		M	Ag	<0.0087	O	V	<0.00090
M	Cs	0.021	M	Ir	<0.022	M	Pd	<0.022	s	Na		M	Yb	<0.0044
M	Cr	<0.022	O	Fe	<0.0011	O	P	0.0014	M	Sr	<0.0022	M	Y	<0.18
M	Co	<0.013	M	La	<0.0022	M	Pt	<0.0087	O	S	<0.072	O	Zn	<0.00020
O	Cu	<0.0014	M	Pb	<0.013	O	K	0.22	M	Ta	<0.031	M	Zr	<0.022

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.030 g/mL

(over)

QA:KL Rev.032702DN

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Paul R. Haines
Quality Assurance Manager

EXPIRES
1 2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Lithium in 0.1% HNO_3 (abs) 010504

Catalog Number: CGLI1-1, CGLI1-2 and CGLI1-5

Lot Number: **T-LI02059**

Starting Material:	Li_2CO_3
Starting Material Purity:	99.999%
Starting Material Lot No:	1053

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/22/02
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/23/02
INORG: 3736 PO: F52057

CERTIFIED CONCENTRATION: 997 ± 1 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 997 ± 1 μg/mL
Method: Gravimetric as the Sulfate vs NIST weights #822/254143-94.

Instrument Analysis: 998 ± 2 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3129a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.010	M	Dy	<0.00060	s	Li		M	Pr	<0.000030	O	Te	<0.0090
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
O	As	<0.044	M	Eu	<0.00030	O	Mg	<0.00010	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	O	Mn	<0.00020	M	Rb	<0.00010	M	Th	<0.00010
O	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.0070	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.0060	O	Au	<0.010	M	Nd	<0.00020	M	Sc	<0.0010	O	Ti	<0.00030
O	Cd	<0.0018	M	Hf	<0.00020	O	Ni	<0.0040	O	Se	<0.020	M	W	<0.0010
O	Ca	0.051	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	0.023	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		O	Ag	<0.0040	O	V	<0.0010
M	Cs	0.0018	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.10	M	Yb	<0.00010
O	Cr	<0.0020	O	Fe	<0.0020	O	P	<0.030	O	Sr	<0.0010	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	O	S	<0.050	O	Zn	<0.030
M	Cu	<0.00060	M	Pb	<0.00030	O	K	0.0070	M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.004 g/mL **(over)**

QA:KL Rev.032702DN

Paul R. Haines
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EXPIRES 1 NOV 2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Barium in 0.1% HNO_3 (abs) 010505

Catalog Number: CGBA1-1, CGBA1-2, and CGBA1-5

Lot Number: **T-BA02021**

Starting Material:	$Ba(NO_3)_2$
Starting Material Purity:	99.999%
Starting Material Lot No:	21879

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 3/03/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 3/04/03
INORG: 3971 PO: E52064

CERTIFIED CONCENTRATION: 1003 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value $(\bar{x}) = \frac{\sum x_i}{n}$ Uncertainty $(\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1003 ± 2 μg/mL
Method: Gravimetric as the Sulfate vs NIST weights #822/254143-94.

Instrument Analysis: 1002 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3104a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	<0.040	M	Dy	<0.00060	M	Li	<0.0010	n	Pr		i	Te				
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030			
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.00010	M	Tl	<0.00010			
s	Ba		M	Gd	0.0020	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010			
M	Be	<0.000050	M	Ga	<0.00010	i	Hg		M	Ru	<0.00020	M	Tm	<0.000040			
M	Bi	<0.000040	M	Ge	0.0010	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050			
M	B	<0.0070	M	Au	<0.00030	M	Nd	0.0020	M	Sc	<0.0010	M	Ti	<0.0050			
M	Cd	<0.00030	M	Hf	<0.00020	i	Ni		O	Se	<0.40	M	W	<0.0010			
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020			
n	Ce		i	In		n	Os		M	Ag	<0.00020	M	V	<0.00020			
n	Cs		M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.090	M	Yb	<0.00010			
M	Cr	<0.00050	O	Fe	<0.050	O	P	<0.050	M	Sr	0.0040	M	Y	<0.0040			
M	Co	<0.00030	n	La		M	Pt	<0.00020	n	S		O	Zn	<0.030			
M	Cu	<0.00060	M	Pb	<0.00030	n	K		M	Ta	<0.00070	M	Zr	<0.00050			

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.000 g/mL

(over)

QA:KL Rev.112702DN

Paul R. Haines

Inorganic Ventures, Inc.
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
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Quality Assurance Manager

EXPIRES 1 MAR 2004

inorganic ventures / iv labs

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certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

010506

2.0 DESCRIPTION OF CRM

Custom-Grade **1000 µg/mL Beryllium in 2% (abs) HNO_3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**W-BE01100**
Starting Material:	Be(OOCCH3)2
Starting Material Purity (%):	99.999897
Starting Material Lot No	01-10-01
Matrix:	2% (abs) HNO_3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 991 ± 3 µg/mL

Certified Density: 1.022 g/mL (measured at 22° C)

The Certified Value is the instrument analysis value. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value (□) = $\frac{\Sigma x_i}{n}$

Uncertainty (±) = $\frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

(□) = mean
x_i = individual results
n = number of measurements
■S = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

☐ "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

☐ This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **991 ± 3 µg/mL (Avg 2 runs)**

ICP Assay NIST SRM 3105a Lot Number: 892707

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 05/09/03
DATE EXPIRED: 06/01/2004
DATE OPENED: 05/12/03
INORG: 4062 PO: F52181

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.00800	M	Dy	< 0.01305	O	Li	< 0.00002	M	Pr	< 0.00065	M	Te	< 0.06525
M	Sb	< 0.00109	M	Er	< 0.01087	M	Lu	< 0.00087	M	Re	< 0.00218	M	Tb	< 0.00065
M	As	< 0.02175	M	Eu	< 0.00652	O	Mg	< 0.00003	M	Rh	< 0.00218	M	Tl	< 0.00218
M	Ba	< 0.02175	M	Gd	< 0.00218	O	Mn	< 0.00002	M	Rb	< 0.00218	M	Th	< 0.00218
s	Be		M	Ga	< 0.00218	O	Hg	< 0.01500	M	Ru	< 0.00435	M	Tm	< 0.00087
M	Bi	< 0.00087	M	Ge	< 0.01305	M	Mo	< 0.00435	M	Sm	< 0.00218	M	Sn	< 0.01087
O	B	< 0.01200	M	Au	< 0.00652	M	Nd	< 0.00435	O	Sc	< 0.00009	M	Ti	< 0.10874
M	Cd	< 0.00652	M	Hf	< 0.00435	M	Ni	< 0.65245	M	Se	< 0.01740	M	W	< 0.02175
O	Ca	0.00164	M	Ho	< 0.00109	M	Nb	< 0.00109	O	Si	0.00649	M	U	< 0.00435
M	Ce	< 0.01087	M	In	< 0.02175	n	Os		M	Ag	< 0.00435	M	V	< 0.00435
M	Cs	< 0.00065	M	Ir	< 0.01087	M	Pd	< 0.01087	O	Na	0.00368	M	Yb	< 0.00218
O	Cr	< 0.00900	O	Fe	0.00268	n	P		M	Sr	< 0.00109	M	Y	< 0.08699
M	Co	< 0.00652	M	La	< 0.00109	M	Pt	< 0.00435	i	S		M	Zn	< 0.04350
M	Cu	< 0.01305	M	Pb	< 0.00652	O	K	< 0.10000	M	Ta	< 0.01522	M	Zr	< 0.01087

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.
Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 9.01218; +2; 4; $Be^{+2}(H_2O)_4^{+2}$
Chemical Compatibility - Soluble in HCl, HNO_3, H_2SO_4 and HF aqueous matrices. Stable with all metals and inorganic anions.
Stability - 2-100 ppb levels stable for months in 1 % HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5-10 % HNO_3 / LDPE container.
Be Containing Samples (Preparation and Solution) - Metal (is best dissolved in diluted H_2SO_4); BeO (boiling nitric, hydrochloric, or sulfuric acids or $KHSO_4$ fusion); Ores (H_2SO_4/HF digestion or carbonate fusion in Pt^0); Organic Matrices (sulfuric/peroxide digestion or nitric/sulfuric/perchloric acid decomposition, or dry ash and dissolution according to the BeO procedure above).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≤ 10 ppm conc.)
ICP-OES 313.042 nm	0.0003 / 0.00009 µg/mL	1	ion	V, Ce, U
ICP-OES 234.861 nm	0.0003 / 0.00016 µg/mL	1	atom	Fe, Ta, Mo
ICP-OES 313.107 nm	0.0007 / 0.0005 µg/mL	1	ion	Ce, Th, Tm
ICP-MS 9 amu	4 ppt	n/a	M'	

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

010507

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

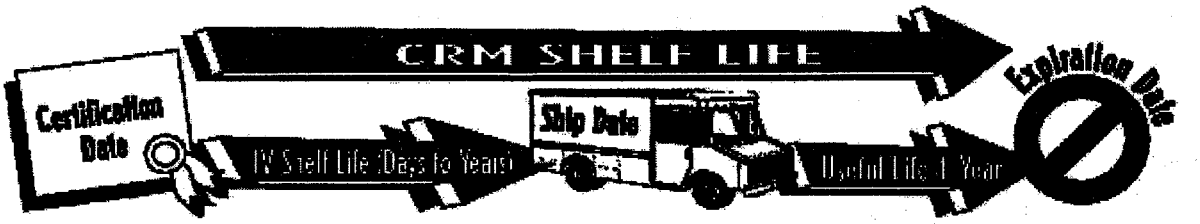
10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY



11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: April 14, 2003

Expiration Date: EXPIRES 1 JUN 2004

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 05/09/03
DATE EXPIRED: 06/01/2004
DATE OPENED: 05/12/03
INORG: 4062 PO: E52181

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	JoAnn Struthers, QA Administrative Assistant	JoAnn Struthers
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

Certificate of Analysis

010508

CUSTOM-GRADE SOLUTION 1000 μg/mL Chromium^{+3} in 1.4% HNO_3 (abs)

Catalog Number: CGCR(3)1-1, CGCR(3)1-2 and CGCR(3)1-5

Lot Number: **T-CR02125**

Starting Material:	Chromium Metal
Starting Material Purity:	99.995%
Starting Material Lot No:	F16I22

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/22/02
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/23/02
INORG: 3732 PO: F52057

CERTIFIED CONCENTRATION: 995 ± 3 μg/mL

The Certified Value is the instrument analysis value. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Instrument Analysis: 995 ± 3 μg/mL (Avg of 3 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3112a.

Calculated Value: 1002 μg/mL
Method: Calculated, based on starting material.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	0.0028	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	O	Mg	<0.010	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	O	Mn	<0.050	M	Rb	0.0066	M	Th	<0.00010
M	Be	<0.000050	M	Ga	0.00070	O	Hg	<0.10	M	Ru	0.017	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
M	B	<0.0070	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0010	M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.10	i	Se		M	W	<0.0010
O	Ca	0.0011	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.10	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.10	n	Os		M	Ag	0.00070	i	V	
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	0.016	M	Yb	<0.00010
s	Cr		O	Fe	<0.10	i	P		M	Sr	<0.000050	M	Y	<0.0040
O	Co	<0.10	M	La	<0.000050	M	Pt	<0.00020	n	S		O	Zn	<0.10
M	Cu	<0.00060	M	Pb	0.00039	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.010 g/mL

(over)

QA:KSL Rev.092502DN

Inorganic Ventures, Inc.
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Technical Support: 800-569-6799

Paul R. Haines
Quality Assurance Manager

EXPIRES
1/2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Copper in 2% HNO_3 (abs)

010509

Catalog Number: CGCU1-1, CGCU1-2 and CGCU1-5

Lot Number: **T-CU02060**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3955 PO: F52060

Starting Material:	Copper Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	K09C13

CERTIFIED CONCENTRATION: 1005 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1005 ± 2 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 1003 ± 5 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3114.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room**. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.010	M	Dy	<0.00060	O	Li	<0.0050	M	Pr	<0.000030	O	Te	<0.031
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.00004	M	Re	<0.00010	M	Tb	<0.000030
O	As	<0.044	M	Eu	<0.00030	O	Mg	0.00080	M	Rh	0.0010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	O	Mn	<0.00020	M	Rb	<0.00010	M	Th	<0.00010
O	Be	<0.00020	O	Ga	<0.0070	O	Hg	<0.0070	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	0.000090	O	Ge	<0.010	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	0.0013
O	B	<0.0060	O	Au	<0.010	M	Nd	<0.00020	M	Sc	<0.0010	O	Ti	<0.00030
O	Cd	<0.0018	M	Hf	<0.00020	O	Ni	<0.0060	O	Se	<0.020	M	W	<0.0010
O	Ca	0.00058	M	Ho	<0.000050	M	Nb	<0.00005	O	Si	<0.0033	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		O	Ag	<0.0040	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	0.0024	O	Na	<0.10	M	Yb	<0.00010
O	Cr	<0.0020	O	Fe	<0.0020	O	P	<0.030	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	O	S	<0.050	O	Zn	i
s	Cu		M	Pb	0.0029	O	K	<0.0060	M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.015 g/mL

QA:KSL Rev.070302DN

(over)

Paul R. Haines

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Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799

Quality Assurance Manager

EXPIRES 1 MAR 2004

inorganic ventures / iv labs

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e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

010510

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

2.0 DESCRIPTION OF CRM

Custom-Grade **1000 µg/mL Nickel in 1.4% (abs) HNO_3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**T-NI02028**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9994
Starting Material Lot No	L06L02
Matrix:	1.4% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3957 PO: E52060

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 998 ± 2 µg/mL

Certified Density: 1.011 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
$\sum S_i$ = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **1002 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **998 ± 2 µg/mL**
EDTA NIST SRM 928 Lot Number: 880710

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	<	0.00938	M	Dy	<	0.06577	O	Li	<	0.00006	M	Pr	<	0.00329	M	Te	<	0.32886
M	Sb	<	0.00548	M	Er	<	0.05481	M	Lu	<	0.00439	M	Re	<	0.01096	M	Tb	<	0.00329
O	As	<	0.01689	M	Eu	<	0.03289	O	Mg		0.00002	M	Rh	<	0.01096	M	Tl	<	0.01096
M	Ba	<	0.10962	M	Gd	<	0.01096	M	Mn	<	0.04385	M	Rb	<	0.01096	M	Th	<	0.01096
O	Be	<	0.00626	M	Ga	<	0.01096	O	Hg	<	0.03441	M	Ru	<	0.02192	M	Tm	<	0.00439
M	Bi	<	0.00439	M	Ge	<	0.06577	M	Mo	<	0.02192	M	Sm	<	0.01096	M	Sn	<	0.05481
O	B	<	0.03097	M	Au	<	0.03289	M	Nd	<	0.02192	M	Sc	<	0.10962	M	Ti	<	0.54811
M	Cd	<	0.03289	M	Hf	<	0.02192	S	Ni			O	Se	<	0.01877	M	W	<	0.10962
O	Ca	<	0.01157	M	Ho	<	0.00548	M	Nb	<	0.00548	O	Si		0.00188	M	U	<	0.02192
M	Ce	<	0.05481	M	In	<	0.10962	n	Os			M	Ag	<	0.02192	M	V	<	0.02192
M	Cs	<	0.00329	M	Ir	<	0.05481	M	Pd	<	0.05481	O	Na		0.00102	M	Yb	<	0.01096
M	Cr	<	0.05481	O	Fe		0.00156	O	P	<	0.31280	M	Sr	<	0.00548	M	Y	<	0.43849
O	Co		0.00182	M	La	<	0.00548	M	Pt	<	0.02192	O	S	<	0.07820	M	Zn		0.00189
M	Cu	<	0.06577	M	Pb	<	0.03289	O	K		0.00043	M	Ta	<	0.07674	M	Zr	<	0.05481

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.
Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.69; +2; 6; $Ni(H_2O)_6^{2+}$
Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.
Ni Containing Samples (Preparation and Solution) - Metal (Soluble in HNO_3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO_3).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≈ concs.)
ICP-OES	221.647 nm	0.01 / 0.0009 µg/mL	1	ion	Si
ICP-OES	232.003 nm	0.02 / 0.006 µg/mL	1	atom	Cr, Re, Os, Nb, Ag, Pt, Fe
ICP-OES	231.604 nm	0.02 / 0.002 µg/mL	1	ion	Sb, Ta, Co
ICP-MS	60 amu	100 ppt	n/a	M^+	$^{43}Ca^{16}O^1H$, $^{44}Ca^{16}O$, $^{23}Na^{37}Cl$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

010511

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

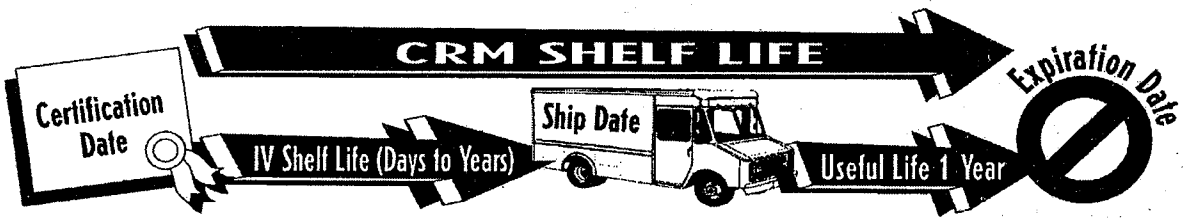
10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY



11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: October 11, 2002

Expiration Date: EXPIRES 1 MAR 2004

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3957 PO: F52060

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Debbie Newman, QA Administrator	Debbie Newman
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

Certificate of Analysis

010512

CUSTOM-GRADE SOLUTION 1000 μg/mL Cadmium in 2% HNO_3 (abs)

Catalog Number: CGCD1-1, CGCD1-2 and CGCD1-5

Lot Number: **T-CD01125**

Starting Material:	Cadmium Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	H02K40A

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 3/03/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 3/04/03
INORG: 3972 PO: F52064

CERTIFIED CONCENTRATION: 1003 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1003 ± 3 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 1003 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3108.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.00030	M	Dy	<0.00060	O	Li	<0.0050	M	Pr	<0.000030	O	Te	<0.031
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
O	As	<0.12	M	Eu	<0.00030	O	Mg	<0.00010	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	O	Mn	<0.00020	M	Rb	<0.00010	M	Th	<0.00010
O	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.0070	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.0060	O	Au	<0.010	M	Nd	<0.00020	M	Sc	<0.0010	O	Ti	<0.00030
s	Cd		M	Hf	<0.00020	O	Ni	<0.0060	O	Se	<0.020	M	W	<0.0010
O	Ca	0.0018	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.010	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		O	Ag	<0.27	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	O	Pd	<0.053	O	Na	<0.10	M	Yb	<0.00010
O	Cr	<0.0040	O	Fe	<0.0020	O	P	<0.030	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	O	S	<0.020	O	Zn	<0.030
M	Cu	<0.00060	M	Pb	<0.00030	O	K	<0.0060	M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.015 g/mL

(over)

QA:KL Rev.080102DN

Paul R. Haines

Inorganic Ventures, Inc.
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799

