141872

PHASE II INTERIM TASKS
FOR MORGANTOWN ORDNANCE WORKS SITE OU 1
MORGANTOWN, WEST VIRGINIA

JULY 1996

VOLUME III

ABB Environmental Services, Inc.

ABB

AR302672

ANALYTICAL DATA REPORT

submitted to

ABB

March 28, 1996

Gainesville, Florida Laboratory

AR302673

RESULTS OF ANALYSIS

Olin Chemical: Morgantown

Prepared for:
ABB
110 Free Street
Portland, ME 04112

Prepared by:
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March 28, 1996

ESE Lab Project No. 1295074V L206

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AR302675

Case Narrative

Environmental
Science &
Engineering, Inc.

A GILCORP Company

CASE NARRATIVE

Eleven soil samples were collected on February 5, 1996. All samples were received at ESE on February 6, 1996 at 6 degrees Centigrade. All samples were analyzed as requested in the traffic forms. All samples were extracted and analyzed within EPA holding time.

Olin Chemical: Morgantown

Analysis	Lab Batch
Arsenic (7060)	G68602

AR302677

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness except as detailed in this case narrative.

March 28, 1996

ENVIRONMENTAL SCIENCE & ENGINEERING

Richard S. Robinson
Chemistry Project Manager

P.O. Box 1703 Gainesville, FL 32602-1703 Phone (352) 332-3318 Fax (352) 333-6622

Sample History Report

Lab Sample Cross Reference and Date Report

ıt ID	Lab ID	Method	Collect Date	Receipt Date	Extract Date	HT Days	Analysis HT Date	Days	Batch
)	MABBS*1	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
	MABBS*2	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
	MABBS*3	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
	MABBS*4	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
)	MABBS*5	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
)	MABBS*6	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
2	MABBS*7	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/19/96	180(14)	G68602
2	MABBS*8	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
2	MABBS*9	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
2	MABBS*10	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/16/96	180(11)	G68602
2	MABBS*11	Arsenic(7060)	02/05/96	02/06/96	NA	NA	02/19/96	180(14)	G68602

ıl days in parentheses

02: Arsenic

RAL COMMENTS:

PROBLEM:

Sample matrix spike not within acceptance criteria:

1003*7060-G

EXPLANATION: POSSIBLE MATRIX INTERFERENCE.

PROBLEM:

Sample matrix spike duplicate not within acceptance criteria:

1003*7060-G

EXPLANATION: POSSIBLE MATRIX INTERFERENCE.

PROBLEM:

Analytical spike not present:

EXPLANATION: NA SERIAL DILUTION REQUIRED. / LMS / 2-19-96

RSR / 2-20-96

Chains of Custody (copies)

CHAIN OF CUSTODY RECORD & ANALYSIS REQUEST

PROJECT NO. 6778-11

PROJECT NAME MORGANTOWN OU-1

SAMPLERS (SIGNATURE) [signature] 2-5-96

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	SAMPLE TYPE: 4 oz. Soil Jar										REMARKS (INDICATE SOIL/WATER/AIR SEDIMENT/SLUDGE)
1 BR-09	2-5-96	11:30		✓	BR-B9-08-10	1	1										SOIL
2 BR-09	"	12:00		✓	BR-D9-08-10	1	1										SOIL
3 BR-09	"	13:45		✓	BR-C9-08-10	1	1										SOIL
4 BR-09	"	14:00		✓	BR-E9-08-10	1	1										SOIL
5 BR-09	"	07:55		✓	BR-07-07-08	1	1										SOIL
6 BR-09	"	14:00		✓	BD-E9-08-10	1	1										SOIL
7 SC-02	"	14:30		✓	SC-D2-00-04	1	1										ASH - TAR
8 SC-02	"	14:45		✓	SC-C2-00-04	1	1										ASH - TAR
9 SC-02	"	15:00		✓	SC-B2-00-04	1	1										ASH - TAR
10 SC-02	"	15:05		✓	SC-02-00-04	1	1										ASH - TAR
11 SC-02	2-5-96	15:40		✓	SA-22-00-04	1	1										ASH - TAR

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
[signature]	2/5/96 18:00	[signature]	2/6/96 1118		
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR DISPOSAL BY: (SIGNATURE)	DATE/TIME	REMARKS	

REMARKS: ANALYZE ALL FOR METALS ~~BY~~ BY EPA 6010 TO INCLUDE ARSENIC, CADMIUM, LEAD, AND COPPER

ABB Environmental Services Inc.

