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

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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**<br>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**<br>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**<br>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**<br>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**<br>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**<br>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**<br>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**<br>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**<br>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**<br>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
SAN ANTONIO, TEXAS 78228

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

BOOK/ PAGE 14 112

# 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<br>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 |
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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 |
| | | | | | |
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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

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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 |
| | | | | | |
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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

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# 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<br>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 | | | |
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| | | | | | 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

010056

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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06002.01.141

| 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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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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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 |

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| 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 |

010061

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 | 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 |

8/29/03

SwRI 54 4 Sept 03

08/29/03

010062

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| 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 |

EVOLUTION by Micro-Active Australia Pty Ltd  1:13:12 PM July 31, 2003

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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EVOLUTION by Micro-Active Australia Pty Ltd  1:22:24 PM July 31, 2003

| | | |
|---|---|---|
| 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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EVOLUTION by Micro-Active Australia Pty Ltd 1:31:48 PM July 31, 2003

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 |

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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 |

010090

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 | -- | -- | -- | -- | -- |

Analysis Report  Blank Sample  07/31/03 02:49:14 PM  page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 03:00:13 PM page 1

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 |

010117

| 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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 03:11:14 PM page 1

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 |

**010119**

| 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

Analysis Report 07/31/03 03:16:45 PM page 1

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 |

**010123**

| 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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 03:27:47 PM page 1

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 |

**010125**

| 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

**010126**

| 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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 03:55:08 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 04:03:21 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 04:08:52 PM page 1

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 |

010139

| 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 |

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| 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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 05:17:34 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 05:23:06 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 05:28:35 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 05:44:58 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 05:50:27 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 05:55:59 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:01:28 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:12:32 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:18:03 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:27:53 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:40:30 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:50:48 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 06:55:56 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 07:01:05 PM page 1

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

Analysis Report 07/31/03 07:06:14 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 07:11:22 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 07:27:34 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 07:38:30 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 07:46:45 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 08:03:25 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 08:08:57 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 07/31/03 08:14:29 PM page 1

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<br>030721-18 | 8-1-03 | Water | S4 133<br>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 |

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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 |

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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

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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

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| | 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 |

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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 |

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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

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| | 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 |

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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

010258

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 | -- | -- | -- | -- | -- |

Standardization Report 08/04/03 12:01:02 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:19:09 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:24:23 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:29:38 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:34:52 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:40:06 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:45:20 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 12:50:34 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 01:16:16 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 01:34:22 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 01:39:36 PM page 1

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 | -- | -- | -- | -- | -- |

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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

Analysis Report 08/04/03 02:00:33 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 02:26:17 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 02:44:23 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 02:54:23 PM page 1

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 | -- | -- | -- | -- | -- |

Standardization Rpt. 08/04/03 05:13:45 PM page 1

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 | -- | -- | -- | -- | -- |

Standardization Report 08/04/03 05:18:16 PM page 1

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 | -- | -- | -- | -- | -- |

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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 | -- | -- | -- | -- | -- |

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:23:31 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:33:30 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:46:22 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:51:36 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:56:50 PM page 1

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

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

Analysis Report 08/04/03 05:41:37 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 05:46:51 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:18:16 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:23:31 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:33:30 PM page 1

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

Analysis Report 08/04/03 06:46:22 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:51:36 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 06:56:50 PM page 1

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 08/04/03 07:02:04 PM page 1

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 |

010396

| 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 |

**010398**

| 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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 07:12:33 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 07:33:30 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 07:43:31 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 07:51:08 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 08:06:51 PM page 1

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

Analysis Report 08/04/03 08:12:06 PM page 1

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 | -- | -- | -- | -- | -- |

Analysis Report 08/04/03 08:22:07 PM page 1

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<br>030722-12 | 8-27-03 | water | 54 172 |
| 06002.01.141 | Div 20 | ↓ | 8-27-03 | water | 54 173 |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

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

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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

**010439**

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

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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 |

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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

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EVOLUTION by Micro-Active Australia Pty Ltd 5:31:58 PM August 27, 2003