Quality Assurance Manager

EXPIRES 1 MAR 2004

010513

inorganic ventures / iv labs

195 lehigh avenue, suite 4, lakewood, nj 08701 usa
phone: 800-669-6799 • 732-901-1900 • fax: 732-901-1903
e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

2.0 DESCRIPTION OF CRM

Custom-Grade **1000 µg/mL Cobalt in 2% (abs) HNO_3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**T-CO01120**
Starting Material:	Co powder
Starting Material Purity (%):	99.9957
Starting Material Lot No	22897
Matrix:	2% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 3/03/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 3/04/03
INORG: 3973 PO: E52064

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1002 ± 3 µg/mL

Certified Density: 1.016 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
$\sum S_i$ = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **998 ± 4 µg/mL**
ICP Assay NIST SRM 3181 Lot Number: 000630

Assay Method #2 **1002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 880710

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.00025	M	Dy	< 0.02419	O	Li	0.00001	M	Pr	< 0.00121	M	Te	< 0.12097
M	Sb	< 0.00202	M	Er	< 0.02016	M	Lu	< 0.00161	M	Re	< 0.00403	M	Tb	< 0.00121
O	As	< 0.10000	M	Eu	< 0.01210	O	Mg	0.00045	M	Rh	< 0.00403	M	Tl	< 0.00403
M	Ba	< 0.04032	M	Gd	< 0.00403	O	Mn	0.00003	M	Rb	< 0.00403	M	Th	< 0.00403
M	Be	< 0.00202	M	Ga	< 0.00403	O	Hg	< 0.05000	M	Ru	< 0.00807	M	Tm	< 0.00161
M	Bi	< 0.00161	M	Ge	< 0.02419	M	Mo	< 0.00807	M	Sm	< 0.00403	M	Sn	< 0.02016
O	B	< 0.04000	M	Au	< 0.01210	M	Nd	< 0.00807	M	Sc	< 0.04032	M	Ti	< 0.20162
M	Cd	< 0.01210	M	Hf	< 0.00807	O	Ni	< 0.02000	M	Se	< 0.03226	M	W	< 0.04032
O	Ca	0.00325	M	Ho	< 0.00202	M	Nb	< 0.00202	O	Si	< 0.00400	M	U	< 0.00807
M	Ce	< 0.02016	M	In	< 0.04032	n	Os		M	Ag	< 0.00807	M	V	< 0.00807
M	Cs	< 0.00121	M	Ir	< 0.02016	M	Pd	< 0.02016	O	Na	0.00138	M	Yb	< 0.00403
M	Cr	< 0.02016	O	Fe	0.00875	n	P		M	Sr	< 0.00202	M	Y	< 0.16129
s	Co		M	La	< 0.00202	M	Pt	< 0.00807	n	S		M	Zn	< 0.08065
M	Cu	< 0.02419	M	Pb	< 0.01210	O	K	0.03000	M	Ta	< 0.02823	M	Zr	< 0.02016

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.
Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.9332; +2; 6; $Co(H_2O)_6^{2+}$
Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.
Co Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO_3).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≈ concs.)
ICP-OES	238.892 nm	0.01/.002 µg/mL	1	ion	Fe, W, Ta
ICP-OES	228.616 nm	0.01/.001µg/mL	1	ion	
ICP-OES	237.862 nm	0.01/.002 µg/mL	1	ion	W, Re, Al, Ta
ICP-MS	59 amu	2 ppt	n/a	M^+	$^{42}Ca^{16}O^1H$, $^{40}Ar^{16}O^1H$, $^{36}Ar^{23}Na$, $^{43}Ca^{16}O$, $^{24}Mg^{35}Cl$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

010514

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

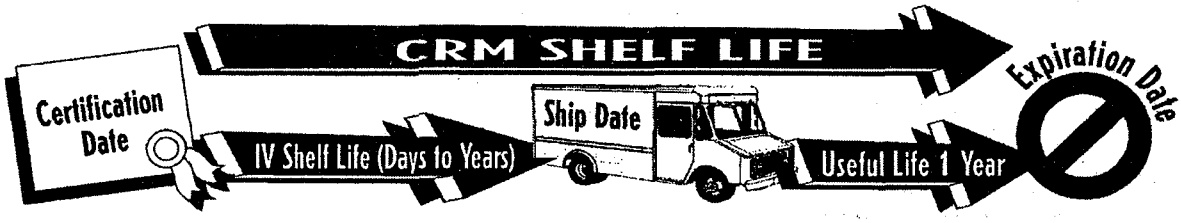
10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY



11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: September 05, 2002

Expiration Date: EXPIRES 1 MAR 2004

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 3/03/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 3/04/03
INORG: 3973 PO: F52064

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By: Debbie Newman, QA Administrator

Certificate Approved By: Katalin Le, QC Supervisor

Certifying Officer: Paul Gaines, Chemist, Senior Technical Director

Certificate of Analysis

010515

CUSTOM-GRADE SOLUTION 1000 μg/mL Manganese in 2% HNO_3 (abs)

Catalog Number: CGMN1-1, CGMN1-2, and CGMN1-5

Lot Number: **T-MN02033**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 01/16/03
DATE EXPIRED: 02/01/2004
DATE OPENED: 01/16/03
INORG: 3921 PO: F52073

Starting Material:	Manganese Metal
Starting Material Purity:	99.998%
Starting Material Lot No:	21563

CERTIFIED CONCENTRATION: 1004 ± 3 μg/mL

The Certified Value is the wet assay value. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1004 ± 3 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 1001 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3132.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

M	Al	<0.00090	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	0.0040	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	s	Mn		M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	i	Ga		O	Hg	<0.030	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	0.00024	M	Sm	<0.00010	M	Sn	<0.00050
M	B	<0.0070	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0010	M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	<0.00050	i	In		n	Os		M	Ag	<0.00020	i	V	
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.090	M	Yb	<0.00010
M	Cr	<0.00050	i	Fe		i	P		M	Sr	<0.000050	M	Y	<0.0040
O	Co	<0.050	M	La	<0.000050	M	Pt	<0.00020	n	S		M	Zn	<0.0020
M	Cu	<0.00060	M	Pb	<0.00030	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.015 g/mL

(over)

QA:KL Rev.082202DN

Paul R Haines
Quality Assurance Manager

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EXPIRES 1 FEB 2004

Certificate of Analysis

010516

CUSTOM-GRADE SOLUTION 1000 μg/mL Vanadium in 1.4% HNO_3 (abs)

Catalog Number: CGV1-1, CGV1-2 and CGV1-5

Lot Number: **S-QV01080**

Starting Material:	Vanadium Pentoxide
Starting Material Purity:	99.999%
Starting Material Lot No:	46

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/23/03
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/23/03
INORG: 3740 PO: F52057

CERTIFIED VALUE: 995 μg/mL

The certified value is the average of the classical wet assay and instrument analysis unless otherwise specified. All standards are accurate to a relative precision of ± 0.5% at the 95% confidence level for a period of 1 year. (See expiration date below)

Classical Wet Assay: 999 μg/mL

Method: EDTA Titration vs NIST SRM 928 Lead Nitrate

Sufficient number of sample measurements were made to give a minimum relative precision of ± 0.3% at the 95% confidence level.

Instrument Analysis: 991 μg/mL

Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3165

Sufficient number of sample measurements were made to give a minimum relative precision of ± 0.5% at the 95% confidence level.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room**. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

M	Al	0.0095	M	Dy	<0.0006	M	Li	<0.001	M	Pr	<0.00003	M	Te	<0.003
M	Sb	0.042	M	Er	<0.0005	M	Lu	<0.00004	M	Re	<0.0001	M	Tb	<0.00003
M	As	<0.001	M	Eu	<0.0003	M	Mg	0.0089	M	Rh	<0.0001	M	Tl	<0.0001
M	Ba	<0.001	M	Gd	<0.0001	O	Mn	i	M	Rb	<0.0001	M	Th	<0.0001
M	Be	<0.00005	M	Ga	<0.0001	O	Hg	i	M	Ru	<0.0002	M	Tm	<0.00004
M	Bi	<0.00004	M	Ge	<0.0006	M	Mo	0.016	M	Sm	<0.0001	M	Sn	<0.0005
M	B	<0.007	M	Au	<0.0003	M	Nd	<0.0002	M	Sc	<0.001	M	Ti	<0.005
M	Cd	<0.0003	M	Hf	<0.0002	O	Ni	<0.05	O	Se	<0.4	M	W	0.00055
O	Ca	<0.01	M	Ho	<0.00005	M	Nb	0.00024	O	Si	<0.03	M	U	0.0011
M	Ce	<0.0005	O	In	<0.07	n	Os		M	Ag	0.00044	s	V	
M	Cs	<0.00003	M	Ir	<0.0005	M	Pd	<0.0005	O	Na	<0.09	M	Yb	<0.0001
O	Cr	<0.02	O	Fe	<0.05	O	P	i	M	Sr	<0.00005	M	Y	<0.004
O	Co	<0.05	M	La	<0.00005	M	Pt	<0.0002	n	S		M	Zn	0.0041
M	Cu	<0.0006	M	Pb	<0.0003	n	K		M	Ta	<0.0007	M	Zr	<0.0005

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.013 g/mL

QA:KL Rev.011002DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES
1/2003

Certificate of Analysis

010517

CUSTOM-GRADE SOLUTION 1000 µg/mL Zinc in 1.4% HNO_3 (abs)

Catalog Number: CGZN1-1, CGZN1-2, and CGZN1-5

Lot Number: **T-ZN02015**

INORGANIC LABS / WORK LABS
DATE RECEIVED: 7/12/02
DATE EXPIRED: 8/01/2003
DATE OPENED: 7/15/02
INTRO: 3567 PO: F51959

Starting Material:	Zinc Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	J17L26

CERTIFIED CONCENTRATION: 1007 ± 2 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1007 ± 2 µg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate

Instrument Analysis: 1006 ± 4 µg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3168a

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm .

O	Al	<0.0020	M	Dy	<0.025	O	Li	0.0000050	M	Pr	<0.0013	M	Te	<0.13
M	Sb	<0.0021	M	Er	<0.021	M	Lu	<0.0017	M	Re	<0.0041	M	Tb	<0.0013
M	As	<0.041	M	Eu	<0.013	O	Mg	0.00011	M	Rh	<0.0041	M	Tl	<0.0041
M	Ba	<0.041	M	Gd	<0.0041	M	Mn	<0.017	M	Rb	<0.0041	M	Th	<0.0041
M	Be	<0.0021	M	Ga	<0.0041	O	Hg	<0.010	M	Ru	<0.0082	M	Tm	<0.0017
M	Bi	<0.0017	M	Ge	<0.025	M	Mo	<0.0082	M	Sm	<0.0041	M	Sn	<0.021
O	B	0.00015	M	Au	<0.013	M	Nd	<0.0082	M	Sc	<0.041	M	Ti	<0.21
M	Cd	<0.013	M	Hf	<0.0082	O	Ni	0.000085	M	Se	<0.033	M	W	<0.041
O	Ca	0.00022	M	Ho	<0.0021	M	Nb	<0.0021	O	Si	<0.0040	M	U	<0.0082
M	Ce	<0.021	M	In	<0.041	n	Os		M	Ag	<0.0082	M	V	<0.0082
M	Cs	<0.0013	M	Ir	<0.021	M	Pd	<0.021	O	Na	0.00055	M	Yb	<0.0041
O	Cr	<0.0010	O	Fe	0.000045	O	P	<0.0030	M	Sr	<0.0021	M	Y	<0.17
M	Co	<0.013	M	La	<0.0021	M	Pt	<0.0082	O	S	<0.020	s	Zn	
O	Cu	<0.00050	M	Pb	<0.013	O	K	0.00018	M	Ta	<0.029	M	Zr	<0.021

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 21°C): 1.011 g/mL

QA:KL Rev.051702DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES
1 2 2003

Certificate of Analysis

010518

CUSTOM-GRADE SOLUTION

1000 μg/mL Lanthanum in 1.4% HNO_3 (abs)

Catalog Number: CGLA1-1 and CGLA1-5

Lot Number: **S-QLA01054**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 08/23/02
DATE EXPIRED: 09/01/2003
DATE OPENED: 08/26/02
INORG: 3650 PO: F52042

Starting Material:	Lanthanum Oxide
Starting Material Purity:	99.999%
Starting Material Lot No:	LA-0-5-017

CERTIFIED VALUE: 1001 μg/mL

The certified value is the average of the classical wet assay and instrument analysis unless otherwise specified. All standards are accurate to a relative precision of ± 0.5% at the 95% confidence level for a period of 1 year. (See expiration date below)

Classical Wet Assay: 1002 μg/mL

Method: EDTA Titration vs NIST SRM 928 Lead Nitrate

Sufficient number of sample measurements were made to give a minimum relative precision of ± 0.3% at the 95% confidence level.

Instrument Analysis: 999 μg/mL

Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3127a

Sufficient number of sample measurements were made to give a minimum relative precision of ± 0.5% at the 95% confidence level.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room**. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.04	M	Dy	<0.0006	M	Li	<0.001	O	Pr	<0.02	M	Te	<0.003
M	Sb	<0.00005	M	Er	0.001	M	Lu	0.00004	M	Re	<0.0001	M	Tb	<0.00003
M	As	<0.001	M	Eu	<0.0003	M	Mg	<0.003	M	Rh	<0.0001	M	Tl	<0.0001
O	Ba	<0.02	M	Gd	0.039	M	Mn	<0.0004	M	Rb	<0.0001	M	Th	<0.0001
M	Be	<0.00005	M	Ga	<0.0001	O	Hg	<0.03	M	Ru	<0.0002	M	Tm	<0.00004
M	Bi	<0.00004	M	Ge	<0.0006	M	Mo	<0.0002	M	Sm	0.0004	M	Sn	<0.0005
O	B	<0.02	M	Au	<0.0003	M	Nd	0.0002	M	Sc	<0.001	M	Ti	<0.005
M	Cd	<0.0003	M	Hf	<0.0002	O	Ni	<0.05	O	Se	<0.4	M	W	<0.001
O	Ca	<0.01	M	Ho	0.0001	M	Nb	<0.00005	O	Si	<0.02	M	U	<0.0002
O	Ce	i	O	In	<0.03	n	Os		M	Ag	<0.0002	M	V	<0.0002
n	Cs		M	Ir	<0.0005	M	Pd	<0.0005	O	Na	<0.09	M	Yb	<0.0001
M	Cr	<0.0005	O	Fe	<0.05	O	P	<0.05	M	Sr	<0.00005	M	Y	<0.004
M	Co	<0.0003	s	La		M	Pt	<0.0002	n	S		M	Zn	<0.002
M	Cu	<0.0006	M	Pb	<0.0003	n	K		M	Ta	<0.0007	M	Zr	<0.0005

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.009 g/mL

QA:KSL Rev.110101DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 SEP 2003

Certificate of Analysis

010519

CUSTOM-GRADE SOLUTION

1000 μg/mL Palladium in 3.3% HCl (abs)

Catalog Number: CGPD1-1 and CGPD1-5

Lot Number: **T-PD02014**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 2/28/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 2/28/03
INORG: 3964 PO: F52064

Starting Material:	Palladium Nitrate
Starting Material Purity:	99.999%
Starting Material Lot No:	00614

CERTIFIED CONCENTRATION: 1001 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1002 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 1001 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3138.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

M	Al	<0.00090	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	0.0017	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.060	M	Eu	<0.00030	M	Mg	0.0090	O	Rh	<0.020	M	Tl	0.00010
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	0.00026	O	Hg	<0.030	O	Ru	<0.010	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	0.0058	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
M	B	<0.0070	M	Au	0.00090	M	Nd	0.00090	M	Sc	<0.0010	M	Ti	<0.0050
O	Cd	<0.010	M	Hf	<0.00020	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	0.040	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		O	Ag	0.26	O	V	<0.010
i	Cs		M	Ir	<0.00050	s	Pd		O	Na	<0.090	M	Yb	<0.00010
O	Cr	<0.020	O	Fe	<0.050	O	P	<0.050	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	0.016	n	S		M	Zn	0.0030
M	Cu	0.0023	M	Pb	0.0022	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.022 g/mL

QA:KSL Rev.050202DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 MAR 2004

Certificate of Analysis

010520

CUSTOM-GRADE SOLUTION 1000 μg/mL Sulfur in H_2O

Catalog Number: CGS1-1, CGS1-2, and CGS1-5

Lot Number: **T-S01058**

Starting Material:	H_2SO_4
Starting Material Purity:	99.999%
Starting Material Lot No:	N38818

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/22/02
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/23/02
INORG: 3739 PO: F52057

CERTIFIED CONCENTRATION: 1000 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1000 ± 2 μg/mL
Method: Acidimetric Titration vs NIST SRM KHP 84k.

Instrument Analysis: 1003 ± 4 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3154.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.0030	M	Dy	<0.012	O	Li	<0.00016	M	Pr	<0.00060	M	Te	<0.060
M	Sb	<0.0010	M	Er	<0.010	M	Lu	<0.00080	M	Re	<0.0020	M	Tb	<0.00060
M	As	<0.020	M	Eu	<0.0060	O	Mg	<0.000040	M	Rh	<0.0020	M	Tl	<0.0020
M	Ba	<0.020	M	Gd	<0.0020	M	Mn	<0.0080	M	Rb	<0.0020	M	Th	<0.0020
O	Be	<0.0020	M	Ga	<0.0020	O	Hg	<0.011	M	Ru	<0.0040	M	Tm	<0.00080
M	Bi	<0.00080	M	Ge	<0.012	M	Mo	<0.0040	M	Sm	<0.0020	M	Sn	<0.010
O	B	<0.010	M	Au	<0.0060	M	Nd	<0.0040	M	Sc	<0.020	M	Ti	<0.10
M	Cd	<0.0060	M	Hf	<0.0040	O	Ni	<0.0023	O	Se	<0.0062	M	W	<0.020
O	Ca	<0.0037	M	Ho	<0.0010	M	Nb	<0.0010	O	Si	<0.0041	M	U	<0.0040
M	Ce	<0.010	M	In	<0.020	n	Os		M	Ag	<0.0040	M	V	<0.0040
M	Cs	<0.00060	M	Ir	<0.010	M	Pd	<0.010	O	Na	<0.00010	M	Yb	<0.0020
M	Cr	<0.010	O	Fe	<0.0011	O	P	<0.0048	M	Sr	<0.0010	M	Y	<0.080
M	Co	<0.0060	M	La	<0.0010	M	Pt	<0.0040	s	S		O	Zn	0.0019
M	Cu	<0.012	M	Pb	<0.0060	O	K	<0.0017	M	Ta	<0.014	M	Zr	<0.010

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 0.999 g/mL **(over)**

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1/2003

Certificate of Analysis

010521

CUSTOM-GRADE SOLUTION

1000 μg/mL Thorium in 3% HNO_3 (abs)

Catalog Number: CGTH1-1 and CGTH1-5

Lot Number: **T-TH01059**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 9/4/02
DATE EXPIRED: 10/1/2003 PR
DATE OPENED: 9/4/02
INORG: 3681 PO: F52048

Starting Material:	Thorium Nitrate
Starting Material Purity:	99.999%
Starting Material Lot No:	C01L32

CERTIFIED CONCENTRATION: 1001 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1001 ± 3 μg/mL
Method: EDTA Titration vs NIST SRM Lead Nitrate.