CC 2/6/96

OH-62

MAR 05

AR302681

9000

MABBS

ESE COOLER RECEIPT FORM

THIS FORM IS TO BE EXECUTED BY THE ESE SAMPLE RECEIPT CUSTODIAN WHEN PROCESSING SHIPPING CONTAINERS ANY *NO IS TO BE DESCRIBED IN *DETAILS/COMMENTS*. IMMEDIATE DOCUMENTATION OF PROBLEMS TO THE ANALYTICAL PROJECT MANAGER WILL FACILITATE COMMUNICATION WITH THE CLIENT TO RESOLVE ANY PROBLEMS. REFER TO ACTUAL CHAIN-OF-CUSTODY AND AIRBILL (IF APPLICABLE) FOR ADDITIONAL SAMPLE DOCUMENTATION.

Project: ABB Shipping Container # (ESE / Other): _____
Received (mm/dd/yr/hr): 2/6/96 1118 By: _____
Opened (if different) : _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an airbill/shipping slip? ..... No Yes
If applicable, carrier name & airbill #: Fed Ex 7609608521

Were custody seals on the outside of the container? ..... *No Yes
If Yes, a: did custody seals appear tamper-free upon arrival? ..... *No Yes
b: enter Seal Date and Name (or enter "NA" if not available): 2/5/96 Tom L.

Was the shipping container screened for radioactivity with a GM counter? ..... *No Yes
If Yes, were readings within criteria? ..... *No Yes

Was Chain of Custody (COC) documentation provided with the shipment? ..... *No Yes
If Yes, a: was COC fully executed by the shipper (in ink)? ..... *No Yes
b: did you sign the COC in the appropriate field? ..... *No Yes
c: was the project identifiable from the COC? ..... *No Yes
If No, how was this determined? _____

Were samples received within criteria of 2-6°Deg C? ..... N/A * Yes

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... *No Yes

Did all sample containers arrive intact and sealed? ..... *No Yes
Did all sample containers have secure and completed labels? ..... *No Yes
If sample containers possessed tags, circle: Tags only Tags + Labels
Were caps of individual bottles/vials free from tape and/or custody seals? ..... No Yes
Did all labels and/or tags agree with COC? ..... *No Yes

Were all samples examined for the following or were they audited? ..... Audited All
Did pH checks confirm indicated preservations? ..... N/A *No Yes
Did volumes, containers, & preservations seem appropriate to indicated tests? ..... *No Yes
Were VOA vials (waters) free from bubbles? ..... N/A *No Yes

Was this checklist free from deficiencies requiring notification of the Lab Project Manager? (if No, note who was contacted & when in Details/Comments below) ..... *No Yes

*Details/Comments:

_____
_____
_____
_____
_____

(over)

Source: ESE, May 1994: crlv3hp.695

AR302682

Results of Analysis

Arsenic - Batch G68602

COVER PAGE

ıb Name: ESE Project No.1295074V SDG No: G68602 Matrix: SOIL/SED

alysis: G68602 = EPA 3050,7060

Client ID	Laboratory ID	Batch	Date Collected	Date Received	Analysis Date	Time
ICV1	ICV*HIPURITY*1	G68602	00/00/00	00/00/00	02/16/96	1325
SP1	SP*QC*1	G68602	00/00/00	00/00/00	02/16/96	1342
BR-09	MABBS*1	G68602	02/05/96	02/06/96	02/16/96	1348
BR-09	MABBS*2	G68602	02/05/96	02/06/96	02/16/96	1353
BR-09	MABBS*3	G68602	02/05/96	02/06/96	02/16/96	1358
BR-09	MABBS*4	G68602	02/05/96	02/06/96	02/16/96	1403
BR-09	MABBS*5	G68602	02/05/96	02/06/96	02/16/96	1408
BR-09	MABBS*6	G68602	02/05/96	02/06/96	02/16/96	1429
BC-02	MABBS*8	G68602	02/05/96	02/06/96	02/16/96	1450
BC-02	MABBS*9	G68602	02/05/96	02/06/96	02/16/96	1455
BC-02	MABBS*10	G68602	02/05/96	02/06/96	02/16/96	1500
ICV2	ICV*HIPURITY*2	G68602	00/00/00	00/00/00	02/19/96	1533
BC-02	MABBS*7	G68602	02/05/96	02/06/96	02/19/96	1548
BC-02MS	SPM1*MABBS*7	G68602	02/05/96	02/06/96	02/19/96	1553
BC-02MSD	SPM2*MABBS*7	G68602	02/05/96	02/06/96	02/19/96	1558
BC-02	MABBS*11	G68602	02/05/96	02/06/96	02/19/96	1604
BC-02SD	SD*MABBS*9	G68602	02/05/96	02/06/96	02/19/96	1609