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

010445

EVOLUTION by Micro-Active Australia Pty Ltd 5:38:08 PM August 27, 2003

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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EVOLUTION by Micro-Active Australia Pty Ltd 5:48:28 PM August 27, 2003

| | | 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 |

010447

EVOLUTION by Micro-Active Australia Pty Ltd  5:54:00 PM August 27, 2003

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 |

EVOLUTION by Micro-Active Australia Pty Ltd 6:04:30 PM August 27, 2003 010448

| | | |
|---|---|---|
| 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 |

EVOLUTION by Micro-Active Australia Pty Ltd  6:11:40 PM August 27, 2003

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

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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

010455

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

010456

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

EVOLUTION by Micro-Active Australia Pty Ltd 7:12:34 PM August 27, 2003 010457

| | | 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

010464

**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.**

B McKelvey

Dr. B. McKelvey
QA/QC Manager

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**Pittsburgh, PA., 15275 Phone (412) 490-8300**

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010465

## 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.**

B McKelvey

Dr. B. McKelvey
QA/QC Manager

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**Pittsburgh, PA., 15275 Phone (412) 490-8300**

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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.**

B McKelvey

Dr. B. McKelvey
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**Pittsburgh, PA., 15275 Phone (412) 490-8300**

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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.**

B McKelvey

Dr. B. McKelvey
QA/QC Manager

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**Pittsburgh, PA., 15275 Phone (412) 490-8300**

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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

# SPEXertificate™

## 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.**
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799


Paul R. Haines
Quality Assurance Manager

EXPIRES 1 2003

# SPEXertificate™

## Certificate of Reference Material

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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# SPEXertificate™

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

# SPEXertificate™

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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# SPEXertificate™ 010476

## 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

# SPEXertificate™

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

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 2/20/03
DATE EXPIRED: 2/15/2004 DR
DATE OPENED: 3/24/03
INORG: 3961 PO: F52060

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# SPEXertificate™

## Certificate of Reference Material

010480

INORGANIC LABS/RADCHEM LABS
DATE RECEIVED: 06/20/03
DATE EXPIRED: 06/30/2004
DATE OPENED: 06/23/03
INORG: 4141 PO: F52370

**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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## Certificate of Reference Material

010481

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INORG: 4138 PO: F52370

**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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## Certificate of Reference Material

**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.

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

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## Certificate of Reference Material

**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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INORG: 3928 PO: F52073

**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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DATE OPENED: 06/23/03
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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DATE OPENED: 9/4/02
INORG: 3684 PO: F52048

**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.

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INORG: 4142 PO: F52370

**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.

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010488

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## Certificate of Reference Material

**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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010489

## Certificate of Reference Material

**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

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DATE OPENED: 8/20/02
INORG: 3643 PO: 152039

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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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# SPECertificate™

## 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

# SPECertificate™

## 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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# SPEXertificate™

## 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.**
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Orders: 800-669-6799 • FAX (732) 901-1903
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EXPIRES 1 SEP 2003

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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."*

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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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

**Inorganic Ventures, Inc.**
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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


**Inorganic Ventures, Inc.**
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
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Technical Support: 800-569-6799


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

**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 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
Quality Assurance Manager

**Inorganic Ventures, Inc.**
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799

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

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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

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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."*

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**

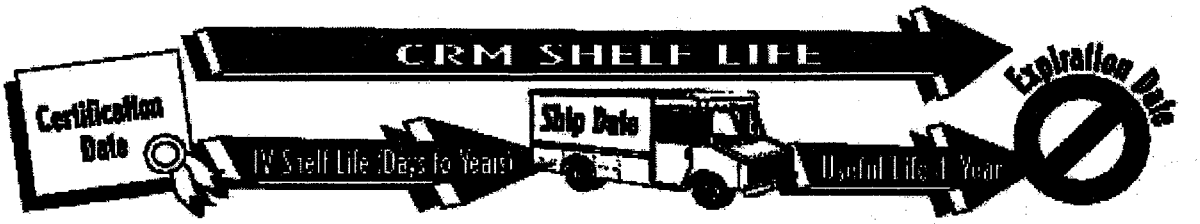
**10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02**
**A2LA Mutual Recognition Agreement Partners:**
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (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 $\mu$g/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 $\mu$g/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 $\mu$g/mL** (Avg of 3 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3112a.