Instrument Analysis: 1002 ± 4 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3159.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	<0.00090	M	Dy	0.0062	O	Li	<0.000030	M	Pr	0.00037	O	Te	<0.031
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
O	As	<0.014	M	Eu	<0.00030	O	Mg	<0.000060	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	0.0050	M	Gd	0.0054	O	Mn	<0.0000030	M	Rb	<0.00010	s	Th	
O	Be	<0.00020	M	Ga	<0.00010	i	Hg		M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	0.0095	M	Sn	<0.00050
O	B	<0.00060	M	Au	<0.00030	M	Nd	0.0026	M	Sc	<0.0010	O	Ti	<0.00092
O	Cd	<0.0045	M	Hf	<0.00020	O	Ni	<0.0023	M	Se	<0.010	M	W	<0.0010
O	Ca	<0.030	M	Ho	0.00022	M	Nb	<0.000050	O	Si	<0.0034	M	U	0.074
M	Ce	<0.00050	O	In	<0.0020	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.00010	M	Yb	<0.00010
O	Cr	<0.00080	O	Fe	<0.0011	i	P		M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	O	S	<0.072	O	Zn	<0.00058
M	Cu	<0.00060	M	Pb	<0.00030	O	K	<0.0017	M	Ta	<0.00070	M	Zr	0.0085

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.022 g/mL

QA:KL Rev.050802DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 OCT 2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION

1000 μg/mL Uranium in 1% HNO_3 (abs)

Catalog Number: CGU1-1 and CGU1-5

010522

Lot Number: **T-U01056**

Starting Material:	Uranium Oxynitrate*
Starting Material Purity:	99.95%
Starting Material Lot No:	E14L40

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 3/03/03
DATE EXPIRED: 3/01/2004
DATE OPENED: 3/04/03
INORG: 3974 PO: E52064

CERTIFIED CONCENTRATION: 1001 ± 1 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Instrument Analysis: 1001 ± 1 μg/mL (Avg. 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3164.

Calculated Value: 1000 μg/mL
Method: Calculated, based on starting material.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.20	M	Dy	<0.0060	O	Li	<0.010	M	Pr	<0.00030	M	Te	<0.030
M	Sb	0.00020	M	Er	<0.0050	M	Lu	<0.00040	M	Re	<0.0010	M	Tb	<0.00030
i	As	<0.010	M	Eu	<0.0030	O	Mg	0.012	M	Rh	<0.0010	M	Tl	<0.0010
M	Ba	0.0022	M	Gd	<0.0010	M	Mn	<0.0040	M	Rb	<0.0010	M	Th	<0.0010
O	Be	<0.10	M	Ga	<0.0010	i	Hg		M	Ru	<0.0020	M	Tm	<0.00040
M	Bi	0.00030	M	Ge	<0.0060	M	Mo	<0.0020	M	Sm	<0.0010	M	Sn	0.043
O	B	0.0020	M	Au	<0.0030	M	Nd	<0.0020	M	Sc	0.00080	M	Ti	0.029
M	Cd	<0.0030	M	Hf	<0.0020	i	Ni		M	Se	<0.0080	M	W	<0.010
O	Ca	0.11	M	Ho	<0.00050	M	Nb	<0.00050	i	Si		s	U	
M	Ce	<0.0050	M	In	<0.010	n	Os		M	Ag	<0.0020	M	V	0.00040
M	Cs	<0.00030	M	Ir	<0.0050	M	Pd	<0.0050	O	Na	0.19	M	Yb	<0.0010
M	Cr	0.0047	i	Fe		i	P		M	Sr	0.0011	M	Y	0.56
M	Co	0.014	M	La	0.0014	M	Pt	<0.0020	i	S		M	Zn	0.020
M	Cu	0.022	M	Pb	0.0025	i	K		M	Ta	<0.0070	M	Zr	0.00060

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

****NOTICE TO ICP-MS USERS:** The ^{235}U in this standard is depleted. The certified abundances in Atom % are as follows:

	Isotope	Natural Abundance Atom %	IV's Certified Abundance Atom %
Uranium	^{238}U	99.3	99.8 ± 0.1
	^{235}U	0.70	0.195 ± 0.005

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.008 g/mL

(over) QA:KSL Rev.092502DN

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Quality Assurance Manager

EXPIRES 1 MAR 2004

Certificate of Analysis

010523

CUSTOM-GRADE SOLUTION 1000 μg/mL Tungsten in 0.1% HNO_3 (abs)/1% HF (abs)

Catalog Number: CGW1-1, CGW1-2, and CGW1-5

This standard should **not** be prepared or stored in glass.

Lot Number: **T-W01078**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 7/12/02
DATE EXPIRED: 8/01/2003
DATE OPENED: 7/15/02
INORG: 3568 PO: F51959

Starting Material:	Tungsten Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	E03K06

CERTIFIED CONCENTRATION: 1003 ± 4 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1000 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 1003 ± 4 μg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3163.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	0.030	M	Dy	<0.00060	O	Li	<0.000030	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.020	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	O	Mg	0.0010	M	Rh	<0.0010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	<0.00010	i	Hg		M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
M	B	<0.0070	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0040	M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	0.00037	O	Ni	<0.10	M	Se	<0.010	s	W	
O	Ca	0.00086	M	Ho	<0.000050	M	Nb	≤0.00080	n	Si		M	U	<0.00020
M	Ce	<0.00050	M	In	<0.0010	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	0.047	M	Yb	<0.00010
M	Cr	<0.00050	i	Fe		i	P		M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	n	S		M	Zn	0.031
M	Cu	<0.00060	M	Pb	<0.00030	O	K	0.028	M	Ta	<0.010	M	Zr	0.0026

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): **1.006 g/mL** **(over)**

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 Aug 2003

Certificate of Analysis

CUSTOM GRADE SOLUTION 1000 μg/mL **Yttrium** in 1.4% HNO_3 (abs)

010524

Catalog Number: CGY1-1 and CGY1-5

Lot Number: **T-Y01086**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 05/09/03
DATE EXPIRED: 06/01/2004
DATE OPENED: 05/12/03
INORG: 4063 PO: F52181

Starting Material:	Y_2O_3
Starting Material Purity:	99.999%
Starting Material Lot No:	Y-O-5-9503201

CERTIFIED CONCENTRATION: 1004 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1004 ± 3 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 1004 ± 4 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3167a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	0.00021	M	Dy	<0.0060	M	Li	<0.010	M	Pr	<0.00030	M	Te	<0.030
M	Sb	<0.00050	M	Er	<0.0050	O	Lu	<0.000020	M	Re	<0.0010	M	Tb	<0.00030
M	As	<0.010	M	Eu	<0.0030	O	Mg	<0.000030	M	Rh	<0.0010	M	Tl	<0.0010
M	Ba	<0.010	M	Gd	<0.0010	O	Mn	<0.000020	M	Rb	<0.0010	M	Th	<0.0010
M	Be	<0.00050	M	Ga	<0.0010	O	Hg	<0.020	M	Ru	<0.0020	M	Tm	<0.00040
M	Bi	<0.00040	M	Ge	<0.0060	M	Mo	<0.0020	M	Sm	<0.0010	M	Sn	<0.0050
O	B	<0.00014	M	Au	<0.0030	M	Nd	<0.0020	O	Sc	0.00024	M	Ti	<0.050
M	Cd	<0.0030	M	Hf	<0.0020	M	Ni	<0.080	M	Se	<0.0080	M	W	<0.010
O	Ca	0.00014	M	Ho	<0.00050	M	Nb	<0.00050	O	Si	0.000077	M	U	<0.0020
M	Ce	<0.0050	M	In	<0.010	n	Os		M	Ag	<0.0020	O	V	<0.00080
M	Cs	<0.00030	M	Ir	<0.0050	O	Pd	<0.10	O	Na	<0.050	M	Yb	<0.0010
M	Cr	<0.0050	O	Fe	0.0015	O	P	<0.070	M	Sr	<0.00050	s	Y	
M	Co	<0.0030	M	La	<0.00050	M	Pt	<0.0020	O	S	<0.043	M	Zn	<0.020
M	Cu	<0.0060	M	Pb	<0.0030	O	K	<0.10	M	Ta	<0.0070	O	Zr	<0.00070

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.010 g/mL **(over)**

QA:KL Rev.061802DN

Paul R Haines

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Quality Assurance Manager

EXPIRES
1 JUN 2004

Certificate of Analysis

CUSTOM-GRADE SOLUTION

1000 μg/mL Zirconium in H_2O tr. HF tr. HNO_3

010525

Catalog Number: CGZR1-1 and CGZR1-5
This standard should **not** be prepared or stored in glass.

Lot Number: **T-QZR01062**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3958 PO: F52060

Starting Material:	Zirconium Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	SP4811A

CERTIFIED CONCENTRATION: 1005 ± 6 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Instrument Analysis: 1005 ± 6 μg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3169

Calculated Value: 1000 μg/mL (For informational purposes)
Method: Calculated based on starting material.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room**.
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	0.055	M	Dy	<0.012	O	Li	<0.000030	M	Pr	<0.00059	M	Te	<0.059
M	Sb	0.00017	M	Er	<0.0098	M	Lu	<0.00079	M	Re	<0.0020	M	Tb	<0.00059
M	As	<0.020	M	Eu	<0.0059	O	Mg	<0.000030	M	Rh	<0.0020	M	Tl	<0.0020
M	Ba	0.013	M	Gd	<0.0020	O	Mn	0.0020	M	Rb	<0.0020	M	Th	<0.0020
O	Be	<0.10	M	Ga	<0.0020	O	Hg	<0.011	M	Ru	<0.0040	M	Tm	<0.00079
M	Bi	<0.00079	M	Ge	<0.012	O	Mo	<0.10	M	Sm	<0.0020	M	Sn	0.0011
i	B		M	Au	<0.0059	M	Nd	<0.0040	O	Sc	<0.00016	O	Ti	0.0031
O	Cd	<0.0053	M	Hf	0.087	O	Ni	0.014	M	Se	<0.016	M	W	0.0016
O	Ca	0.0020	M	Ho	<0.00098	i	Nb		i	Si		M	U	0.00040
M	Ce	<0.0098	M	In	<0.020	n	Os		i	Ag		M	V	0.0016
M	Cs	<0.00059	M	Ir	<0.0098	i	Pd		O	Na	0.041	M	Yb	<0.0020
O	Cr	0.034	O	Fe	0.45	O	P	<0.0048	M	Sr	<0.00098	O	Y	<0.0010
M	Co	<0.0059	M	La	<0.00098	M	Pt	<0.0040	i	S		O	Zn	0.0057
M	Cu	0.013	M	Pb	<0.0059	O	K	0.013	M	Ta	0.0011	s	Zr	

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.000 g/mL

QA:KL Rev.100302DN

(over)

Paul R. Haines

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Quality Assurance Manager

EXPIRES 1 MAR 2004

Certificate of Analysis

010526

CUSTOM-GRADE SOLUTION 1000 μg/mL Silver in 3.5% HNO_3 (abs)

Catalog Number: CGAG1-1, CGAG1-2 and CGAG1-5

Lot Number: **T-AG02013**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 08/23/02
DATE EXPIRED: 09/01/2003
DATE OPENED: 08/26/02
INORG: 3653 PO: F52042

Starting Material:	Silver Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	F15102

CERTIFIED CONCENTRATION: 996 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 998 ± 3 μg/mL
Method: Volhard Titration vs NIST SRM 999a Potassium Chloride

Instrument Analysis: 996 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3151.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

M	Al	<0.0009	M	Dy	<0.0006	M	Li	<0.001	M	Pr	<0.00003	M	Te	<0.003
M	Sb	0.0006	M	Er	<0.0005	M	Lu	<0.00004	M	Re	<0.0001	M	Tb	0.00003
M	As	<0.001	M	Eu	<0.0003	M	Mg	<0.003	n	Rh		M	Tl	<0.0001
M	Ba	<0.001	M	Gd	<0.0001	M	Mn	<0.0004	M	Rb	<0.0001	M	Th	<0.0001
M	Be	<0.00005	M	Ga	<0.0001	O	Hg	<0.02	n	Ru		M	Tm	<0.00004
M	Bi	0.0007	M	Ge	0.001	M	Mo	<0.0002	M	Sm	<0.0001	M	Sn	<0.0005
M	B	<0.007	M	Au	<0.0003	M	Nd	<0.0002	M	Sc	<0.001	M	Ti	<0.005
O	Cd	<0.01	M	Hf	<0.0002	O	Ni	<0.05	O	Se	<0.4	M	W	<0.001
O	Ca	<0.01	M	Ho	<0.00005	M	Nb	<0.00005	O	Si	<0.02	M	U	<0.0002
M	Ce	<0.0005	O	In	<0.03	n	Os		s	Ag		M	V	<0.0002
M	Cs	<0.00003	M	Ir	<0.0005	n	Pd		O	Na	<0.09	M	Yb	<0.0001
M	Cr	<0.002	O	Fe	<0.05	O	P	<0.05	M	Sr	<0.00005	M	Y	<0.004
M	Co	<0.0003	M	La	<0.00005	M	Pt	<0.0002	n	S		M	Zn	0.006
M	Cu	<0.0006	M	Pb	<0.0003	n	K		M	Ta	<0.0007	M	Zr	<0.0005

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.025 g/mL (over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES
1 SEP 2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 µg/mL Arsenic in 1.4% HNO_3 (abs)

Catalog Number: CGAS1-1, CGAS1-2 and CGAS1-5

010527

Lot Number: **T-AS02019**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 01/09/03
DATE EXPIRED: 02/04/2004 DR
DATE OPENED: 01/10/03
INORG: 3899 PO: F52071

Starting Material:	Arsenic Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	23014

CERTIFIED CONCENTRATION: 1006 ± 3 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1003 µg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 1006 ± 3 µg/mL (Average of 3 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3103a.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room**.
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.00030	M	Dy	<0.012	O	Li	<0.000020	M	Pr	<0.00060	M	Te	<0.060
O	Sb	<0.010	M	Er	<0.010	M	Lu	<0.00080	O	Re	<0.010	M	Tb	<0.00060
s	As		M	Eu	<0.0060	O	Mg	<0.000030	M	Rh	<0.0020	M	Tl	<0.0020
M	Ba	<0.020	M	Gd	<0.0020	O	Mn	<0.000030	M	Rb	<0.0020	M	Th	<0.0020
M	Be	<0.0010	M	Ga	<0.0020	O	Hg	<0.012	M	Ru	<0.0040	M	Tm	<0.00080
M	Bi	<0.00080	M	Ge	<0.012	M	Mo	<0.0040	M	Sm	<0.0020	O	Sn	0.00053
O	B	<0.012	M	Au	<0.0060	M	Nd	<0.0040	M	Sc	<0.020	M	Ti	<0.10
M	Cd	<0.0060	M	Hf	<0.0040	M	Ni	<0.016	M	Se	<0.016	M	W	<0.020
O	Ca	<0.0015	M	Ho	<0.0010	O	Nb	<0.0020	O	Si	0.0077	M	U	<0.0040
M	Ce	<0.010	M	In	<0.020	n	Os		M	Ag	<0.0040	M	V	<0.0040
M	Cs	<0.00060	M	Ir	<0.010	M	Pd	<0.010	O	Na	0.00096	M	Yb	<0.0020
M	Cr	<0.010	O	Fe	<0.0011	O	P	<0.0026	M	Sr	<0.0010	M	Y	<0.080
M	Co	<0.0060	M	La	<0.0010	M	Pt	<0.0040	O	S	<0.025	O	Zn	0.00019
M	Cu	<0.012	M	Pb	<0.0060	O	K	0.00096	M	Ta	<0.014	M	Zr	<0.010

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.010 g/mL

QA:KSL Rev.061202DN

(over)

Paul R. Haines
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EXPIRES
1 FEB 2004

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Lead in 0.35% HNO_3 (abs)

010528

Catalog Number: CGPB1-1, CGPB1-2 and CGPB1-5

Lot Number: **T-PB02110**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/22/02
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/23/02
INORG: 3735 PO: 552057

Starting Material:	Lead Nitrate
Starting Material Purity:	99.995%
Starting Material Lot No:	22150

CERTIFIED CONCENTRATION: 1004 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1004 ± 2 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

Instrument Analysis: 995 ± 8 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3128.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.040	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.020	M	Tl	<0.0050
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.090	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.0010	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.020	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0010	M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		i	Na		M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	M	Sr	0.00034	M	Yb	<0.00010
M	Cr	<0.00050	O	Fe	<0.050	O	P	<0.050	n	S		M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	M	Ta	<0.00070	M	Zn	<0.0020
M	Cu	<0.00060	s	Pb		n	K					M	Zr	0.00120

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.002 g/mL

(over)

QA:KSL Rev.061702.JTS

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EXPIRES
1/2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION **1000 μg/mL Antimony** in 0.7% HNO_3 (abs) / 3% Tartaric Acid

010529

Catalog Number: CGSB1-1, CGSB1-2 and CGSB1-5

Lot Number: **T-SB02074**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3953 PO: F52060

Starting Material:	Antimony Metal
Starting Material Purity:	99.995%
Starting Material Lot No:	E14H25

CERTIFIED CONCENTRATION: 1003 ± 2 μg/mL

The Certified Value is the instrument analysis value. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 999 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 1003 ± 2 μg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3102a.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

M	Al	<0.0050	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	n	Te	
s	Sb		M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.00010	M	Tl	0.00030
O	Ba	<0.020	M	Gd	<0.00010	M	Mn	0.0080	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.030	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	0.00070	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	n	Sn	
M	B	<0.0070	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0010	M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	<0.020	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	0.0018	O	In	<0.030	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.090	M	Yb	<0.00010
M	Cr	0.031	O	Fe	<0.050	O	P	<0.050	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.040	M	Pt	<0.00020	n	S		M	Zn	<0.0020
M	Cu	0.0016	M	Pb	0.0011	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.019 g/mL

(over)

QA:KL Rev.082202DN

Paul R. Haines

Expires:

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Quality Assurance Manager

EXPIRES
1 MAR 2004

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Selenium in 1.4% HNO_3 (abs) 010530

Catalog Number: CGSE1-1, CGSE1-2 and CGSE1-5

Lot Number: **T-SE01098**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 08/23/02
DATE EXPIRED: 09/01/2003
DATE OPENED: 08/26/02
INORG: 3652 PO: F52042

Starting Material:	Selenium Metal
Starting Material Purity:	99.998%
Starting Material Lot No:	A09C08