mments:
ull SDG: G68602-1

AR302685

Updated by 2705

PROBLEM:
Sample matrix spike not within acceptance criteria:
1003*7060-G
EXPLANATION: POSSIBLE MATRIX INTERFERENCE.
PROBLEM:
Sample matrix spike duplicate not within acceptance criteria:
1003*7060-G
EXPLANATION: POSSIBLE MATRIX INTERFERENCE.
PROBLEM:
Analytical spike not present:
EXPLANATION: NA SERIAL DILUTION REQUIRED.

for: Marlene Banner

Analyst _____ DATE 2/19/96

Reviewer _____ DATE 2/20/96

AR302686

Sample Data

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*1

Sample wt/vol: 1.021 G Lab File ID: G68602

%Moisture: 22.7 Dilution Factor: 1.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1348 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	0.684	

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*2

ample wt/vol: 1.001 G Lab File ID: G68602

Moisture: 22.4 Dilution Factor: 1.00

oncentrated Extract Volume: 0.1 L Date Received: 02/06/96

njection Volume: Date Extracted: 02/14/96

ime Analyzed: 1353 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	2.50	

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*3

Sample wt/vol: 1.054 G Lab File ID: G68602

%Moisture: 27.0 Dilution Factor: 1.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1358 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	6.47	

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*4

ample wt/vol: 1.029 G Lab File ID: G68602

Moisture: 21.8 Dilution Factor: 1.00

oncentrated Extract Volume: 0.1 L Date Received: 02/06/96

njection Volume: Date Extracted: 02/14/96

ime Analyzed: 1403 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	1.95	

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*5

Sample wt/vol: 1.016 G Lab File ID: G68602

%Moisture: 21.8 Dilution Factor: 1.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1408 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	2.59	

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*6

ample wt/vol: 1.040 G Lab File ID: G68602

Moisture: 22.2 Dilution Factor: 1.00

oncentrated Extract Volume: 0.1 L Date Received: 02/06/96

njection Volume: Date Extracted: 02/14/96

ime Analyzed: 1429 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	0.482	

FORM 1
ANALYSIS DATA SHEET

Client ID
SC-02

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*7

Sample wt/vol: 1.020 G Lab File ID: G68602

%Moisture: 29.6 Dilution Factor: 10.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1548 Date Analyzed: 02/19/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	31.2	D10

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*8

ample wt/vol: 1.057 G Lab File ID: G68602

Moisture: 41.2 Dilution Factor: 1.00

oncentrated Extract Volume: 0.1 L Date Received: 02/06/96

njection Volume: Date Extracted: 02/14/96

ime Analyzed: 1450 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	8.68	

FORM 1
ANALYSIS DATA SHEET

Client ID
SC-02

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*9

Sample wt/vol: 1.048 G Lab File ID: G68602

%Moisture: 34.2 Dilution Factor: 1.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1455 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	8.90	

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*10

ample wt/vol: 1.025 G Lab File ID: G68602

Moisture: 23.6 Dilution Factor: 1.00

oncentrated Extract Volume: 0.1 L Date Received: 02/06/96

njection Volume: Date Extracted: 02/14/96

ime Analyzed: 1500 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	5.71	

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*11

Sample wt/vol: 1.038 G Lab File ID: G68602

%Moisture: 28.5 Dilution Factor: 2.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1604 Date Analyzed: 02/19/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	11.7	D2