**Calculated Value: 1002 $\mu$g/mL**
Method: Calculated, based on starting material.

## TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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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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 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

**Instrument Analysis: 1003 ± 5 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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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Quality Assurance Manager

EXPIRES 1 MAR 2004

**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

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**

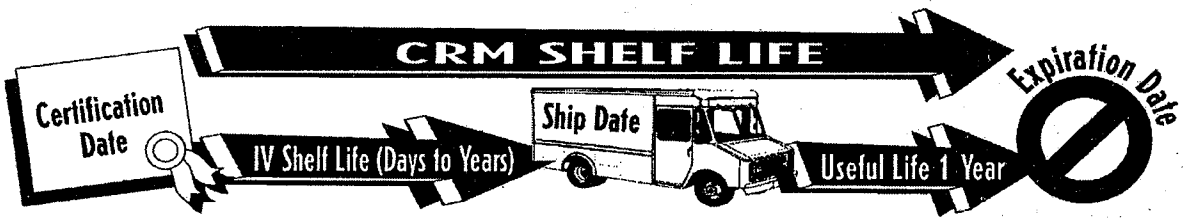
**10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02**
**A2LA Mutual Recognition Agreement Partners:**
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (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**

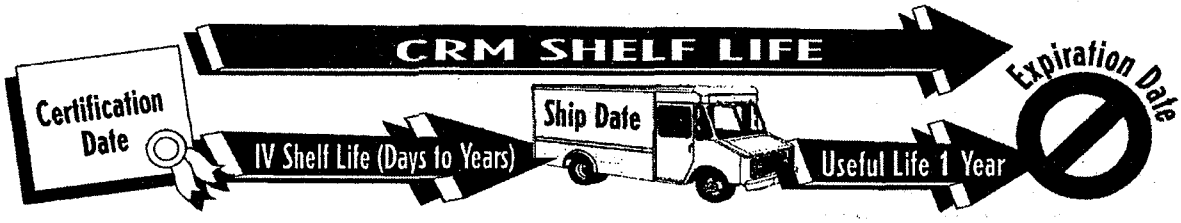
**10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02**
**A2LA Mutual Recognition Agreement Partners:**
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (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 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

**Instrument Analysis: 1001 ± 3 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 $\mu$g/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 $\mu$g/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 $\mu$g/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 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

Paul F Haines


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Quality Assurance Manager

EXPIRES 1 MAR 2004

# Certificate of Analysis

010523

## CUSTOM-GRADE SOLUTION 1000 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: Calculated, based on starting material.

**Instrument Analysis: 1003 ± 4 $\mu$g/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 $\mu$g/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 $\mu$m .

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate.

**Instrument Analysis: 1004 ± 4 $\mu$g/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 $\mu$g/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 $\mu$m .

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 $\mu$g/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 $\mu$g/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 $\mu$g/mL** (Average of 2 runs)
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3169

**Calculated Value: 1000 $\mu$g/mL** (For informational purposes)
Method: Calculated based on starting material.

## TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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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195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
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Quality Assurance Manager

EXPIRES 1 MAR 2004

# Certificate of Analysis

010526

## CUSTOM-GRADE SOLUTION 1000 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: Volhard Titration vs NIST SRM 999a Potassium Chloride

**Instrument Analysis: 996 ± 3 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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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Technical Support: 800-569-6799


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
Quality Assurance Manager

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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

Paul R. Haines
Quality Assurance Manager

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EXPIRES
1/2003

# Certificate of Analysis

**CUSTOM-GRADE SOLUTION** **1000 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: Calculated, based on starting material.

**Instrument Analysis: 1003 ± 2 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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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Technical Support: 800-569-6799


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)

Paul R. Haines
Quality Assurance Manager

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Technical Support: 800-569-6799

EXPIRES 1 FEB 2004

# Certificate of Analysis

**CUSTOM GRADE SOLUTION** **1000 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: Inductively Coupled Plasma Spectroscopy (ICP) vs NIST SRM 3107.

## TRACE METALLIC IMPURITIES DETERMINED BY ICP-MS AND ICP-OES IN $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

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Quality Assurance Manager

EXPIRES 1 MAR 2004

# Certificate of Analysis

## CUSTOM-GRADE SOLUTION 1000 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: Acidimetric Titration vs NIST SRM 84k KHP.