CERTIFIED CONCENTRATION: 996 ± 4 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1005 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 996 ± 4 μg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3149.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.04	M	Dy	<0.0006	M	Li	<0.001	M	Pr	<0.00003	M	Te	<0.003
M	Sb	<0.00005	M	Er	<0.0005	M	Lu	<0.00004	M	Re	<0.0001	M	Tb	<0.00003
M	As	0.004	M	Eu	<0.0003	M	Mg	<0.003	M	Rh	<0.0001	M	Tl	<0.0001
M	Ba	<0.001	M	Gd	<0.0001	M	Mn	0.0008	M	Rb	0.0002	M	Th	<0.0001
M	Be	<0.00005	M	Ga	<0.0001	O	Hg	<0.02	M	Ru	<0.0002	M	Tm	<0.00004
M	Bi	<0.00004	M	Ge	<0.0006	M	Mo	0.0024	M	Sm	<0.0001	M	Sn	<0.0005
M	B	<0.007	M	Au	<0.0003	M	Nd	<0.0002	M	Sc	<0.001	M	Ti	<0.005
M	Cd	<0.0003	M	Hf	<0.0002	O	Ni	<0.05	s	Se		M	W	0.0042
O	Ca	<0.01	M	Ho	<0.00005	M	Nb	<0.03	O	Si	<0.02	M	U	<0.0002
M	Ce	<0.0005	M	In	<0.0001	n	Os		M	Ag	<0.0002	M	V	0.0012
M	Cs	<0.00003	M	Ir	<0.0005	M	Pd	<0.0005	O	Na	<0.09	M	Yb	<0.0001
M	Cr	<0.0005	O	Fe	<0.05	O	P	<0.05	M	Sr	<0.00005	M	Y	<0.004
M	Co	<0.0003	M	La	<0.00005	M	Pt	<0.0002	n	S		M	Zn	0.0032
M	Cu	0.0035	M	Pb	<0.0003	M	K	<0.02	M	Ta	<0.0007	M	Zr	<0.004

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.009 g/mL

QA:KSL Rev.032502DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES 1 2003

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 µg/mL Thallium in 0.5% HNO_3 (abs)

Catalog Number: CGTL1-1, CGTL1-2 and CGTL1-5

010531

Lot Number: **T-TL01075**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 01/16/03
DATE EXPIRED: 02/01/2004
DATE OPENED: 01/16/03
INORG: 3922 PO: F52073

Starting Material:	Thallium Nitrate
Starting Material Purity:	99.999%
Starting Material Lot No:	59001

CERTIFIED CONCENTRATION: 997 ± 1 µg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1000 µg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 997 ± 1 µg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3158.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN µg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	<0.040	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	0.000080	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.00010	s	Tl	
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	<0.00010	O	Hg	i	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	0.00060
O	B	<0.020	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0010	M	Ti	<0.0050
M	Cd	0.00090	M	Hf	0.0010	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	<0.00050	O	In	i	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	0.00010	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.090	M	Yb	<0.00010
M	Cr	<0.00050	O	Fe	<0.050	O	P	i	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	n	S		M	Zn	0.015
M	Cu	<0.00060	M	Pb	<0.00030	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.002 g/mL

QA:KL Rev.031402DN

(over)

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EXPIRES 1 FEB 2004

Certificate of Analysis

CUSTOM GRADE SOLUTION **1000 μg/mL Boron in H_2O**

Catalog Number: CGB1-1, CGB1-2 and CGB1-5

010532

Lot Number: **T-B02038**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3954 PO: F52060

Starting Material:	H_3BO_3
Starting Material Purity:	99.999%
Starting Material Lot No:	S-B02032

CERTIFIED CONCENTRATION: 1001 ± 3 μg/mL

The Certified Value is the instrument analysis value. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Instrument Analysis: 1001 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3107.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.00090	M	Dy	<0.0060	O	Li	<0.000024	M	Pr	<0.00030	M	Te	<0.030
M	Sb	<0.00050	M	Er	<0.0050	M	Lu	<0.00040	M	Re	<0.0010	M	Tb	<0.00030
M	As	<0.010	M	Eu	<0.0030	O	Mg	<0.000060	M	Rh	<0.0010	M	Tl	<0.0010
O	Ba	<0.00010	M	Gd	<0.0010	O	Mn	<0.000023	M	Rb	<0.0010	M	Th	<0.0010
O	Be	<0.00017	O	Ga	<0.0016	O	Hg	<0.015	M	Ru	<0.0020	M	Tm	<0.00040
M	Bi	<0.00040	M	Ge	<0.0060	M	Mo	<0.0020	M	Sm	<0.0010	M	Sn	<0.0050
s	B		M	Au	<0.0030	M	Nd	<0.0020	O	Sc	<0.000023	M	Ti	<0.050
M	Cd	<0.0030	M	Hf	<0.0020	O	Ni	<0.0023	O	Se	<0.0062	M	W	<0.010
O	Ca	<0.000070	M	Ho	<0.00050	M	Nb	<0.00050	O	Si	0.00067	M	U	<0.0020
O	Ce	<0.0030	M	In	<0.010	n	Os		M	Ag	<0.0020	O	V	<0.00083
M	Cs	<0.00030	M	Ir	<0.0050	M	Pd	<0.0050	O	Na	<0.00010	M	Yb	<0.0010
M	Cr	<0.0050	O	Fe	<0.0011	O	P	<0.0025	M	Sr	<0.00050	M	Y	<0.040
O	Co	<0.0011	M	La	<0.00050	M	Pt	<0.0020	O	S	<0.10	O	Zn	<0.00019
M	Cu	<0.0060	M	Pb	<0.0030	O	K	<0.0030	M	Ta	<0.0070	M	Zr	<0.0050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 0.999 g/mL

QA:KL Rev.073102DN

(over)

Paul R. Haines

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Quality Assurance Manager

EXPIRES
1 MAR 2004

Certificate of Analysis

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 02/13/03
DATE EXPIRED: 03/01/2004
DATE OPENED: 02/13/03
INORG: 3956 PO: F52060

CUSTOM-GRADE SOLUTION 1000 μg/mL Molybdenum in H_2O tr. NH_4OH

Catalog Number: CGMO1-1, CGMO1-2 and CGMO1-5

Lot Number: **T-MO01130** **010533**

Starting Material:	Ammonium Molybdenum Oxide
Starting Material Purity:	99.9943%
Starting Material Lot No:	21410

CERTIFIED CONCENTRATION: 997 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1000 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 997 ± 3 μg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3134.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.050	M	Dy	<0.012	O	Li	<0.010	O	Pr	<0.10	i	Te	
M	Sb	0.0094	M	Er	<0.010	M	Lu	<0.00080	M	Re	<0.0020	M	Tb	<0.00060
M	As	<0.020	M	Eu	<0.0060	O	Mg	<0.050	M	Rh	<0.0020	M	Tl	<0.0020
M	Ba	<0.020	M	Gd	<0.0020	M	Mn	<0.0080	M	Rb	0.025	M	Th	<0.0020
M	Be	<0.0010	M	Ga	<0.0020	i	Hg		M	Ru	<0.0040	M	Tm	<0.00080
M	Bi	<0.00080	M	Ge	<0.012	s	Mo		M	Sm	<0.0020	M	Sn	<0.010
O	B	<0.50	M	Au	<0.0060	O	Nd	<0.050	O	Sc	<0.050	O	Ti	<0.0050
O	Cd	<0.50	M	Hf	<0.0040	M	Ni	<0.016	M	Se	<0.016	M	W	0.056*
O	Ca	0.00026	M	Ho	<0.0010	O	Nb	<0.10	O	Si	<0.10	M	U	<0.0040
O	Ce	<0.050	M	In	0.0024	n	Os		M	Ag	<0.0040	M	V	<0.0040
M	Cs	<0.00060	M	Ir	<0.010	M	Pd	<0.010	O	Na	<0.10	M	Yb	<0.0020
M	Cr	<0.010	O	Fe	<0.50	i	P		M	Sr	<0.0010	M	Y	<0.080
M	Co	<0.0060	M	La	<0.0010	M	Pt	<0.0040	i	S		M	Zn	<0.040
M	Cu	<0.012	M	Pb	< 0.0060	O	K	0.0098	M	Ta	<0.014	M	Zr	<0.010

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

*W impurity may be due to Mo doubly charged ion and represents the maximum concentration possible.

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 0.999 g/mL **(over)**

QA:KL Rev.073102DN

Paul R. Haines

Inorganic Ventures, Inc.
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799

Quality Assurance Manager

EXPIRES 1 MAR 2004

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Phosphorus in H_2O

Catalog Number: CGP1-1, CGP1-2 and CGP1-5

010534

Lot Number: **T-P01118**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 01/09/03
DATE EXPIRED: 02/01/2004 DR
DATE OPENED: 01/10/03
INORG: 3901 PO: F52871

Starting Material:	Phosphoric Acid
Starting Material Purity:	99.999%
Starting Material Lot No:	J18804

CERTIFIED CONCENTRATION: 1004 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1004 ± 2 μg/mL
Method: Acidimetric Titration vs NIST SRM 84k KHP.

Instrument Analysis: 1000 ± 3 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3139a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.040	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	0.012	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	0.00070	O	Hg	<0.020	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
M	B	<0.0070	M	Au	<0.00030	M	Nd	<0.00020	n	Sc		n	Ti	
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	<0.00050	M	In	<0.030	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.090	M	Yb	<0.00010
M	Cr	<0.00050	O	Fe	<0.050	s	P		M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	n	S		M	Zn	0.0035
M	Cu	0.080	M	Pb	<0.00030	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 0.999 g/mL **(over)**

QA:KL Rev.122002DN

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EXPIRES 1 FEB 2004

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e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

010535

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

2.0 DESCRIPTION OF CRM

Custom-Grade **1000 µg/mL Silicon in H_2O tr. HNO_3 tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**W-SI02082**
Starting Material:	SiO_2
Starting Material Purity (%):	99.996367
Starting Material Lot No	C05310C
Matrix:	H_2O tr. HNO_3 tr. HF

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 06/20/03
DATE EXPIRED: 07/01/2004
DATE OPENED: 06/23/03
INORG: 4153 PO: F52370

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1000 ± 5 µg/mL

Certified Density: 1.002 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value ($\bar{x}$) = $\frac{\Sigma x_i}{n}$

Uncertainty (±) = $\frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

☐ "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

☐ This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **1000 ± 5 µg/mL (Avg 2 runs)**
ICP Assay NIST SRM 3150 Lot Number: 991108

Assay Method #2 **1001 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al		0.02730	M	Dy	<	0.01358	O	Li	<	0.00009	M	Pr	<	0.00068	M	Te	<	0.06791
M	Sb	<	0.00113	M	Er	<	0.01132	M	Lu	<	0.00091	M	Re	<	0.00226	M	Tb	<	0.00068
M	As	<	0.02264	M	Eu	<	0.00679	O	Mg	<	0.04991	M	Rh	<	0.00226	M	Tl	<	0.00226
M	Ba	<	0.02264	M	Gd	<	0.00226	M	Mn	<	0.00906	M	Rb	<	0.00226	M	Th	<	0.00226
O	Be	<	0.00091	M	Ga	<	0.00226	O	Hg	<	0.04991	M	Ru	<	0.00453	M	Tm	<	0.00091
M	Bi	<	0.00091	M	Ge	<	0.01358	M	Mo	<	0.00453	M	Sm	<	0.00226	M	Sn	<	0.01132
O	B		0.02409	M	Au	<	0.00679	M	Nd	<	0.00453	O	Sc	<	0.00091	O	Ti		0.01325
M	Cd	<	0.00679	M	Hf	<	0.00453	O	Ni	<	0.01044	M	Se	<	0.01811	M	W	<	0.02264
O	Ca		0.00135	M	Ho	<	0.00113	M	Nb	<	0.00113	s	Si			M	U	<	0.00453
M	Ce	<	0.01132	M	In	<	0.02264	n	Os			M	Ag	<	0.00453	O	V	<	0.00408
M	Cs	<	0.00068	M	Ir	<	0.01132	M	Pd	<	0.01132	O	Na		0.02008	M	Yb	<	0.00226
O	Cr	<	0.00681	O	Fe	<	0.00499	O	P	<	0.02269	O	Sr	<	0.00032	M	Y	<	0.09055
M	Co	<	0.00679	M	La	<	0.00113	M	Pt	<	0.00453	O	S	<	0.11342	M	Zn	<	0.04528
O	Cu	<	0.00454	M	Pb	<	0.00679	O	K	<	0.00771	M	Ta		0.00200	M	Zr	<	0.01132

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL 010536

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 28.0855; +4; 6; $Si(OH)_x(F)_y^{2-}$

Chemical Compatibility - Soluble in HCl, HF, H_3PO_4, H_2SO_4 and HNO_3 as the $Si(OH)_x(F)_y^{2-}$. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F^- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ~100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the $Si(OH)_x(F)_y^{2-}$. 1-10,000 ppm single element solutions as the $Si(OH)_x(F)_y^{2-}$ chemically stable for years in 2-5 % HNO_3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) - Metal (Soluble in 1:1:1 H_2O / HF / HNO_3); Oxide - SiO_2, amorphic (Dissolve by heating in 1:1:1 H_2O / HF / HNO_3); Oxide - quartz (Fuse in Pt^0 with Na_2CO_3); Geological Samples (Fuse in Pt^0 with Na_2CO_3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (Dry ash at 450°C in Pt^0 and dissolve by gently warming with 1:1:1 H_2O / HF / H_2SO_4 or fuse / ash with Na_2CO_3 and dissolve fuseate with HCl / H_2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-100 °C to "unzip" the Si-O-Si polymeric structure or digest with concentrated H_2SO_4/H_2O_2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the $K_2{}^+Si(CH_3)_2O^-$ salt which is not volatile at room temperature.

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at isobars.)
ICP-OES	251.611 nm	0.012 / 0.003 µg/mL	1	ion	Ta, U, Zn, Th
ICP-OES	212.412 nm	0.02 / 0.01 µg/mL	1	ion	Hf, Os, Mo, Ta
ICP-OES	288.158 nm	0.03 / 0.004 µg/mL	1	ion	Ta, Ce, Cr, Cd, Th
ICP-MS	28 amu	4000 - 8000 ppt	n/a	M^+	$^{14}N_2$, $^{12}C^{16}O$

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 06/20/03
DATE EXPIRED: 07/01/2004
DATE OPENED: 06/23/03
INORG: 4153 PO: F52370

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: February 24, 2003

Expiration Date: EXPIRES 01/2004

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	JoAnn Struthers, QA Administrative Assistant	JoAnn Struthers
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Titanium in 1.4% HNO_3 (abs) tr. HF

010537

Catalog Number: CGTI1-1, CGTI1-2 and CGTI1-5

This standard should not be prepared or stored in glass.

Lot Number: **T-TI02039**

Starting Material:	Titanium Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	F29I14

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 11/12/02
DATE EXPIRED: 12/1/2003 PR
DATE OPENED: 11/13/02
INORG: 3762 PO: E52061

CERTIFIED CONCENTRATION: 1010 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1002 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 1010 ± 3 μg/mL (Average of 3 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3162a.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.010	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	O	Mg	< 0.020	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	0.0020	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.050	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.050	M	Au	<0.00030	M	Nd	<0.00020	O	Sc	<0.0020	s	Ti	
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.050	O	Se	<0.40	M	W	<0.0010
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.010	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.020	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	0.12	M	Yb	<0.00010
M	Cr	<0.00050	O	Fe	<0.010	i	P		M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	i	S		M	Zn	0.19
O	Cu	<0.040	M	Pb	<0.00030	n	K	0.23	M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.011 g/mL

QA:KL Rev.060502DN

(over)

Paul R. Haines

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Quality Assurance Manager

EXPIRES 1 DEC 2003

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010538

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

2.0 **DESCRIPTION OF CRM** Custom-Grade **1000 µg/mL Strontium in 0.1% (abs) HNO_3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**T-SR01123**
Starting Material:	$SrCO_3$
Starting Material Purity (%):	99.9951
Starting Material Lot No	22593
Matrix:	0.1% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 06/20/03
DATE EXPIRED: 07/01/2004
DATE OPENED: 06/23/03
INORG: 4154 PO: F52370

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 998 ± 2 µg/mL

Certified Density: 1.000 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
$\sum S_i$ = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **998 ± 2 µg/mL**
EDTA NIST SRM 928 Lot Number: 880710

Assay Method #2 **1002 ± 8 µg/mL**
ICP Assay NIST SRM 3153a Lot Number: 990906

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.00090	M	Dy	< 0.00600	O	Li	< 0.00003	M	Pr	< 0.00030	O	Te	< 0.10000
M	Sb	< 0.00050	M	Er	< 0.00500	M	Lu	< 0.00040	M	Re	< 0.00100	M	Tb	< 0.00030
O	As	< 0.00500	M	Eu	< 0.00300	O	Mg	0.00037	O	Rh	< 0.00600	M	Tl	< 0.00100
M	Ba	0.04001	M	Gd	< 0.00100	O	Mn	0.00018	i	Rb		M	Th	< 0.00100
O	Be	< 0.00009	M	Ga	< 0.00100	O	Hg	< 0.01500	O	Ru	< 0.00300	M	Tm	< 0.00040
M	Bi	< 0.00040	M	Ge	< 0.00600	M	Mo	< 0.00200	M	Sm	< 0.00100	M	Sn	< 0.00500
O	B	< 0.00060	M	Au	< 0.00300	M	Nd	< 0.00200	M	Sc	< 0.01000	M	Ti	< 0.05001
M	Cd	< 0.00300	M	Hf	< 0.00200	O	Ni	< 0.00300	O	Se	< 0.05000	M	W	< 0.01000
O	Ca	0.03600	M	Ho	< 0.00050	M	Nb	< 0.00050	O	Si	0.00056	M	U	< 0.00200
M	Ce	< 0.00500	O	In	< 0.00200	n	Os		M	Ag	< 0.00200	M	V	< 0.00200
M	Cs	< 0.00030	M	Ir	< 0.00500	O	Pd	< 0.00400	O	Na	0.00520	M	Yb	< 0.00100
O	Cr	< 0.00080	O	Fe	0.00080	O	P	< 0.00480	s	Sr		O	Y	< 0.00004
M	Co	< 0.00300	M	La	< 0.00050	M	Pt	< 0.00200	n	S		M	Zn	< 0.02000
O	Cu	< 0.00140	M	Pb	< 0.00300	O	K	< 0.00170	M	Ta	< 0.00700	M	Zr	< 0.00500

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4° C. Do not pipet from container. Do not return portions removed for pipetting to container.
Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62; +2; 6; $Sr(H_2O)_6^{+2}$
Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.
Sr Containing Samples (Preparation and Solution) - Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt^0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≈ concs.)
ICP-OES	407.771 nm	0.0004 / 0.00006 µg/mL	1	ion	U, Ce
ICP-OES	421.552 nm	0.0008 / 0.00004 µg/mL	1	ion	Rb
ICP-OES	460.733 nm	0.07 / 0.003 µg/mL	1	atom	Ce
ICP-MS	88 amu	1200 ppt	n/a	M^+	$^{72}Ge^{16}O$, $^{176}Yb^{+2}$, $^{176}Lu^{+2}$, $^{176}Hf^{+2}$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

010539

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

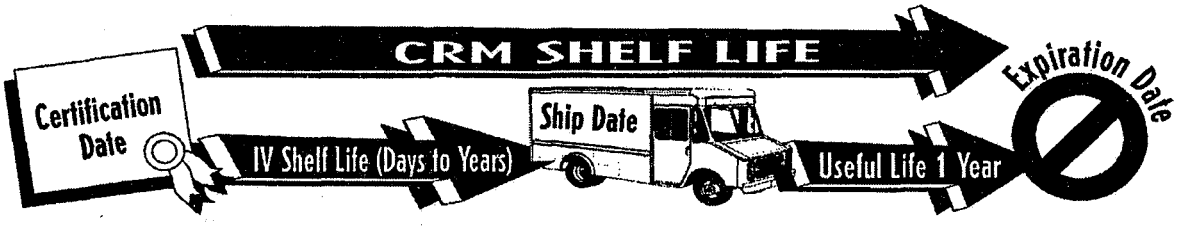
10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY



11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: October 31, 2002

Expiration Date: EXPIRES 01/2004

INORGANIC LABS/RADCHEM LABS pg. 2 of 2
DATE RECEIVED: 06/20/03
DATE EXPIRED: 07/01/2004
DATE OPENED: 06/23/03
INORG: 4154 PO: F52370

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By: Debbie Newman, QA Administrator

Debbie Newman

Certificate Approved By: Katalin Le, QC Supervisor

Katalin Le

Certifying Officer: Paul Gaines, Chemist, Senior Technical Director

Paul R Gaines

inorganic ventures / iv labs

195 lehigh avenue, suite 4, lakewood, nj 08701 usa
phone: 800-669-6799 • 732-901-1900 • fax: 732-901-1903
e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

010540

2.0 **DESCRIPTION OF CRM** Custom-Grade **1000 µg/mL Tin in H_2O tr HNO_3 tr HF**

Catalog Number:	CGSN1-1, CGSN1-2, and CGSN1-5
Lot Number:	**T-SN01110**
Starting Material:	#1, #2 SN SHOT
Starting Material Purity (%):	99.9969
Starting Material Lot No	AAJM H12H17, A23F09
Matrix:	H_2O tr HNO_3 tr HF

INORGANIC LABS/RADCHEM LABS Pg 1 of 2
DATE RECEIVED: 3/26/03
DATE EXPIRED: 4/01/2004
DATE OPENED: 3/28/03
INORG: 4026 PO: F52167

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1003 ± 5 µg/mL

Certified Density: 1.000 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value ($\bar{x}$) = $\frac{\Sigma x_i}{n}$

Uncertainty (±) = $\frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

☐ "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

☐ This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **1003 ± 5 µg/mL (Avg 2 runs)**
ICP Assay NIST SRM 3161a Lot Number: 993107

Assay Method #2 **1000 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al		0.00100	M	Dy	<	0.01217	O	Li	<	0.00002	M	Pr	<	0.00061	M	Te	<	0.06087
O	Sb	<	0.01000	M	Er	<	0.01014	M	Lu	<	0.00081	M	Re	<	0.00203	M	Tb	<	0.00061
M	As	<	0.02029	M	Eu	<	0.00609	O	Mg	<	0.00003	M	Rh	<	0.00203	M	Tl	<	0.00203
O	Ba	<	0.00070	M	Gd	<	0.00203	M	Mn	<	0.00812	M	Rb	<	0.00203	M	Th	<	0.00203
M	Be	<	0.00101	M	Ga	<	0.00203	O	Hg	<	0.01500	M	Ru	<	0.00406	M	Tm	<	0.00081
M	Bi	<	0.00081	M	Ge	<	0.01217	M	Mo	<	0.00406	M	Sm	<	0.00203	S	Sn		
O	B	<	0.01200	M	Au	<	0.00609	M	Nd	<	0.00406	M	Sc	<	0.02029	M	Ti	<	0.10144
O	Cd	<	0.00500	M	Hf	<	0.00406	O	Ni	<	0.01000	M	Se	<	0.01623	M	W	<	0.02029
O	Ca	<	0.00150	M	Ho	<	0.00101	M	Nb	<	0.00101	O	Si		0.02700	M	U	<	0.00406
M	Ce	<	0.01014	M	In	<	0.02029	n	Os			M	Ag	<	0.00406	M	V	<	0.00406
M	Cs	<	0.00061	M	Ir	<	0.01014	M	Pd	<	0.01014	O	Na		0.00325	M	Yb	<	0.00203
M	Cr	<	0.01014	O	Fe	<	0.00110	O	P	<	0.00500	M	Sr	<	0.00101	M	Y	<	0.08115
O	Co	<	0.00200	M	La	<	0.00101	M	Pt	<	0.00406	N	S			M	Zn	<	0.04058
M	Cu	<	0.01217	M	Pb	<	0.00609	O	K	<	0.00200	M	Ta	<	0.01420	M	Zr	<	0.01014

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL 010541

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 118.710; +4; 4,5, 6,7,8 $Sn(OH)_4F_2^{2-}$

Chemical Compatibility - Soluble in HCl and dilute HF / HNO_3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F^- away. (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated.) Stable with most inorganic anions provided it is in the chemical form shown above.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the $Sn(OH)_4F_2^{2-}$ for 1 year in 1% HNO_3 / LDPE container. 1-10,000 ppm single element solutions as the $Sn(OH)_4F_2^{2-}$ chemically stable for years in 2-5% HNO_3 / trace HF in a LDPE container.

Sn Containing Samples (Preparation and Solution) - Metal (Soluble in HF / HNO_3 or HCl); Oxides - SnO (soluble in HCl), SnO_2 -very resistant to all acids including HF(Fusion with equal parts of Na_2CO_3 and S. It is then soluble in water or dilute acids as the thiostannate.); Alloys (Treat first 0.1 g with 10 mL conc. H_2SO_4 to boiling until the alloy disintegrates and nearly all of the sulfuric acid is expelled. Then add 100 mL O_2 free water and 50 mL of conc HCl or transfer to a plastic container and add 1 mL HF in either case warming gently to bring about solution.); Organic Matrices (Volatility and precipitation of the insoluble stannic oxide are problems. Consultation of the literature should be made for individual matrices / Sn compounds.)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≥100ppm conc.)
ICP-OES	189.989 nm	0.03 / 0.003 µg/mL	1	ion	
ICP-OES	242.949 nm	0.1 / 0.01 µg/mL	1	atom	W, Mo, Rh, Ta, Co
ICP-MS	120 amu	5 ppt	n/a	M^+	^{120}Te, $^{104}Ru^{16}O$, $^{104}Pd^{16}O$

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter), Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 3/26/03
DATE EXPIRED: 4/01/2004
DATE OPENED: 3/28/03
INORG: 4026 PO: F52167

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

9.0 HOMOGENEITY

11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: December 17, 2002

Expiration Date: EXPIRES 1 APR 2004

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Debbie Newman, QA Administrator	Debbie Newman
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

Certificate of Analysis

010542

CUSTOM-GRADE SOLUTION

1000 μg/mL Bismuth in 3.5% HNO_3 (abs)

Catalog Number: CGBI1-1 and CGBI1-5

Lot Number: **T-BI01087**

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 8/1/02
DATE EXPIRED: 8/1/2003
DATE OPENED: 8/1/02
INORG: 3606 PO: F52013

Starting Material:	Bismuth Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	L13D09

CERTIFIED CONCENTRATION: 996 ± 3 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Calculated Value: 1001 μg/mL
Method: Calculated, based on starting material.

Instrument Analysis: 996 ± 3 μg/mL (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3106.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.**
An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.020	M	Dy	<0.00060	M	Li	<0.0010	M	Pr	<0.000030	M	Te	<0.0030
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
M	As	<0.0010	M	Eu	<0.00030	M	Mg	<0.0030	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	M	Mn	<0.00040	M	Rb	<0.00010	M	Th	<0.00010
M	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.15	M	Ru	<0.00020	M	Tm	<0.000040
s	Bi		M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.020	M	Au	<0.00030	M	Nd	<0.00020	M	Sc	<0.0010	M	Ti	<0.0050
M	Cd	<0.00030	M	Hf	<0.00020	O	Ni	<0.010	O	Se	<0.20	M	W	<0.0010
O	Ca	<0.010	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	<0.020	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		M	Ag	<0.00020	M	V	<0.00020
M	Cs	<0.000030	M	Ir	<0.00050	M	Pd	0.0020	O	Na	<0.050	M	Yb	<0.00010
M	Cr	<0.00050	O	Fe	<0.020	O	P	<0.050	M	Sr	<0.000050	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	n	S		M	Zn	<0.0020
M	Cu	<0.00060	M	Pb	0.020	n	K		M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.027 g/mL

QA:KL Rev.031402DN

(over)

Inorganic Ventures, Inc.
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Paul R. Haines
Quality Assurance Manager

EXPIRES 1/2003

inorganic ventures / iv labs

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certificate of analysis

010543

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

2.0 DESCRIPTION OF CRM

Custom-Grade **10000 µg/mL Magnesium in 1.4% (abs) HNO_3**

Catalog Number:	CGMG10-1 and CGMG10-5
Lot Number:	**T-MG03006**
Starting Material:	Mg metal
Starting Material Purity (%):	99.9968
Starting Material Lot No.	RML91191
Matrix:	1.4% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4204 PO: F52391

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 9921 ± 20 µg/mL

Certified Density: 1.050 g/mL (measured at 22° C)

The Certified Value is the instrument analysis value. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
$\sum S$ = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

"Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **9998 ± 20 µg/mL**
EDTA NIST SRM 928 Lot Number: 880710

Assay Method #2 **9921 ± 20 µg/mL**
ICP Assay NIST SRM 3131a Lot Number: 991107

4.2 **BALANCE CALIBRATION** - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 **THERMOMETER CALIBRATION** - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 **GLASSWARE CALIBRATION** - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.02454	M	Dy	< 0.02455	O	Li	0.00797	M	Pr	< 0.00123	M	Te	< 0.12275
M	Sb	0.00306	M	Er	< 0.02046	M	Lu	< 0.00164	M	Re	< 0.00409	M	Tb	< 0.00123
M	As	< 0.04092	M	Eu	< 0.01228	S	Mg		M	Rh	< 0.00409	M	Tl	< 0.00409
M	Ba	< 0.04092	M	Gd	< 0.00409	M	Mn	< 0.01637	M	Rb	< 0.00409	M	Th	< 0.00409
O	Be	< 0.00017	M	Ga	< 0.00409	O	Hg	< 0.00900	M	Ru	< 0.00818	M	Tm	< 0.00164
M	Bi	< 0.00164	M	Ge	< 0.02455	M	Mo	< 0.00818	M	Sm	< 0.00409	M	Sn	< 0.02046
O	B	0.00871	M	Au	< 0.01228	M	Nd	< 0.00818	M	Sc	< 0.04092	O	Ti	0.10206
M	Cd	< 0.01228	M	Hf	< 0.00818	O	Ni	0.01404	M	Se	< 0.03273	M	W	< 0.04092
O	Ca	0.01070	M	Ho	< 0.00205	M	Nb	< 0.00205	O	Si	0.03186	M	U	< 0.00818
M	Ce	< 0.02046	M	In	< 0.04092	n	Os		M	Ag	< 0.00818	M	V	< 0.00818
M	Cs	< 0.00123	M	Ir	< 0.02046	M	Pd	< 0.02046	O	Na	0.01817	M	Yb	< 0.00409
O	Cr	0.02315	O	Fe	0.02467	O	P	< 0.01600	M	Sr	< 0.00205	M	Y	< 0.16367
M	Co	< 0.01228	M	La	< 0.00205	M	Pt	< 0.00818	n	S		O	Zn	0.01892
O	Cu	0.00672	O	Pb	0.03236	O	K	< 0.05000	M	Ta	< 0.02864	M	Zr	< 0.02046

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL 010544

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 24.305; +2; 6; $Mg(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, HNO_3, and H_2SO_4 avoid HF, H_3PO_4 and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicates, carbonates, hydroxides, oxides, and tungstates in neutral and slightly acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO_3 / LDPE container.

Mg Containing Samples (Preparation and Solution) - Metal (Best dissolved in diluted HNO_3); Oxide (Readily soluble in above compatible aqueous acidic solutions); Ores (Carbonate fusion in Pt^0 followed by HCl dissolution); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition, or dry ash and dissolution in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≈ concs.)
ICP-OES	279.553 nm	0.0002 / 0.00003 µg/mL	1	ion	Th
ICP-OES	280.270 nm	0.0003 / 0.00005 µg/mL	1	ion	U, V
ICP-OES	285.213 nm	0.002 / 0.00003 µg/mL	1	atom	U, Hf, Cr, Zr
ICP-MS	24 amu	42 ppt	n/a	M'	$^{7}Li^{16}O$, $^{48}Ti^{12}$, $^{48}Ca^{12}$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter), Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

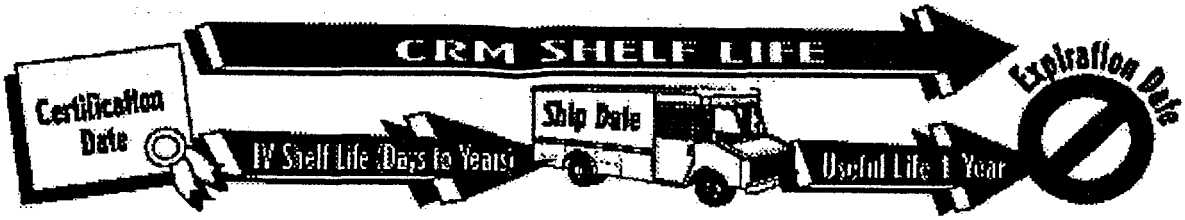
10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4204 PO: E52391

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY



11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: August 28, 2002

Expiration Date: EXPIRES 01 02 004

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Debbie Newman, QA Administrator	Debbie Newman
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

inorganic ventures / iv labs

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e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

certificate of analysis

010545

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

2.0 DESCRIPTION OF CRM

Custom-Grade **10000 µg/mL Sodium in 1.4% (abs) HNO_3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**T-NA03006**
Starting Material:	Na_2CO_3
Starting Material Purity (%):	99.999936
Starting Material Lot No	42095
Matrix:	1.4% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg 1 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4205 PO: F52391

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,005 ± 7 µg/mL

Certified Density: 1.032 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value ($\bar{x}$) = $\frac{\Sigma x_i}{n}$

Uncertainty (±) = $\frac{2[(\Sigma s)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

☐ "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

☐ This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **10,067 ± 75 µg/mL**
ICP Assay NIST SRM 3152a Lot Number: 990907

Assay Method #2 **10,005 ± 7 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 **BALANCE CALIBRATION** - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 **THERMOMETER CALIBRATION** - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 **GLASSWARE CALIBRATION** - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	< 0.00090	M	Dy	< 0.02499	O	Li	< 0.00003	M	Pr	< 0.00125	M	Te	< 0.12494
M	Sb	< 0.00208	M	Er	< 0.02082	M	Lu	< 0.00167	M	Re	< 0.00417	M	Tb	< 0.00125
M	As	< 0.04165	M	Eu	< 0.01249	O	Mg	0.00015	M	Rh	< 0.00417	M	Tl	< 0.00417
M	Ba	< 0.04165	M	Gd	< 0.00417	O	Mn	< 0.00003	M	Rb	< 0.00417	M	Th	< 0.00417
O	Be	< 0.00020	M	Ga	< 0.00417	O	Hg	< 0.01500	M	Ru	< 0.00833	M	Tm	< 0.00167
M	Bi	< 0.00167	O	Ge	< 0.00150	M	Mo	< 0.00833	M	Sm	< 0.00417	M	Sn	< 0.02082
O	B	< 0.00060	O	Au	< 0.00300	M	Nd	< 0.00833	O	Sc	< 0.00002	O	Ti	< 0.00070
M	Cd	< 0.01249	M	Hf	< 0.00833	O	Ni	< 0.00230	O	Se	< 0.05000	M	W	< 0.04165
O	Ca	0.00160	M	Ho	< 0.00208	M	Nb	< 0.00208	O	Si	< 0.00340	M	U	< 0.00833
M	Ce	< 0.02082	M	In	< 0.04165	n	Os		M	Ag	< 0.00833	O	V	< 0.00090
M	Cs	0.00104	M	Ir	< 0.02082	M	Pd	< 0.02082	S	Na		M	Yb	< 0.00417
M	Cr	< 0.02082	O	Fe	< 0.00110	O	P	< 0.04000	M	Sr	< 0.00208	M	Y	< 0.16658
M	Co	< 0.01249	M	La	< 0.00208	M	Pt	< 0.00833	O	S	< 0.07200	O	Zn	0.00130
O	Cu	< 0.00140	M	Pb	< 0.01249	O	K	0.00873	M	Ta	< 0.02915	M	Zr	< 0.02082

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 22.98977; +1; (6); Na^{+}(aq) largely ionic in nature (Coordination Number in parentheses is assumed, not certain.)

Chemical Compatibility - Soluble in HCl, HNO_3, H_2SO_4 and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Na Containing Samples (Preparation and Solution) - Metal (Dissolves very rapidly in water); Ores (Lithium carbonate fusion in graphite crucible followed by HCl dissolution - blank levels of Na in lithium carbonate critical); Organic Matrices (Sulfuric / peroxide digestion or nitric/sulfuric/perchloric acid decomposition).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ppbncs.)
ICP-OES	589.595 nm	0.07 / 0.00009 µg/mL	1	atom	2nd order radiation from R.E.s on some optical designs
ICP-OES	588.995 nm	0.03 / 0.006 µg/mL	1	atom	2nd order radiation from R.E.s on some optical designs
ICP-OES	330.237 nm	2.0 / 0.09 µg/mL	1	atom	Pd, Zn
ICP-MS	23 amu	310 ppt	n/a	M'	$^{46}Ti^{+2}$, $^{46}Ca^{+2}$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

010546

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: January 24, 2003

Expiration Date: EXPIRES 01/2004

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4205 PO: F52391

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	Debbie Newman, LIMS Administrator	Debbie Newman
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

Certificate of Analysis

CUSTOM-GRADE SOLUTION 1000 μg/mL Lithium in 0.1% HNO_3 (abs)

010547

Catalog Number: CGLI1-1, CGLI1-2 and CGLI1-5

Lot Number: **W-LI02066**

Starting Material:	Li_2CO_3
Starting Material Purity:	99.999%
Starting Material Lot No:	1053

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 06/20/03
DATE EXPIRED: 07/01/2004
DATE OPENED: 06/23/03
INORG: 4149 PO: F52370

CERTIFIED CONCENTRATION: 998 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 998 ± 2 μg/mL
Method: Gravimetric as the Sulfate vs NIST weights #822/254143-94.

Instrument Analysis: 1000 ± 4 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3129a.

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm.