QC Data

FORM 1
ANALYSIS DATA SHEET

Client ID
BLK1

ab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: MB*REAGENT*1

ample wt/vol: 1.0. G Lab File ID: G68602

%Moisture: 0.0 Dilution Factor: 1.00

oncentrated Extract Volume: .1 L Date Received: 00/00/00

njection Volume: Date Extracted: 02/14/96

Time Analyzed: 1332 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	-.030	J

FORM 1
ANALYSIS DATA SHEET

Client ID

BLK2

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: MB*QC*1

ample wt/vol: 1.007 G Lab File ID: G68602

Moisture: 0.0 Dilution Factor: 1.00

oncentrated Extract Volume: .1 L Date Received: 00/00/00

njection Volume: Date Extracted: 02/14/96

ime Analyzed: 1337 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	0.248	U

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02MS

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: SPM1*MABBS*7

Sample wt/vol: 1.011 G Lab File ID: G68602

%Moisture: 29.6 Dilution Factor: 10.00

Concentrated Extract Volume: 0.1 L Date Received: 02/06/96

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1553 Date Analyzed: 02/19/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	27.1	D10

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02MSD

ab Name: ESE Project No.: 1295074V SDG No.: G68602

atrix: (soil/water) SOIL/ Lab Sample ID: SPM2*MABBS*7

ample wt/vol: 1.032 G Lab File ID: G68602

Moisture: 29.6 Dilution Factor: 10.00

oncentrated Extract Volume: 0.1 L Date Received: 02/06/96

ajection Volume: Date Extracted: 02/14/96

ime Analyzed: 1558 Date Analyzed: 02/19/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	15.5	D10

FORM 1
ANALYSIS DATA SHEET

Client ID

SP1

Lab Name: ESE Project No.: 1295074V SDG No.: G68602

Matrix: (soil/water) SOIL/ Lab Sample ID: SP*QC*1

Sample wt/vol: 1.010 G Lab File ID: G68602

%Moisture: 0.0 Dilution Factor: 1.00

Concentrated Extract Volume: .1 L Date Received: 00/00/00

Injection Volume: Date Extracted: 02/14/96

Time Analyzed: 1342 Date Analyzed: 02/16/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-38-2	ARSENIC	4.17	

ESE METHOD BLANK SUMMARY

Client ID

BLK1

Lab Name: ESE Project No: 1295074V SDG No.: G68602

Lab Sample ID: MB*REAGENT*1 Lab File ID: G68602

Matrix: SOIL/SED Instrument ID:

Date Analyzed: 02/16/96 Date Extracted: 02/14/96

Time Analysed: 1332

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED

COMMENTS: No samples associated with this MB!

FORM IV ESE

AR302705

Client ID

BLK2

ESE METHOD BLANK SUMMARY

Lab Name: ESE Project No: 1295074V. SDG No.: G68602

Lab Sample ID: MB*QC*1 Lab File ID: G68602

Matrix: SOIL/SED Instrument ID:

Date Analyzed: 02/16/96 Date Extracted: 02/14/96

Time Analysed: 1337

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
BR-09	MABBS*1	02/16/96
BR-09	MABBS*2	02/16/96
BR-09	MABBS*3	02/16/96
BR-09	MABBS*4	02/16/96
BR-09	MABBS*5	02/16/96
BR-09	MABBS*6	02/16/96
SC-02	MABBS*8	02/16/96
SC-02	MABBS*9	02/16/96
SC-02	MABBS*10	02/16/96
SC-02	MABBS*7	02/19/96
SC-02MS	SPM1*MABBS*7	02/19/96
SC-02MSD	SPM2*MABBS*7	02/19/96
SC-02	MABBS*11	02/19/96

COMMENTS:

FORM IV ESE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

SC-02MS

Lab Name: ESE Project No.: 1295074V SDG No.: RLR

COMPOUND	SPIKE ADDED (MG/KG)	SAMPLE CONCENTRATION (MG/KG)	MS CONCENTRATION (MG/KG)	MS % REC #	QC LIMITS REC.
ARSENIC	5.62	31.2	27.1	0 *	30-136

COMPOUND	SPIKE ADDED (MG/KG)	MSD CONCENTRATION (MG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	REC
ARSENIC	5.50	15.5	0 *	0	53	30-136

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 0 out of 1 outside limits
pike Recovery: 2 out of 2 outside limits

OMMENT:

AR302707

Client ID

SP1

REFERENCE STANDARD

Lab Name: ESE

SDG No: G68602

Lab Sample ID: SP*QC*1

Date Analyzed: 02/16/96

Instrument ID:

Analyte	True (UG/G)	Found (UG/G)	#	%Recv	Limits %
ARSENIC	3.96	4.17		105.3	80-122

Column to be used to flag recovery outside of QC limits
* Values outside of QC limits

Comments:

FORM V ESE

FORM V ESE

Client ID

ICV1

CALIBRATION VERIFICATION

ab Name: ESE Project No: 1295074V SDG No: G68602

ab Sample ID: ICV*HIPURITY*1 Date Analyzed: 02/16/96

nstrument ID: Time Analyzed: 1325

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/L)	True (UG/L)	C	%Diff
AS				53.2	50.0		6.4

)C LIMITS:

FORM VIII ESE

Client ID

ICV2

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G686[illegible]

Lab Sample ID: ICV*HIPURITY*2 Date Analyzed: 02/19/96

Instrument ID: Time Analyzed: 1533

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/L)	True (UG/L)	C	%Diff
AS				46.3	50.0		7.4

QC LIMITS:

FORM VIII ESE

AR302710

000

Client ID

CCB1

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68602

Lab Sample ID: CCB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
AS	-.500	U	2.5

FORM VII ESE

Client ID

CCB2

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68602

Lab Sample ID: CCB*QC*2 Instrument ID:

Analyte	Conc	C	CRDL
AS	1.50	U	2.5

FORM VII ESE

AR302712

Client ID

CCB3

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68602

Lab Sample ID: CCB*QC*3 Instrument ID:

Analyte	Conc	C	CRDL
AS	0.600	U	2.5

FORM VII ESE

AR302713

Client ID

CCV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G68602

Lab Sample ID: CCV*QC*1 Date Analyzed: 02/16/96

Instrument ID: Time Analyzed: 1413

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/L)	True (UG/L)	C	%Diff
AS				51.0	50.0		2.0

QC LIMITS:

FORM VIII ESE

AR302714

00

Client ID

CCV2

CALIBRATION VERIFICATION

ab Name: ESE Project No: 1295074V SDG No: G68602

ab Sample ID: CCV*QC*2 Date Analyzed: 02/16/96

nstrument ID: Time Analyzed: 1511

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/L)	True (UG/L)	C	%Diff
AS				52.5	50.0		5.0

C LIMITS:

FORM VIII ESE

AR302715

Client ID

CCV3

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G6860

Lab Sample ID: CCV*QC*3 Date Analyzed: 02/19/96

Instrument ID: Time Analyzed: 1614

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/L)	True (UG/L)	C	%Diff
AS				45.3	50.0		9.4

QC LIMITS:

FORM VIII ESE

AR302716

000

CALIBRATION CURVES

Lab Name: ESE SDG #: G68602

Analyte: ARSENIC Instrument ID:

Curve #	Analysis Date	Concentration UG/L	Ug/l	Retention Time (min)	Correlation Coefficient
1	02/19/96	0.	0.		
		2.5	.015		
		5.	.025		
		10.	.049		
		25.	.117		
		50.	.222		
		100.	.43		

URVE
#
1 CONC = + *RESP+ *RESP**2+ *RESP**3

Comments:

FORM II ESE

AR302717

Raw Data

SE BATCH : G68602

C TYPE : FDER/SW
NALYST : MARLENE BANNER
RACTOR : DAVID NICHOLS
A ENTRY : LISA SWAYZE

REPORT DATE/TIME : 02/19/96 16:37
ANALYSIS DATE/TIME : 02/16/96
EXTRACT DATE : 02/14/96

TATUS : ACTIVE

ETHOD BLANK CORRECTION METHOD : NONE

IELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
ABBS	FDER	1295074V L206	MORGANTOWN OUI ABB	RICHARD ROBINSON

ample Specific Raw Data

AMPLE ODE	EXTRACT DATE	ANALYSIS DATE	ANALYSIS TIME	SAMPLE WEIGHT (G)	EXTRACT VOLUME (L)	INJECTION VOLUME (NA)	%MOISTURE
CV*HIPURITY*1	02/14/96	02/16/96	01:25PM				
B*REAGENT*1	02/14/96	02/16/96	01:32PM	1.0	.1		
B*QC*1	02/14/96	02/16/96	01:37PM	1.0077	.1		
P*QC*1	02/14/96	02/16/96	01:42PM	1.0101	.1		
A*MABBS*1	02/14/96	02/16/96	01:48PM	1.0214	0.1		22.7
A*MABBS*2	02/14/96	02/16/96	01:53PM	1.0010	0.1		22.4
A*MABBS*3	02/14/96	02/16/96	01:58PM	1.0547	0.1		27.0
A*MABBS*4	02/14/96	02/16/96	02:03PM	1.0293	0.1		21.8
A*MABBS*5	02/14/96	02/16/96	02:08PM	1.0169	0.1		21.8
CV*QC*1	02/14/96	02/16/96	02:13PM				
CB*QC*1	02/14/96	02/16/96	02:18PM				
A*MABBS*6	02/14/96	02/16/96	02:29PM	1.0408	0.1		22.2
A*MABBS*7	02/14/96	02/19/96	03:48PM	1.0204	0.1		29.6
PM1*MABBS*7	02/14/96	02/19/96	03:53PM	1.0117	0.1		29.6
PM2*MABBS*7	02/14/96	02/19/96	03:58PM	1.0329	0.1		29.6
A*MABBS*8	02/14/96	02/16/96	02:50PM	1.0578	0.1		41.2
A*MABBS*9	02/14/96	02/16/96	02:55PM	1.0489	0.1		34.2
A*MABBS*10	02/14/96	02/16/96	03:00PM	1.0250	0.1		23.6
A*MABBS*11	02/14/96	02/19/96	04:04PM	1.0384	0.1		28.5
*QC*2	02/14/96	02/16/96	03:11PM				
B*QC*2	02/14/96	02/16/96	03:16PM				
SD*MABBS*9	02/14/96	02/19/96	04:09PM	1.0489	0.1		34.2
CCV*QC*3	02/14/96	02/19/96	04:14PM				
CCB*QC*3	02/14/96	02/19/96	04:19PM				
ICV*HIPURITY*2	02/14/96	02/19/96	03:33PM				

AR302719

Parameter Specific Raw Data

SAMPLE CODE	STORET METHOD	STATUS	RESPONSE (UG/L)	UNC CONC (UG/L)	DIL	TYPE	CURVE	RET TIME	SPIKE SOL CONC (UG/L)	SPIKE SAMP VOL (NA)	SPIKE VOLUME (NA)	DIL CODE
ICV*HIPURITY*1	1003*7060-G	OK	53.2	53.2								
MB*REAGENT*1	1003*7060-G	OK	-.3	-.300								
MB*QC*1	1003*7060-G	OK	0	0.0								
SP*QC*1	1003*7060-G	OK	42.1	42.1					40			C
DA*MABBS*1	1003*7060-G	OK	5.4	5.40								
DA*MABBS*2	1003*7060-G	OK	19.4	19.4								
DA*MABBS*3	1003*7060-G	OK	49.8	49.8								
DA*MABBS*4	1003*7060-G	OK	15.7	15.7								
DA*MABBS*5	1003*7060-G	OK	20.6	20.6								
CCV*QC*1	1003*7060-G	OK	51	51.0								
CCB*QC*1	1003*7060-G	OK	-.5	-.500								
DA*MABBS*6	1003*7060-G	OK	3.9	3.90								
DA*MABBS*7	1003*7060-G	OK	22.4	224	10							
SPM1*MABBS*7	1003*7060-G	OK	19.3	193	10				40			C
SPM2*MABBS*7	1003*7060-G	OK	11.3	113	10				40			C
DA*MABBS*8	1003*7060-G	OK	54	54.0								
DA*MABBS*9	1003*7060-G	OK	61.4	61.4								
DA*MABBS*10	1003*7060-G	OK	44.7	44.7								
DA*MABBS*11	1003*7060-G	OK	43.5	87.0	2							
CCV*QC*2	1003*7060-G	OK	52.5	52.5								
CCB*QC*2	1003*7060-G	OK	1.5	1.50								
SD*MABBS*9	1003*7060-G	OK	13	65.0	5							
CCV*QC*3	1003*7060-G	OK	45.3	45.3								
CCB*QC*3	1003*7060-G	OK	.6	0.600								
ICV*HIPURITY*2	1003*7060-G	OK	46.3	46.3								