**Instrument Analysis: 1000 ± 3 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

Paul R. Haines


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Quality Assurance Manager

EXPIRES 1 FEB 2004

**inorganic ventures / iv labs**

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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
$\Sigma s_i$ = 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.)

## 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 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: Calculated, based on starting material.

**Instrument Analysis: 1010 ± 3 $\mu$g/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 $\mu$g/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 $\mu$m.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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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195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
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Quality Assurance Manager

EXPIRES 1 DEC 2003

**inorganic ventures / iv labs**

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e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

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**

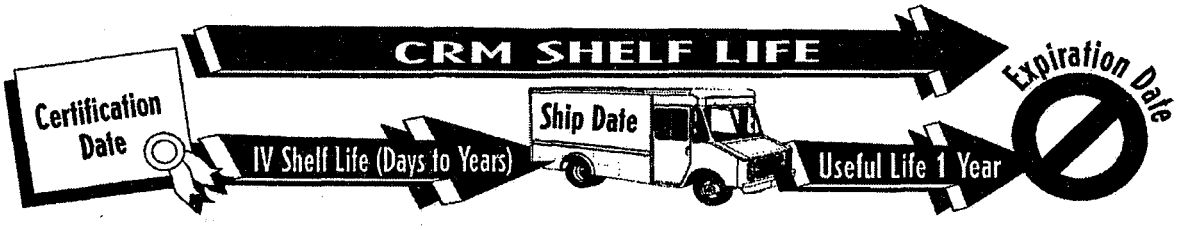
**10.3 ISO/IEC Guide 34 - 2000 "General Requirements for the Competence of Reference Material Producers" - Reference Materials Production - Accredited A2LA Certificate Number 883.02**
**A2LA Mutual Recognition Agreement Partners:**
Australia (NATA), Austria (BmwA), Belgium (BELTEST) (BKO-OBE), Canada (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**

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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."*

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
$\Sigma s_i$ = 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.)

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.**
195 Lehigh Avenue • Suite 4 • Lakewood, NJ 08701
Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799


Paul R. Haines
Quality Assurance Manager

EXPIRES 1/2003

**inorganic ventures / iv labs**

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e-mail: ivsales@ivstandards.com • website: www.ivstandards.com

# 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)

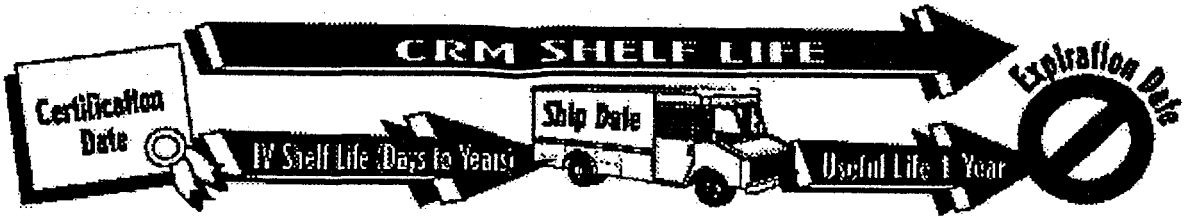
**10.4 10CFR50 Appendix B - Nuclear Regulatory Commission - Domestic Licensing of Production and Utilization Facilities**

**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**

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

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.**
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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 $\mu$g/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 $\mu$g/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 $\mu$g/mL**
Method: EDTA Titration vs NIST SRM 928 Lead Nitrate

**Instrument Analysis: 1006 ± 4 $\mu$g/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 $\mu$g/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 $\mu$m .

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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)


**Inorganic Ventures, Inc.**
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Orders: 800-669-6799 • FAX (732) 901-1903
Technical Support: 800-569-6799


Paul R. Haines
Quality Assurance Manager

EXPIRES
1/2003

**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."

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
$\Sigma s_i$ = 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.)

## 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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# 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
$\Sigma s_i$ = 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.)

## 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 | | |

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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)

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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 | | |

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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

FRM-112 (Rev 1/Dec 99)

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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FRM-112 (Rev 1/Dec 99)

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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FRM-112 (Rev 1/Dec 99)

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.

Page # ___6_____

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