O	Al	<0.010	M	Dy	<0.00060	s	Li		M	Pr	<0.000030	O	Te	<0.0090
M	Sb	<0.000050	M	Er	<0.00050	M	Lu	<0.000040	M	Re	<0.00010	M	Tb	<0.000030
O	As	<0.044	M	Eu	<0.00030	O	Mg	<0.00010	M	Rh	<0.00010	M	Tl	<0.00010
M	Ba	<0.0010	M	Gd	<0.00010	O	Mn	<0.00020	M	Rb	<0.00010	M	Th	<0.00010
O	Be	<0.000050	M	Ga	<0.00010	O	Hg	<0.0070	M	Ru	<0.00020	M	Tm	<0.000040
M	Bi	<0.000040	M	Ge	<0.00060	M	Mo	<0.00020	M	Sm	<0.00010	M	Sn	<0.00050
O	B	<0.0060	O	Au	<0.010	M	Nd	<0.00020	M	Sc	<0.0010	O	Ti	<0.00030
O	Cd	<0.0018	M	Hf	<0.00020	O	Ni	<0.0040	O	Se	<0.020	M	W	<0.0010
O	Ca	0.051	M	Ho	<0.000050	M	Nb	<0.000050	O	Si	0.023	M	U	<0.00020
M	Ce	<0.00050	O	In	<0.030	n	Os		O	Ag	<0.0040	O	V	<0.0010
M	Cs	0.0018	M	Ir	<0.00050	M	Pd	<0.00050	O	Na	<0.10	M	Yb	<0.00010
O	Cr	<0.0020	O	Fe	<0.0020	O	P	<0.030	O	Sr	<0.0010	M	Y	<0.0040
M	Co	<0.00030	M	La	<0.000050	M	Pt	<0.00020	O	S	<0.050	O	Zn	<0.030
M	Cu	<0.00060	M	Pb	<0.00030	O	K	0.0070	M	Ta	<0.00070	M	Zr	<0.00050

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 22°C): 1.004 g/mL **(over)**

QA:KL Rev.022403DN

Paul R. Haines

Inorganic Ventures, Inc.
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799

Quality Assurance Manager

EXPIRES 01/2004

Certificate of Analysis

010048

CUSTOM-GRADE SOLUTION 1000 μg/mL Zinc in 1.4% HNO_3 (abs)

Catalog Number: CGZN1-1, CGZN1-2, and CGZN1-5

Lot Number: **T-ZN02015**

Starting Material:	Zinc Metal
Starting Material Purity:	99.999%
Starting Material Lot No:	J17L26

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 10/22/02
DATE EXPIRED: 11/01/2003
DATE OPENED: 10/22/02
INORG: 3741 PO: F52057

CERTIFIED CONCENTRATION: 1007 ± 2 μg/mL

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n} \qquad \text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean x_i = individual results n = number of measurements $\sum S_i$ = The summation of all significant estimated errors.

Classical Wet Assay: 1007 ± 2 μg/mL
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate

Instrument Analysis: 1006 ± 4 μg/mL
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3168a

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN μg/mL:

Custom-Grade solutions tested for trace metallic impurities by **ICP-MS** were analyzed in an **ULPA-Filtered Clean Room.** An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 μm .

O	Al	<0.0020	M	Dy	<0.025	O	Li	0.0000050	M	Pr	<0.0013	M	Te	<0.13
M	Sb	<0.0021	M	Er	<0.021	M	Lu	<0.0017	M	Re	<0.0041	M	Tb	<0.0013
M	As	<0.041	M	Eu	<0.013	O	Mg	0.00011	M	Rh	<0.0041	M	Tl	<0.0041
M	Ba	<0.041	M	Gd	<0.0041	M	Mn	<0.017	M	Rb	<0.0041	M	Th	<0.0041
M	Be	<0.0021	M	Ga	<0.0041	O	Hg	<0.010	M	Ru	<0.0082	M	Tm	<0.0017
M	Bi	<0.0017	M	Ge	<0.025	M	Mo	<0.0082	M	Sm	<0.0041	M	Sn	<0.021
O	B	0.00015	M	Au	<0.013	M	Nd	<0.0082	M	Sc	<0.041	M	Ti	<0.21
M	Cd	<0.013	M	Hf	<0.0082	O	Ni	0.000085	M	Se	<0.033	M	W	<0.041
O	Ca	0.00022	M	Ho	<0.0021	M	Nb	<0.0021	O	Si	<0.0040	M	U	<0.0082
M	Ce	<0.021	M	In	<0.041	n	Os		M	Ag	<0.0082	M	V	<0.0082
M	Cs	<0.0013	M	Ir	<0.021	M	Pd	<0.021	O	Na	0.00055	M	Yb	<0.0041
O	Cr	<0.0010	O	Fe	0.000045	O	P	<0.0030	M	Sr	<0.0021	M	Y	<0.17
M	Co	<0.013	M	La	<0.0021	M	Pt	<0.0082	O	S	<0.020	s	Zn	
O	Cu	<0.00050	M	Pb	<0.013	O	K	0.00018	M	Ta	<0.029	M	Zr	<0.021

M - checked by ICP-MS O - checked by ICP-OES i - spectral interference n - not checked for s - solution standard element

ANALYZED DENSITY OF SOLUTION (measured at 21°C): 1.011 g/mL

QA:KL Rev.051702DN

(over)

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Paul R. Haines
Quality Assurance Manager

EXPIRES
1/2003

inorganic ventures / iv labs

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certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."

010549

2.0 DESCRIPTION OF CRM

Custom-Grade **1000 µg/mL Bismuth in 3.5% (abs) HNO_3**

Catalog Number:	CGBI1-1 and CGBI1-5
Lot Number:	**W-BI01089**
Starting Material:	Bi needles
Starting Material Purity (%):	99.999090
Starting Material Lot No	G25L16
Matrix:	3.5% (abs) HNO_3

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4200 PO: F52383

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1002 ± 4 µg/mL

Certified Density: 1.026 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value ($\bar{x}$) = $\frac{\Sigma x_i}{n}$

Uncertainty (±) = $\frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

☐ "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

☐ This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **1002 ± 4 µg/mL (Avg 2 runs)**
ICP Assay NIST SRM 3106 Lot Number: 991212

Assay Method #2 **1002 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al	0.00012	M	Dy	< 0.01202	O	Li	< 0.00002	M	Pr	< 0.00060	M	Te	< 0.06008
M	Sb	< 0.00100	M	Er	< 0.01001	M	Lu	< 0.00080	M	Re	< 0.00200	M	Tb	< 0.00060
M	As	< 0.02003	M	Eu	< 0.00601	O	Mg	0.00070	M	Rh	< 0.00200	M	Tl	< 0.00200
M	Ba	< 0.02003	M	Gd	< 0.00200	O	Mn	< 0.00020	M	Rb	< 0.00200	M	Th	< 0.00200
M	Be	< 0.00100	M	Ga	< 0.00200	O	Hg	< 0.01500	M	Ru	< 0.00401	M	Tm	< 0.00080
s	Bi		M	Ge	< 0.01202	M	Mo	< 0.00401	M	Sm	< 0.00200	M	Sn	< 0.01001
M	B	< 0.14018	M	Au	< 0.00601	M	Nd	< 0.00401	M	Sc	< 0.02003	M	Ti	< 0.10013
O	Cd	0.00017	M	Hf	< 0.00401	M	Ni	< 0.01602	M	Se	< 0.01602	M	W	< 0.02003
O	Ca	0.00245	M	Ho	< 0.00100	M	Nb	< 0.00100	O	Si	0.00105	M	U	< 0.00401
M	Ce	< 0.01001	O	In	0.00105	n	Os		M	Ag	< 0.00401	M	V	< 0.00401
M	Cs	< 0.00060	M	Ir	< 0.01001	O	Pd	< 0.00400	O	Na	0.00240	M	Yb	< 0.00200
O	Cr	0.00020	O	Fe	0.00014	O	P	< 0.01000	M	Sr	< 0.00100	M	Y	< 0.08011
M	Co	< 0.00601	M	La	< 0.00100	M	Pt	< 0.00401	O	S	< 0.03000	O	Zn	0.00008
O	Cu	0.00014	O	Pb	0.00135	O	K	0.00039	M	Ta	< 0.01402	M	Zr	< 0.01001

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 208.9804; +3; 6 ;$Bi(O)(H_2O)_5^{3+}$

Chemical Compatibility - Stable in HCl, HNO_3, H_2SO_4 and HF. **Avoid** basic media forming insoluble hydroxide. Stable with most metals and inorganic anions in acidic media. Many salts that are insoluble in water are soluble in HCl, HNO_3 and HF. The major problem with Bi^{3+} is its tendency to hydrolyze at higher concentrations or in dilute acid. Nitric acid solutions should be 5% to hold the Bi in solution in the 100 to 10000 µg/mL concentration range

Stability - 2-100 ppb levels stable for months in 1 % HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5 - 7% HNO_3 / LDPE container.

Bi Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxides (Soluble in HNO_3); Alloys (Dissolve in conc. 4:1 HCl /HNO_3. Heating may be required.); Organic based (dry ash at 450°C and dissolve ash in HNO_3 or acid digestion with conc. hot sulfuric acid adding hydrogen peroxide dropwise and carefuly until clear.)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≥ 10 ppm conc.)
ICP-OES	223.061 nm	0.04 / 0.005 µg/mL	1	atom	Th, Ir, Ti Cu
ICP-OES	306.772 nm	0.08 / 0.01 µg/mL	1	atom	Th, U, Zr, Hf, Fe
ICP-OES	222.825 nm	0.1 / 0.02 µg/mL	1	atom	Cr, Hf, Ce, Os
ICP-MS	209 amu	2 ppt	n/a	M+	$^{191}Ir^{16}O$

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4200 PO: F52383

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: March 28, 2003

Expiration Date: EXPIRES 1.2.2004

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	JoAnn Struthers, QA Administrative Assistant	JoAnn Struthers
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

inorganic ventures / iv labs

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phone: 800-669-6799 • 732-901-1900 • fax: 732-901-1903
e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

certificate of analysis

1.0 **Inorganic Ventures / IV Labs is an ISO Guide 34-2000 Certified Reference Material (CRM) Manufacturer: Certificate #883-02.** *The certificate is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31-2000 (Reference Materials - Contents of certificates and label(s), ISO Guide 34-2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statisical Principles."*

010551

2.0 DESCRIPTION OF CRM

Custom-Grade **1000 µg/mL Tungsten in 1% (abs) HNO_3/1% (abs) HF**

Catalog Number:	CGW1-1 and CGW1-5
Lot Number:	**W-W01080**
Starting Material:	W Powder
Starting Material Purity (%):	99.990703
Starting Material Lot No	21418,C31H46,D02J21,E03K06,D11F29
Matrix:	1% (abs) HNO_3/1% (abs) HF

INORGANIC LABS/RADCHEM LABS Pg. 1 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4203 PO: E52383

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1001 ± 2 µg/mL

Certified Density: 1.006 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

Certified Value ($\bar{x}$) = $\frac{\Sigma x_i}{n}$

Uncertainty (±) = $\frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors. (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

☐ "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

☐ This IV product is Traceable to NIST via direct comparison to NIST SRMs. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors.

4.1 **Assay Method #1** **1001 ± 2 µg/mL (Avg 2 runs)**
ICP Assay NIST SRM 3163 Lot Number: 990209

Assay Method #2 **1000 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

4.2 BALANCE CALIBRATION - All balances are checked daily using in-house procedure number 6-IMM-001. The weights used for testing are annually compared to Gerhart Scale Corporation's master weights and are traceable to the National Institute of Standards and Technology (NIST). The NIST Traceability numbers are 692476 - Class 1 and 692476A - Class 2. The NIST test number is 822/260017-98. All analytical balances are calibrated every 4 months by Gerhart Scale Corp. of South Amboy. The balances are calibrated with a class 1 and/or class 2 analytical weight set. These weights are tested annually by a NIST / NVLAP accredited calibration lab. The NIST test number is 822/260017-98.

4.3 THERMOMETER CALIBRATION - The thermometers used in the determination of the final densities are calibrated vs standard thermometer No. 903-2680 which was certified in accordance with the procedures outlined by ASTM E77-87 and NIST Monograph 150 using NIST Test Nos. and Std Nos.: 769543, 217368/769543, 217368/P14452, 176240/P14452, 176240. The in-house procedure No. is 2-QC-001.Thermometers which are not calibrated vs standard thermometer No. 903-2680 are traceable to NIST Identification Nos. 92564, 119016, 471047 and NIST test report Nos. 811/258522, 811/2557078, and 236090.

4.4 GLASSWARE CALIBRATION - In-house procedure 3-QC-002 is used to calibrate all Class A Glassware used in the manufacture and quality control of Custom Grade Standards.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

Custom-Grade solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Al		0.01792	M	Dy	<	0.00595	O	Li	<	0.00008	M	Pr	<	0.00030	M	Te	<	0.02974
M	Sb	<	0.00050	M	Er	<	0.00496	M	Lu	<	0.00040	i	Re			M	Tb	<	0.00030
M	As	<	0.00991	M	Eu	<	0.00297	O	Mg		0.00120	M	Rh	<	0.00099	M	Tl	<	0.00099
M	Ba	<	0.00991	M	Gd	<	0.00099	M	Mn	<	0.00397	M	Rb	<	0.00099	M	Th	<	0.00099
M	Be	<	0.00050	M	Ga	<	0.00099	O	Hg	<	0.04778	M	Ru	<	0.00198	M	Tm	<	0.00040
M	Bi	<	0.00040	M	Ge	<	0.00595	M	Mo		0.00050	M	Sm	<	0.00099	M	Sn	<	0.00496
O	B	<	1.19460	M	Au	<	0.00297	M	Nd	<	0.00198	O	Sc	<	0.00036	M	Ti		0.00198
M	Cd	<	0.00297	M	Hf	<	0.00198	M	Ni	<	0.00793	M	Se	<	0.00793	S	W		
O	Ca		0.00080	M	Ho	<	0.00050	O	Nb	<	0.06371	O	Si	<	0.01354	M	U	<	0.00198
M	Ce	<	0.00496	M	In	<	0.00991	n	Os			M	Ag	<	0.00198	M	V	<	0.00198
M	Cs	<	0.00030	M	Ir	<	0.00496	M	Pd	<	0.00496	O	Na		0.04778	M	Yb	<	0.00099
M	Cr	<	0.00496	O	Fe	<	0.03982	n	P			M	Sr	<	0.00050	M	Y	<	0.03965
M	Co	<	0.00297	M	La	<	0.00050	M	Pt	<	0.00198	n	S			M	Zn	<	0.01983
M	Cu	<	0.00595	M	Pb		0.00060	O	K		0.03146	O	Ta	<	0.39820	M	Zr		0.00079

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

For the calibration of analytical instruments including but not limited to the following:
ICP-MS, ICP-OES, FAAS, GFAA, XRF, and DCP
For the validation of analytical methods
For the preparation of "working reference samples"
For interference studies and the determination of correction coefficients
For detection limit and linearity studies
For additional intended uses, contact IV Technical Staff

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

Storage & Handling - Keep tightly sealed when not in use. Store and use at 20 ± 4°C. Do not pipet from container. Do not return portions removed for pipetting to container.

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 183.85; +6; 6,7,8,9; WOF_5^- (chemical form as received)

Chemical Compatibility - W is very readily hydrolyzed requiring 0.1 to 1% HF solutions for stable acidic solutions. The WOF_5^- is soluble in % levels of HCl and HNO_3 provided it is in the WOF_5^- form. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths. Is best to be mixed only with other fluorinated metals (Ti, Zr, Hf, Nb, Ta, Mo, Si, Sn, Ge). Look for yellow WO_3 precipitate if mixed with other transition elements at higher levels indicating instability. The yellow WO_3 will form over a period of weeks even in trace HF, therefore, HF levels of W multi- element blends should be ~ 1 %.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals that are at comparable levels) as the WOF_5^- for months in 1% HNO_3 / LDPE container. 1-10,000 ppm single element solutions as the WOF_5^- chemically stable for years in 1% HF in an LDPE container.

W Containing Samples (Preparation and Solution) - Metal (Soluble in HF / HNO_3); Oxide (Soluble in HF or NH_4OH) ; Organic Matrices (Dry ash at 450 °C in Pt* and dissolve oxide with HF).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line		Estimated D.L.	Order	Type	Interferences (underlined indicates severe at ≥50ppm.)
ICP-OES	207.911 nm	0.03 / 0.001 µg/mL	1	ion	Ru, In
ICP-OES	224.875 nm	0.05 / 0.005 µg/mL	1	ion	Co, Rh, Ag
ICP-OES	209.475 nm	0.05 / 0.005 µg/mL	1	ion	Mo
ICP-MS	182 amu	5 ppt	n/a	M^+	$^{166}Er^{16}O$

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION - Please refer to the enclosed Material Saftey Data sheet for information regarding this CRM.

9.0 HOMOGENEITY - This solution was mixed according to procedure IV-MPM-004 and is guaranteed to be homogeneous.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001:2000 Quality Management System Registration - QMI Certificate Number 010105
Recognized by:
Registrar Accreditation Board (ANSI-RAB)
Standards Council of Canada (SCC)
Dutch Council for Accreditation (RVA)
Entidad Mexicana de Acreditacion, a.c.(EMA)
Members of IQ Net International Certification Network:
Argentina (IRAM), Australia (QAS), Austria (ÖQS), Belgium (Avinter) , Brazil (FCAV), Canada (QMI), Hong Kong (HKQAA), Columbia (ICONTEC), Czech Republic (CQS), Denmark (DS), Finland (SFS), France (AFAQ), Germany (DQS), Greece (ELOT), Hungary (MSZT), Ireland (NSAI), Israel (SII), Italy (CISQ), Japan (JQA), Korea (KSA-QA), Netherlands (KEMA), Norway (NCS), Poland(PCBC), Portugal (APCER), Singapore (PSB), Slovenia (SIQ), Spain (AENOR), Switzerland (SQS)

10.2 ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration" - Chemical Testing - Accredited A2LA Certificate Number 883.01

10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02
A2LA Mutual Recognition Agreement Partners:
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (SCC), Chinese Taipei (CNLA), Czech Republic (NAO), Denmark (DANAK), Finland (FINAS), France (COFRAC), Germany (DAR), Hong Kong (HKAS, Ireland (NAB), Italy (SIT) (SINAL), Japan (JAB) (JNLA), Republic of Korea (KOLAS), The Netherlands (RvA), New Zealand (IANZ), Norway (NA), Portugal (IPQ), Singapore (SAC-SINGLAS), Spain (ENAC), Sweden (SWEDAC), Switzerland (SAS), United Kingdom (UKAS) and United States (NVLAP) (ICBO ES)

10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities

10.5 10CFR21 - Nuclear Regulatory Commission - Reporting Defects and Non-Compliance

10.6 MIL-STD-45662A (Obsolete/Observed)

INORGANIC LABS/RADCHEM LABS Pg. 2 of 2
DATE RECEIVED: 07/31/03
DATE EXPIRED: 08/01/2004
DATE OPENED: 08/01/03
INORG: 4203 PO: F52383

11.0 DATE OF CERTIFICATION AND PERIOD OF VALIDITY

11.1 IV Shelf Life - The period of time during which the concentration of the analyte(s) in a properly packaged, unopened, and unused standard stored under environmentally controlled and monitored conditions will remain within the specified uncertainty range. Shelf life is limited primarily by transpiration (loss of water from the solution) and infrequently, by chemical instability. Transpiration studies (P-SP01020) of chemically-stable solutions performed at Inorganic Ventures / IV Labs indicate a CRM shelf-life of four years for solutions packaged in 500-mL low density polyethylene bottles. When stored under special conditions that minimize transpiration and instability, the shelf life can be extended past this limit.

11.2 Expiration Date - The date after which a CRM should not be used. Routine laboratory use of a CRM increases transpiration losses and the chance of contamination which affect the integrity of the CRM and limit its useful life.
Inorganic Ventures / IV Labs concurs with state and federal regulatory agencies' recommendations that solution standards be assigned a one-year expiration date.