HOLDING TIMES CHECK

MPLE	ANALYTE	ANL DATE	EXT DATE	SMP DATE	H.T. OVER

HOLDING TIMES MET

AR302721

STORET: 1003 METHOD: 7060-G ARSENIC, MG/KG-DRY FINAL

CALIBRATION CURVE # 1
DETECTION LIMIT = 2.5 DATE: 02/19/96 LARGEST RESP= %RSD=

CONC :	0	2.5	5	10	25	50	100
RESP :	0	.015	.025	.049	.117	.222	.43
CONC':							

CONC = + *RESP+ *RESP**2+ *RESP**3
95% C.I.=
CORRELATION COEFFICIENT =

METHOD BLANK(S)

SAMPLE ID	CONCENTRATION
REAGENT*1	-.030
QC*1	0.0

CONTINUING CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	-.500	
QC*2	1.50	
QC*3	0.600	

CONTINUING CALIBRATION VERIFICATION SAMPLE(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
QC*1	51.0	50.0	2.0
QC*2	52.5	50.0	5.0
QC*3	45.3	50.0	-9.4

INITIAL CALIBRATION VERIFICATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
HIPURITY*1	53.2	50.0	6.4
HIPURITY*2	46.3	50.0	7.4

SERIAL DILUTION SAMPLE ANALYSIS *** Optional Quality Control Check ***

SAMPLE ID	REP.1 CONC	REP.2 CONC	% DIFFERENCE
MABBS*9	9.42	8.90	5.8

STANDARD MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SP*QC*1	0.0	4.17	4.17	3.96	105.3	

SAMPLE MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.	
SPM1*MABBS*7	31.2	27.1	-4.10	5.62	-73.0		Recovery Exceeds criteria. (<30)
SPM2*MABBS*7	31.2	15.5	-15.7	5.50	-285.5	118.5	Relative Percent Difference exceeds criteria (

SAMPLE RESULTS

	1003
	7060
	ARSENIC
LE ID	MG/KG-DRY
*REAGENT*1	-.030
*QC*1	0.0
BBS*1	0.684
BBS*2	2.50
BBS*3	6.47
BBS*4	1.95
BBS*5	2.59
BBS*6	0.482
BBS*7	31.2
BBS*8	8.68
BBS*9	8.90
BBS*10	5.71
BBS*11	11.7

UNITS AND EXAMPLE CALCULATIONS

UNITS ENTERED	
FINAL CONCENTRATION	UG/G DRY
INJECTION VOLUME	NA
SAMPLE VOLUME	G
EXTRACT VOLUME	L
CURVE CONCENTRATION	UG/L
SPIKE SOLN CONCENTRATION	UG/L
SPIKE VOLUME	NA
SPIKE SAMPLE VOLUME	NA
TARGET CONCENTRATION	UG/L
RESPONSE DESCRIPTION	UG/L
CONVERSION FACTOR	1

FINAL CONC = CURV CONC * EXT VOL * DIL * 1 / INJ VOL * SAMP VOL * ((100 - %MOISTURE) / 100)

UG/G DRY = (UG/L) * (L) * 1 / (NA) * (G)

MA 8335 X1

(0.6374 ug/g Dry) = (5.4 ug/L) * (0.1 L) * (NA) / (NA) * (1.0314 g) * ((100 - (22.7%)) / 100)

TARGET CONC = SPIKE SOLN CONC * SPIKE VOL / SPIKE SAMP VOL * ((100 - %MOISTURE) / 100)

CMS 2/19/96

UG/L = (UG/L) * (NA) / (NA)

AR302724

Environmental Science and Engineering Analytical Services
Computer QC Checks

Batch No.: G68602 Analysis Date: 02/16/96 Analyst: MARLENE BANNER

	Yes	"Exceptions" No	Comment / Corrective Action
Are ALL units documented in batch?	X		
Analysis holding time within criteria?	X		
CCV present?	X		
CCV within acceptance criteria?	X		
ICV present?	X		
ICV within acceptance criteria?	X		
Method blank present?	X		
Method blank within acceptance criteria?	X		
Standard matrix spike present?	X		
Standard matrix spike within acceptance criteria?	X		
Sample matrix spike present?	X		
Sample matrix spike within acceptance criteria?		X	1003*7060-G
Sample matrix spike duplicate present?	X		
Sample matrix spike duplicate within acceptance criteria?		X	1003*7060-G
Analytical spike present?		X	
Analytical spike within acceptance criteria?			