Certification Date: February 10, 2003

Expiration Date: EXPIRES 1 2 2004

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:	JoAnn Struthers, QA Administrative Assistant	JoAnn Struthers
Certificate Approved By:	Katalin Le, QC Supervisor	Katalin Le
Certifying Officer:	Paul Gaines, Chemist, Senior Technical Director	Paul R Gaines

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

Pipette Calibrations

Book/Page: 03 011

010553

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

(Space provide for Inorganic Laboratories' Fixed Volume Pipette Verification Spreadsheet)

6-25-03

SwRI - Div. 01, Inorganic Labs' Fixed Volume Pipette Spreadsheet

Eppendorf #	True Value (uL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
Lab30	1000	1.0151	1.0076	1.0131	1.01	101.19
TMA1	1000	1.0117	1.0064	1.0062	1.01	100.81
TMA2	1000	1.0118	1.0116	1.0064	1.01	100.99
TMA3	1000	1.0027	1.0069	1.0043	1.00	100.46
TMA6	1000	1.0176	1.0141	1.0151	1.02	101.56
TMB1	900	0.9071	0.9012	0.9038	0.90	100.45
TMC1	800	0.8032	0.7975	0.7989	0.80	99.98
TMDD1	750	0.7542	0.7558	0.7513	0.75	100.50
TMD1	700	0.7028	0.7011	0.7019	0.70	100.28
TMD2	700	0.7056	0.7069	0.7075	0.71	100.95
TME1	600	0.6064	0.6006	0.5994	0.60	100.36
TMF2	500	0.5003	0.5011	0.5021	0.50	100.23
TMF5	500	0.5129	0.5082	0.5075	0.51	101.91
ICF1	500	0.5024	0.4976	0.5027	0.50	100.18
L30-500	500	0.5057	0.5034	0.5015	0.50	100.71
TMG3	400	0.4018	0.4001	0.3983	0.40	100.02
TMH1	300	0.2994	0.3003	0.3003	0.30	100.00
TMH2	300	0.3011	0.2985	0.2988	0.30	99.82
TMJ1	250	0.2524	0.2505	0.2516	0.25	100.60
TMJ2	250	0.2507	0.2517	0.2511	0.25	100.47
TMJ3	250	0.2509	0.2528	0.2508	0.25	100.60
TMK2	200	0.2003	0.2021	0.2026	0.20	100.83
TML1	150	0.1528	0.1515	0.1508	0.15	101.13
TMM1	120	0.1208	0.1211	0.1201	0.12	100.56
TMN3	100	0.1008	0.1004	0.0996	0.10	100.27
ICN1	100	0.1015	0.1008	0.1001	0.10	100.80
TMQ1	80	0.0808	0.0806	0.0804	0.08	100.75
TMR1	70	OUT	OF	SERVICE		
TMS1	60	OUT	OF	SERVICE		
LAB-30A	50	0.0495	0.0497	0.0503	0.05	99.67
TMU1	40	0.0399	0.0401	0.0399	0.04	99.92
TMU2	40	0.0401	0.0402	0.0403	0.04	100.50
TMV1	30	0.0306	0.0301	6-25-03 0.0304	0.03	101.22
L30-20	20	0.0202	0.0201 ~~0.02~~	0.0201	0.02	100.50
TMW1	25	0.0248	0.0249	0.0254	0.03	100.13
TMY1	15	OUT	OF	SERVICE		

FRM-246 (Rev 1/Mar 03)

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SwRI - Div. 01, Inorganic Labs' Fixed Volume Pipette Verification Log

Balance #: 16 Thermometer #: G-058 diH20 Temperature (°C): 010554

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
Lab30	1000	1.0151	1.0076	1.0131
TMA1	1000	1.0117	1.0064	1.0062
TMA2	1000	1.0118	1.0116	1.0064
TMA3	1000	1.0027	1.0069	1.0043
TMA6	1000	1.0176	1.0141	1.0151
TMB1	900	.9071	.9012	.9038
TMC1	800	.8032	.7975	.7989
TMDD1	750	.7542	.7558	.7513
TMD1	700	.7028	.7011	.7019
TMD2	700	.7056	.7069	.7075
TME1	600	.6064	.6006	.5994
TMF2	500	.5003	.5011	.5021
TMF5	500	.5129	.5082	.5075
ICF1	500	.5024	.4976	.5027
L30-500	500	.5057	.5034	.5015
TMG3	400	.4018	.4001	.3983
TMH1	300	.2994	.3003	.3003
TMH2	300	.3011	.2985	.2988
TMJ1	250	.2524	.2505	.2516
TMJ2	250	.2507	.2517	.2511
TMJ3	250	.2509	.2528	.2508
TMK2	200	.2003	.2021	.2026
TML1	150	.1528	.1515	.1508
TMM1	120	.1208	.1211	.1201
TMN3	100	.1008	.1004	.0996
ICN1	100	.1015	.1008	.1001
TMQ1	80	.0808	.0806	.0804
TMR1	70	OUT	OF	SERVICE
TMS1	60	OUT	OF	SERVICE
LAB-30A	50	.0495	.0497	.0503
TMU1	40	.0399	.0401	.0399
TMU2	40	.0401	.0402	.0403
TMV1	30	.0306	.0301	.0304
L30-20	20	.0202	.0201	.0201
TMW1	25	.0248	.0249	.0254
TMY1	15	OUT	OF	SERVICE

Analyst: John Willis Date: 6-25-03

Reviewed by: Valen Alfen Date: 07-11-03

FRM-243b (Rev 3/Mar 03)

Book/Page: 03 013

010555

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

(Space provide for Inorganic Laboratories' Fixed Volume Pipette Verification Spreadsheet)

8/3/03

SwRI - Div. 01, Inorganic Labs' Fixed Volume Pipette Spreadsheet

Eppendorf #	True Value (uL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
Lab30	1000	1.0158	1.0092	1.0126	1.01	101.25
TMA1	1000	1.0034	1.0076	1.0201	1.01	101.04
TMA2	1000	1.0112	1.0209	1.0177	1.02	101.66
TMA3	1000	1.0091	1.0152	1.0041	1.01	100.95
TMA6	1000	1.0007	1.0036	1.0004	1.00	100.16
TMB1	900	0.9022	0.9003	0.9038	0.90	100.23
TMC1	800	0.7947	0.8009	0.7956	0.80	99.63
TMDD1	750	0.7534	0.7569	0.7581	0.76	100.82
TMD1	700	0.7063	0.7016	0.7059	0.70	100.66
TMD2	700	0.7030	0.7074	0.7027	0.70	100.62
TME1	600	0.6104	0.5907	0.6003	0.60	100.08
TMF2	500	NOT	FOUND			
TMF5	500	0.5109	0.5036	0.5014	0.51	101.06
ICF1	500	0.5011	0.4982	0.5011	0.50	100.03
L30-500	500	0.5072	0.5072	0.5050	0.51	101.29
TMG3	400	0.3997	0.4014	0.4036	0.40	100.39
TMH1	300	0.2987	0.2986	0.2991	0.30	99.60
TMH2	300	0.2976	0.3010	0.3014	0.30	100.00
TMJ1	250	0.2507	0.2536	0.2527	0.25	100.93
TMJ2	250	0.2522	0.2530	0.2541	0.25	101.24
TMJ3	250	0.2515	0.2541	0.2504	0.25	100.80
TMK2	200	0.2001	0.2000	0.2019	0.20	100.33
TML1	150	0.1503	0.1516	0.1519	0.15	100.84
TMM1	120	0.1191	0.1209	0.1198	0.12	99.94
TMN3	100	0.0991	0.1007	0.1015	0.10	100.43
ICN1	100	0.1010	0.0999	0.1004	0.10	100.43
TMQ1	80	0.0807	0.0800	0.0803	0.08	100.42
TMR1	70	OUT	OF	SERVICE		
TMS1	60	OUT	OF	SERVICE		
LAB-30A	50	0.0491	0.0490	0.0497	0.05	98.53
TMU1	40	0.0400	0.0403	0.0404	0.04	100.58
TMU2	40	0.0399	0.0402	0.0403	0.04	100.33
TMV1	30	0.0305	0.0305	0.0303	0.03	101.44
L30-20	20	0.0197	0.0201	0.0201	0.02	99.83
TMW1	25	0.0248	0.0249	0.0249	0.02	99.47
TMY1	15	OUT	OF	SERVICE		

FRM-246 (Rev 1/Mar 03)

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SwRI - Div. 01, Inorganic Labs' Fixed Volume Pipette Verification Log

Balance #: 34 Thermometer #: G011 diH20 Temperature (°C): 21010556

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
Lab30	1000	1.0158	1.0092	1.0126
TMA1	1000	1.0034	1.0076	1.0201
TMA2	1000	1.0112	1.0209	1.0177
TMA3	1000	1.0091	1.0152	1.0041
TMA6	1000	1.0007	1.0036	1.0004
TMB1	900	0.9022	0.9003	0.9038
TMC1	800	0.7947	0.8009	0.7956
TMDD1	750	0.7534	0.7569	0.7581
TMD1	700	0.7063	0.7016	0.7059
TMD2	700	0.7030	0.7074	0.7027
TME1	600	0.6104	0.5907	0.6003
TMF2	500	NOT FOUND		
TMF5	500	0.5109	0.5036	0.5014
ICF1	500	0.5011	0.4982	0.5011
L30-500	500	0.5072	0.5072	0.5050
TMG3	400	0.3997	0.4014	0.4036
TMH1	300	0.2987	0.2986	0.2991
TMH2	300	0.2976	0.3010	0.3014
TMJ1	250	0.2507	0.2536	0.2527
TMJ2	250	0.2522	0.2530	0.2541
TMJ3	250	0.2515	0.2541	0.2504
TMK2	200	0.2001	0.2000	0.2019
TML1	150	0.1503	0.1516	0.1519
TMM1	120	0.1191	0.1209	0.1198
TMN3	100	0.0991	0.1007	0.1015
ICN1	100	0.1010	0.0999	0.1004
TMQ1	80	0.0807	0.0800	0.0803
TMR1	70	OUT	OF	SERVICE
TMS1	60	OUT	OF	SERVICE
LAB-30A	50	0.0491	0.0490	0.0497
TMU1	40	0.0400	0.0403	0.0404
TMU2	40	0.0399	0.0402	0.0403
TMV1	30	0.0305	0.0305	0.0303
L30-20	20	0.0197	0.0201	0.0201
TMW1	25	0.0248	0.0249	0.0249
TMY1	15	OUT	OF	SERVICE

Analyst: Richard Hendy Date: 8/3/03

Reviewed by: Valerie Wilson Date: 08/15/03

Book/page: 03 033

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

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

7-29-03

010557

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)

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

Balance #: 16 Thermometer #: G011 diH20 Temperature (° C) 20 10558

	Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
20 µL – 200 µL		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	.1990	.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			

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

Analyst: John Wilder Date: 7-29-03

Reviewed by: AMS Date: 8/1/03

Book/page: 03 035

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

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

010559

8/1/03

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	0.0199	0.0201	0.0203	0.020	100.50
ADJ200-A	100	0.0992	0.0994	0.0998	0.099	99.47
	200	0.1984	0.1997	0.1980	0.199	99.35
	20	0.0205	0.0201	0.0201	0.020	101.17
ADJ200-C	100	0.0988	0.0991	0.0987	0.099	98.87
	200	0.1974	0.1983	0.1979	0.198	98.93
	20	0.0200	0.0199	0.0199	0.020	99.67
ADJ200-D	100	0.0997	0.0990	0.0993	0.099	99.33
	200	0.1975	0.1980	0.1983	0.198	98.97
	20	0.0201	0.0200	0.0201	0.020	100.33
ADJ200-E	100	0.0980	0.0985	0.0989	0.098	98.47
	200	0.1969	0.1987	0.1991	0.198	99.12
	20	0.0200	0.0197	0.0201	0.020	99.67
ADJ200-G	100	0.0989	0.0998	0.0990	0.099	99.23
	200	0.1985	0.1989	0.2008	0.199	99.70
	20				0.000	0.00
ADJ200	100				0.000	0.00
	200				0.000	0.00
	20				0.000	0.00
ADJ200	100				0.000	0.00
	200				0.000	0.00
	20				0.000	0.00
ADJ200	100				0.000	0.00
	200				0.000	0.00
	20				0.000	0.00
ADJ200	100				0.000	0.00
	200				0.000	0.00

8/27/03

FRM-247a (Rev 2/Mar 03)

Book/page: 03 036

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

010560

Balance #: 34 Thermometer #: G011 diH20 Temperature (° C) 21

	Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
20 µL – 200 µL		20	0.0199	0.0201	0.0203
	ADJ200-A	100	0.0992	0.0994	0.0998
		200	0.1984	0.1997	0.1980
		20	0.0205	0.0201	0.0201
	ADJ200-C	100	0.0988	0.0991	0.0987
		200	0.1974	0.1983	0.1979
		20	0.0200	0.0199	0.0199
	ADJ200-D	100	0.0997	0.0990	0.0993
		200	0.1975	0.1980	0.1983
		20	0.0201	0.0200	0.0201
	ADJ200-E	100	0.0980	0.0985	0.0989
		200	0.1969	0.1987	0.1991
		20	0.0200	0.0197	0.0201
	ADJ200-G	100	0.0989	0.0998	0.0990
		200	0.1985	0.1989	0.2008
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			

8/1/03

Analyst: Michael Handy Date: 8/1/03

Reviewed by: Nalini Algu Date: 08/15/03

Book/page: 03 041

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

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

8-19-03

SwRI – Div. 01, Inorganic Laboratory Adjustable Pipette Verification Spreadsheet 010561

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)	Avg Wt (g)	% of True Value
	20	0.0204	0.0203	0.0203	0.020	101.67
ADJ200-A	100	0.0996	0.0998	0.0991	0.100	99.50
	200	0.1978	0.1984	0.1978	0.198	99.00
	20	0.0202	0.0203	0.0203	0.020	101.33
ADJ200-C	100	0.0992	0.1010	0.0996	0.100	99.93
	200	0.1995	0.1997	0.1988	0.199	99.67
	20	0.0202	0.0201	0.0204	0.020	101.17
ADJ200-D	100	0.1001	0.1003	0.1001	0.100	100.17
	200	0.2012	0.2023	0.2011	0.202	100.77
	20	0.0200	0.0198	0.0202	0.020	100.00
ADJ200-E	100	0.0995	0.0989	0.0991	0.099	99.17
	200	0.1990	0.1972	0.1983	0.198	99.08
	20	0.0200	0.0199	0.0199	0.020	99.67
ADJ200-G	100	0.0992	0.0985	0.0995	0.099	99.07
	200	0.1996	0.2003	0.1982	0.199	99.68
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					
	20					
ADJ200	100					
	200					

8-19-03

FRM-247a (Rev 2/Mar 03)

Book/page: 03 042

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

Balance #: 34 Thermometer #: G011 diH20 Temperature (° C) 2010562

	Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
20 µL – 200 µL		20	.0204	.0203	.0203
	ADJ200-A	100	.0996	.0998	.0991
		200	.1978	.1984	.1978
		20	.0202	.0203	.0203
	ADJ200-C	100	.0992	.1010	.0996
		200	.1995	.1997	.1988
		20	.0202	.0201	.0204
	ADJ200-D	100	.1001	.1003	.1001
		200	.2012	.2023	.2011
		20	.0200	.0198	.0202
	ADJ200-E	100	.0995	.0989	.0991
		200	.1990	.1972	.1983
		20	.0200	.0199	.0199
	ADJ200-G	100	.0992	.0985	.0995
		200	.1996	.2003	.1982
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			
		20			
	ADJ200	100			
		200			

JW 8-19-03

Analyst: John Wilke Date: 8-19-03

Reviewed by: Tamra Wright Date: 8/27/03

Book/page: 03 085

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

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

7-29-03

010563

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			7-29-03		
	100					
ADJ1000	500					
	1000					

7-29-03

FRM-247b (Rev 1/Sept 02)

Book/page: 03 086

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

010564

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

	Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
100 µL – 1000 µL		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	.9968	.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: CMS Date: 8/1/03

Book/page: 03 087

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

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

Michael Hardy 8/1/03

010565

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	0.1014	0.1010	0.1003	0.101	100.90
ADJ1000-C	500	0.4883	0.4937	0.4923	0.491	98.29
	1000	0.9819	0.9840	0.9866	0.984	98.42
	100	0.1000	0.1009	0.1006	0.101	100.50
ADJ1000-D	500	0.4999	0.5009	0.5005	0.500	100.09
	1000	1.0077	1.0053	1.0069	1.007	100.66
	100	0.0984	0.0984	0.0991	0.099	98.63
ADJ1000-E	500	0.4982	0.4993	0.5013	0.500	99.92
	1000	0.9936	0.9991	0.9962	0.996	99.63
	100	0.1020	0.1016	0.1010	0.102	101.53
ADJ1000-F	500	0.5016	0.5019	0.5017	0.502	100.35
	1000	0.9972	0.9972	0.9969	0.997	99.71
	100	0.0993	0.0987	0.1001	0.099	99.37
ADJ1000-G	500	0.4971	0.4913	0.5006	0.496	99.27
	1000	0.9793	0.9929	0.9817	0.985	98.46
	100	0.0992	0.0989	0.0998	0.099	99.30
ADJ1000-H	500	0.4889	0.4904	0.4911	0.490	98.03
	1000	0.9903	0.9857	0.9807	0.986	98.56
	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

MD 8/27/03

FRM-247b (Rev 1/Sept 02)

8/1/03 Michael Hardy

Book/page: 03 088

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010566

Balance #: 34 Thermometer #: G011 diH20 Temperature (° C) 21

	Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
100 µL – 1000 µL		100	0.1014	0.1010	0.1003
	ADJ1000-C	500	0.4883	0.4937	0.4923
		1000	0.9819	0.9840	0.9866
		100	0.1000	0.1009	0.1006
	ADJ1000-D	500	0.4999	0.5009	0.5005
		1000	1.0077	1.0053	1.0069
		100	0.0984	0.0984	0.0991
	ADJ1000-E	500	0.4982	0.4993	0.5013
		1000	0.9936	0.9991	0.9962
		100	0.1020	0.1016	0.1010
	ADJ1000-F	500	0.5016	0.5019	0.5017
		1000	0.9972	0.9972	0.9969
		100	0.0993	0.0987	0.1001
	ADJ1000-G	500	0.4971	0.4913	0.5006
		1000	0.9793	0.9929	0.9817
		100	0.0992	0.0989	0.0998
	ADJ1000-H	500	0.4889	0.4904	0.4911
		1000	0.9903	0.9857	0.9807
		100			
	ADJ1000	500			
		1000			
		100			
	ADJ1000	500			
		1000			
		100			
	ADJ1000	500			
		1000			

8/1/03

Analyst: Michael Hardy Date: 8/1/03

Reviewed by: Walter W. Jr. Date: 08/15/03

Book/page: 03 091

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

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

8-19-03

010567

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	0.0994	0.1005	0.1002	0.100	100.03
ADJ1000-C	500	0.4963	0.4925	0.4920	0.494	98.72
	1000	1.0068	0.9960	0.9930	0.999	99.86
	100	0.1006	0.1010	0.1019	0.101	101.17
ADJ1000-D	500	0.4976	0.4954	0.4943	0.496	99.15
	1000	0.9923	0.9929	0.9937	0.993	99.30
	100	0.1000	0.1001	0.0990	0.100	99.70
ADJ1000-E	500	0.4965	0.4960	0.4944	0.496	99.13
	1000	0.9983	0.9940	0.9902	0.994	99.42
	100	0.0993	0.1009	0.0999	0.100	100.03
ADJ1000-F	500	0.4956	0.4988	0.4966	0.497	99.40
	1000	1.0054	1.0025	0.9967	1.002	100.15
	100	0.0988	0.0996	0.0986	0.099	99.00
ADJ1000-G	500	0.4944	0.4932	0.4923	0.493	98.66
	1000	1.0092	1.0041	0.9973	1.004	100.35
	100	0.0995	0.1004	0.1001	0.100	100.00
ADJ1000-H	500	0.4943	0.4945	0.4930	0.494	98.79
	1000	1.0047	0.9980	0.9958	1.000	99.95
	100					
ADJ1000	500					
	1000					
	100					
ADJ1000	500					
	1000					
	100					
ADJ1000	500					
	1000					

8-19-03

8-19-03

FRM-247b (Rev 1/Sept 02)

Book/page: 03 092

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

Balance #: 34 Thermometer #: 6011 diH20 Temperature (° C) 21 010568

100 µL – 1000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	100	.0994	.1005	.1002
ADJ1000-C	500	.4963	.4925	.4920
	1000	1.0068	.9960	.9930
	100	.1006	.1010	.1019
ADJ1000-D	500	.4976	.4954	.4943
	1000	.9923	.9929	.9937
	100	.1000	.1001	.0990
ADJ1000-E	500	.4965	.4960	.4944
	1000	.9983	.9940	.9902
	100	.0993	.1009	.0999
ADJ1000-F	500	.4956	.4988	.4966
	1000	1.0054	1.0025	.9967
	100	.0988	.0996	.0986
ADJ1000-G	500	.4944	.4932	.4923
	1000	1.0092	1.0041	.9973
	100	.0995	.1004	.1001
ADJ1000-H	500	.4943	.4945	.4930
	1000	1.0047	.9980	.9958
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			
	100			
ADJ1000	500			
	1000			

Jw 8-19-03

Analyst: John Wilks Date: 8-19-03

Reviewed by: Laura Wright Date: 8/27/03

Book/page: 03 137

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

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

7-21-03

010569

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 010570

Balance #: 16 Thermometer #: G011 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			

Jew 7-29-03

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

Analyst: John Wills Date: 7-29-03

Reviewed by: AMS Date: 8/1/03

Book/page: 03 139

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

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

8/1/03

010571

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	0.4906	0.4919	0.4921	0.492	98.31
ADJ5000-C	2500	2.4877	2.4832	2.4881	2.486	99.45
	5000	5.0236	5.0211	5.0213	5.022	100.44
	500	0.4961	0.4966	0.4982	0.497	99.39
ADJ5000-G	2500	2.4871	2.4803	2.4766	2.481	99.25
	5000	5.0147	5.0011	5.0366	5.017	100.35
	500	0.5040	0.5016	0.5033	0.503	100.59
ADJ5000-H	2500	2.5111	2.5207	2.5019	2.511	100.45
	5000	5.0236	5.0197	5.0217	5.022	100.43
	500	0.5070	0.5067	0.5060	0.507	101.31
ADJ5000-I	2500	2.5190	2.5117	2.5026	2.511	100.44
	5000	5.0184	5.0181	5.0142	5.017	100.34
	500	0.5052	0.5054	0.5046	0.505	101.01
ADJ5000-J	2500	2.5312	2.5337	2.5297	2.532	101.26
	5000	5.0900	5.0716	5.0734	5.078	101.57
	500	0.5040	0.5074	0.5160	0.509	101.83
ADJ5000-K	2500	2.5260	2.5299	2.5289	2.528	101.13
	5000	5.0808	5.0562	5.0478	5.062	101.23
	500	0.4979	0.4983	0.4992	0.498	99.69
ADJ5000-L	2500	2.4999	2.4985	2.4974	2.499	99.94
	5000	5.0589	5.0311	5.0437	5.045	100.89
	500				0.000	0.00
ADJ5000	2500				0.000	0.00
	5000				0.000	0.00
	500				0.000	0.00
ADJ5000	2500				0.000	0.00
	5000				0.000	0.00
	500				0.000	0.00
ADJ5000	2500				0.000	0.00
	5000				0.000	0.00
	500				0.000	0.00
ADJ5000	2500				0.000	0.00
	5000				0.000	0.00

FRM-247c (Rev 2/Mar 03)

Book/page: 03 140

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log 010572

Balance #: 34 Thermometer #: G011 diH20 Temperature (° C) 21

500 µL – 5000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	500	0.4906	0.4919	0.4921
ADJ5000-C	2500	2.4877	2.4832	2.4881
	5000	5.0236	5.0211	5.0213
	500	0.4961	0.4966	0.4982
ADJ5000-G	2500	2.4871	2.4803	2.4766
	5000	5.0147	5.0011	5.0366
	500	0.5040	0.5016	0.5033
ADJ5000-H	2500	2.5111	2.5207	2.5019
	5000	5.0236	5.0197	5.0217
	500	0.5070	0.5067	0.5060
ADJ5000-I	2500	2.5190	2.5117	2.5026
	5000	5.0184	5.0181	5.0142
	500	0.5052	0.5054	0.5046
ADJ5000-J	2500	2.5312	2.5337	2.5297
	5000	5.0900	5.0716	5.0734
	500	0.5040	0.5074	0.5160
ADJ5000-K	2500	2.5260	2.5299	2.5289
	5000	5.0808	5.0562	5.0478
	500	0.4979	0.4983	0.4992
ADJ5000-L	2500	2.4999	2.4985	2.4974
	5000	5.0589	5.0311	5.0437
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			

8/1/03

Analyst: [signature] Date: 8/1/03

Reviewed by: [signature] Date: 08/15/03

Book/page: 03 145

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

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

8-19-03

010573

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	0.5027	0.5049	0.5043	0.504	100.79
ADJ5000-C	2500	2.4853	2.4936	2.4937	2.491	99.63
	5000	4.9856	4.9850	4.9979	4.990	99.79
	500	0.5010	0.5028	0.5017	0.502	100.37
ADJ5000-G	2500	2.5008	2.5025	2.5003	2.501	100.05
	5000	5.0438	5.0139	5.0226	5.027	100.54
	500	0.5039	0.5073	0.5076	0.506	101.25
ADJ5000-H	2500	2.4843	2.4890	2.4935	2.489	99.56
	5000	5.0138	5.0081	5.0036	5.009	100.17
	500	0.5095	0.5083	0.5071	0.508	101.66
ADJ5000-I	2500	2.5103	2.5104	2.4937	2.505	100.19
	5000	5.0141	5.0252	5.0120	5.017	100.34
	500	0.5021	0.5010	0.4974	0.500	100.03
ADJ5000-J	2500	2.5077	2.5063	2.5014	2.505	100.21
	5000	5.0463	5.0451	5.0282	5.040	100.80
	500	0.5046	0.5082	0.5079	0.507	101.38
ADJ5000-K	2500	2.5198	2.5072	2.5092	2.512	100.48
	5000	5.0166	5.0229	5.0108	5.017	100.34
	500	0.4966	0.4968	0.4983	0.497	99.45
ADJ5000-L	2500	2.5000	2.4942	2.5002	2.498	99.93
	5000	5.0308	5.0318	5.0156	5.026	100.52
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					
	500					
ADJ5000	2500					
	5000					

8-19-03

FRM-247c (Rev 2/Mar 03)

Book/page: 03 146

SwRI Div. 01 – Inorganic Laboratory Adjustable Pipette Verification Log

Balance #: 34 Thermometer #: G011 diH20 Temperature (° C) 21 010574

500 µL – 5000 µL

Eppendorf #	True Value (µL)	1st Reading (g)	2nd Reading (g)	3rd Reading (g)
	500	.5027	.5049	.5043
ADJ5000-C	2500	2.4833	2.4936	2.4937
	5000	4.9856	4.9850	4.9979
	500	.5010	.5028	.5017
ADJ5000-G	2500	2.5008	2.5025	2.5003
	5000	5.0438	5.0139	5.0226
	500	.5039	.5073	.5076
ADJ5000-H	2500	2.4843	2.4890	2.4935
	5000	5.0138	5.0081	5.0036
	500	.5095	.5083	.5071
ADJ5000-I	2500	2.5103	2.5104	2.4937
	5000	5.0141	5.0252	5.0120
	500	.5021	.5010	.4974
ADJ5000-J	2500	2.5077	2.5063	2.5014
	5000	5.0463	5.0451	5.0282
	500	.5046	.5082	.5079
ADJ5000-K	2500	2.5198	2.5072	2.5092
	5000	5.0166	5.0229	5.0108
	500	.4966	.4968	.4983
ADJ5000-L	2500	2.5000	2.4942	2.5002
	5000	5.0308	5.0318	5.0156
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			
	500			
ADJ5000	2500			
	5000			

8-19-03

Analyst: John Wilks Date: 8-19-03

Reviewed by: Dawn Wright Date: 8/27/03

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

Balance Calibrations

010575

Southwest Research Institute
Division 01
BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
16	28	P37987	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
7/21/03	2.0000	2.0003	MW	Sn: 5537
7-22-03	2.0000	2.0003	[illegible]	"
7-23-03	2.0000	2.0003	[illegible]	"
7-24-03	2.0000	2.0003	[illegible]	"
7-25-03	2.0000	2.0003	[illegible]	"
7/28/03	2.0000	2.0003	MW	"
7/29/03	2.0000	2.0003	MW	"
7-30-03	2.0000	2.0003	[illegible]	"
7-31-03	2.0000	2.0003	[illegible]	"
8/1/03	2.0000	2.0003	MW	"

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.

Page # 1

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010576

Southwest Research Institute
Division 01
BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
16	28	P37987	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
8/4/03	2.0000	2.0003	MW	sn: 5537
8/5/03	2.0000	2.0004	MW	"
8-6-03	2.0000	2.0003	JW	"
8-7-03	2.0000	2.0003	JW	"
8-8-03	2.0000	2.0003	JW	"
8/9/03	2.0000	2.0002	MW	"
8/10/03	2.0000	2.0003	MW	"
8/11/03	2.0000	2.0003	MW	"
8-12-03	2.0000	2.0003	JW	"
8/13/03	2.0000	2.0003	MW	"

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)

010577

Southwest Research Institute
Division 01
BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
16	28	P37987	±0.0005	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
8/14/03	2.0000	2.0002	MW	SN: 5537
8/15/03	2.0000	2.0003	MW	"
8-18-03	2.0000	2.0003	[illegible]	"
8/19/03	2.0000	2.0003	MW	"
8/20/03	2.0000	2.0004	MW	"
8/21/03	2.0000	2.0004	MW	"
8/21/03	2.0000	2.0000	MW	99-J50526-15
8-22-03	2.0000	2.0001	[illegible]	"
8-23-03	2.0000	2.0000	[illegible]	"
8-25-03	2.0000	2.0000	[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.

FRM-112 (Rev 1/Dec 99)

010578

Southwest Research Institute
Division 01
BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
19	28	0068597	±0.05	
Date	Std Wt (g)	Recorded Wt (g)	Operator	SN: 5537
7/21/03	10.00	10.00	MW	"
7-22-03	10.00	10.00	[illegible]	"
7-23-03	10.00	10.00	[illegible]	"
7-24-03	10.00	10.00	[illegible]	"
7-25-03	10.00	10.00	[illegible]	"
7/28/03	10.00	10.00	MW	"
7/29/03	10.00	10.00	MW	"
7-30-03	10.00	10.00	[illegible]	"
7-31-03	10.00	10.00	[illegible]	"
8/01/03	10.00	10.00	MW	"

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.

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010579

Southwest Research Institute
Division 01

BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
19	28	0068597	±0.05	
Date	Std Wt (g)	Recorded Wt (g)	Operator	Sn:
8/4/03	10.00	10.00	MW	5537
8/5/03	10.00	10.00	MW	"
8-6-03	10.00	10.00	[illegible]	"
8-7-03	10.00	10.00	[illegible]	"
8-8-03	10.00	10.00	[illegible]	"
8-9-03	10.00	10.00	[illegible]	"
8/10/03	10.00	10.00	MW	"
8/11/03	10.00	10.00	MW	"
8-12-03	10.00	10.00	[illegible]	"
8/13/03	10.00	10.00	MW	"

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)

010580

Southwest Research Institute
Division 01
BALANCE VERIFICATION LOG

BALANCE #	LAB #:	SERIAL #:	TOLERANCE:	COMMENTS:
19	28	0068597	±0.05	
Date	Std Wt (g)	Recorded Wt (g)	Operator	
8/14/03	10.00	10.00	MW	Gm:5537
8/15/03	10.00	10.00	MW	"
8-18-03	10.00	10.00	[illegible]	"
8/19/03	10.00	10.00	MW	"
8/20/03	10.00	10.00	MW	"
8/21/03	10.00	10.00	MW	"
8/21/03	10.00	10.00	MW	99-J50624-5
8-22-03	10.00	10.00	[illegible]	"
8-23-03	10.00	10.00	[illegible]	"
8-25-03	10.00	10.00	[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.

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010581

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	
7-31-03	2.0000	2.0004	JW	SN: 5537
8/01/03	2.0000	2.0003	MW	"
8/04/03	2.0000	2.0004	MW	"
8/05/03	2.0000	2.0004	MW	"
8-6-03	2.0000	2.0003	JW	"
8-7-03	2.0000	2.0004	JW	"
8-8-03	2.0000	2.0002	JW	"
8-9-03	2.0000	2.0003	JW	"
8/10/03	2.0000	2.0003	MW	"
8/11/03	2.0000	2.0004	MW	"

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)

010582

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	
8-12-03	2.0000	2.0004	JW	SN:5537
8/13/03	2.0000	2.0003	MW	"
8/14/03	2.0000	2.0003	MW	"
8/15/03	2.0000	2.0004	MW	"
8-18-03	2.0000	2.0003	JW	"
8/19/03	2.0000	2.0002	MW	"
8/20/03	2.0000	2.0003	MW	"
8/21/03	2.0000	2.0002	MW	"
8/21/03	2.0000	2.0000	MW	99-J50526-15
8-22-03	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.

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FRM-112 (Rev 1/Dec 99)

010583

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	
8-25-03	2.0000	2.0000	JW	SN: J50526-15
8-26-03	2.0000	2.0000	JW	"
8-27-03	2.0000	2.0000	JW	"
8/28/03	2.0000	2.0000	MW	SN:99-J50526-15
8-29-03	2.0000	2.0000	JW	"
8/30/03	2.0000	2.0000	AMS	" "
9-2-03	2.0000	1.9999	JW	"
↓	1.0000	1.0000	JW	SN: 5537
↓	50.0000	50.0002	JW	"
9/3/03	2.0000	2.0000	MW	SN: 99-J50526-15

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.

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FRM-112 (Rev 1/Dec 99)

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

DI Water Verification

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

01 026

010584

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 pm
6/24/03	DR	18.0	✓	✓	50355.5	8:36 pm
6/25/03	DR	18.0	✓	✓	50365.0	6:48 pm
6/26/03	DR	18.0	✓	✓	50374.7	6:18 pm
6/27/03	DR	18.0	✓	✓	50385.1	6:37 pm
6/30/03	DR	18.0	✓	✓	50404.7	6:45 pm
7/1/03	DR	18.0	✓	✓	50417.1	6:20 pm.
7/2/03	DR	18.0	✓	✓	50427.2	9:20 pm.
7/3/03	DR	18.0	✓	✓	50437.8	4:40 pm
7/7/03	DR	18.0	✓	✓	50447.4	5:20 pm
7/8/03	DR	18.0	✓	✓	50453.2	5:40 pm
7/9/03	DR	18.0	✓	✓	50462.8	4:40 pm
7/10/03	DR	18.0	✓	✓	50473.8	9:29 pm
			Hopies	7/11/03		
7/11/03	DR	18.0	✓	✓	50482.2	7:30 pm
7/17/03	VOS	18.0	✓	✓	50557.5	5:00 pm
7/18/03			DR 7/19/03			
7/19/03	DR	18.0	✓	✓	50573.1	10:18 pm
7/20/03	DR	18.0	✓	✓	50574.5	9:31 p.m.
7/21/03	DR	18.0	✓	✓	50586.1	5:27 pm
7/22/03	DR	18.0	✓	✓	50602.5	5:10 p.m.
7/23/03	DR	18.0	✓	yellow	50664.8	5:36 pm. Red Pa. light 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. back online. 7:05 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	11:30 A.M. (yes. A.M.)
		am 8/1/03				
8/2/03	DR	18.0	✓	✓	50767.8	12:07 AM yes AGAIN A.M.
8/4/03	DR	18.0	✓	✓	50784.7	7:40 p.m.
8/5/03	DR	18.0	✓	✓	50818.2	6:20 pm
8/6/03	DR	18.0	✓	✓	50837.6	5:28 pm

T. Ofner 8/14/03

FRM-196 (Rev 0/Apr 01)

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

01 027

010585

DATE	INITIALS	READING (M OHMS)	SET PT./ QC LT. Green=OK	CALL FOR Service LT. Green=OK	USAGE (GALS)	COMMENTS
8/7/03	DR	18.0	✓	✓	50855.0	7:25 pm
8/8/03	DR	18.0	✓	✓	~~SS~~ DR 50875.2	5:40 pm. 8/8/03
8/11/03	DR	18.0	✓	✓	50904.9	6:36 pm
8/12/03	DR	18.0	✓	✓	50924.1	5:01 pm
8/13/03	DR	18.0	✓	✓	50941.6	8 pm
		TDB 8/14/03				
8/14/03	DR	18.0	✓	✓	50963.7	9:58 pm.
8/15/03	DR	18.0	✓	✓	50975.9	2:48 pm
8/18/03	DR	18.0	✓	✓	51011.1	10:22 pm.
8/19/03	DR	18.0	✓	✓	51019.1	10:41 pm.
8/20/03	DR	18.0	✓	✓	51034.5	7:40 pm.
8/21/03	DR	18.0	✓	✓	51051.2	8 pm
8/22/03	DR	18.0	✓	✓	51064.9	7:30 pm
8/25/03	DR	18.0	✓	✓	51083.1	6:41 pm
8/26/03	DR	18.0	✓	✓	51100.5	8:12 pm.
~~8/26/03~~	DR 8/27/03					
8/27/03	DR	18.0	✓	✓	51113.7	6:22 pm
8/28/03	DR	18.0	✓	✓	51135.9	6:21 pm
8/29/03	DR	18.0	✓	✓	51149.3	6:42 pm
9/2/03	DR	18.0	✓	yellow	51180.3	6:20 pm
		VDJ	~~08~~ 09/03/03			

SOUTHWEST RESEARCH INSTITUTE
NUCLEAR PROJECT
CLIENT: Division 20
TASK ORDER: 030721-18, 030722-12
SRR: 24668, 24678
SDG: 230742
CASE: CNWRA
VTSR: July 21, 22, 2003
PROJECT#: 06002.01.141

SURVEILLANCE REPORTS
From Division 30