See Batch narrative
lms
3/19/96

Note: Any "NO" answer requires a comment.

AR302725

Environmental Science and Engineering Analytical Services
Internal QA/QC Batch Checklist For Atomic Spectroscopy

Batch No.: G68602 Analysis Date: 02/16/96 Analyst: MARLENE BANNER

	N/A	Yes	No	"Exceptions" Comment/Corrective Action
Is the method blank free of contamination?		✓		
If not, has the data been blank corrected?	✓			
Are reported values consistent with the required units?		✓		
Are detection limits reported correctly?		✓		
Are dilution factors entered correctly?		✓		
Is the calibration curve (if applicable) entered correctly?		✓		
Are all the correct elements included in the spikes?		✓		
Is the batch checked for data entry error(s)?		✓		
Are continuing calibration blanks analyzed at a frequency specified in the appropriate QA/QC Plan (i.e. AF, COE or FDER QA/QC plan)?		✓		
If not, is an appropriate explanation provided?	✓			
Are continuing calibration verification (CCV) standards analyzed at a frequency specified in the appropriate QA/QC Plan?		✓		
If not, is an appropriate explanation provided?	✓			
Is an example calculation provided?		✓		
Has the batch documentation checklist been completed?		✓		
Were the first extracts/digests prepped from this sample used for sample analysis?		✓		
If not, is an appropriate explanation provided?	✓			

Note: Any "NO" answer requires a comment.
Additional Comments:

Completed By [signature] for Marlene Banner
Date 2/19/96

Reviewed By [signature]
Date 2/20/96

Notification of appropriate Laboratory Coordinators required for "Exceptions":

Signature	Date	Comments

BATCH OVERRIDE BY:

FINALIZED BY:

AR302726

0C

RAW DATA DOCUMENTATION FOR %MOISTURE USED TO CONVERT ANALYTICAL DATA TO DRY WEIGHT

MPLE ID	PAN WEIGHT (GM)	PAN+SAMPLE WEIGHT-WET (GM)	PAN+SAMPLE WEIGHT-DRY (GM)	%MOISTURE (%WET WT)	ESE BATCH	ANALYSIS DATE	NOTEBOOK REFERENCE
ABBS*1	1.54060	18.48350	14.62930	22.7	G68437	02/12/96	BALANCE #24, R
MABBS*2	1.55990	18.46590	14.68500	22.4	G68437	02/12/96	BALANCE #24, R
MABBS*3	1.53300	18.97940	14.26970	27.0	G68437	02/12/96	BALANCE #24, R
MABBS*4	1.55460	20.96460	16.72530	21.8	G68437	02/12/96	BALANCE #24, R
MABBS*5	1.55500	23.91670	19.03190	21.8	G68437	02/12/96	BALANCE #24, R
MABBS*6	1.55000	16.78950	13.41340	22.2	G68437	02/12/96	BALANCE #24, R
MABBS*7	1.57210	18.85440	13.73600	29.6	G68437	02/12/96	BALANCE #24, R
MABBS*8	1.56280	17.28200	10.80320	41.2	G68437	02/12/96	BALANCE #24, R
MABBS*9	1.56850	20.69050	14.14200	34.2	G68437	02/12/96	BALANCE #24, R
MABBS*10	1.55070	22.23080	17.34380	23.6	G68437	02/12/96	BALANCE #24, R
MABBS*11	1.55630	17.36820	12.85740	28.5	G68437	02/12/96	BALANCE #24, R

Updated by 2705

PROBLEM:
Sample matrix spike not within acceptance criteria:
1003*7060-G
EXPLANATION: POSSIBLE MATRIX INTERFERENCE.
PROBLEM:
Sample matrix spike duplicate not within acceptance criteria:
1003*7060-G
EXPLANATION: POSSIBLE MATRIX INTERFERENCE.
PROBLEM:
Analytical spike not present:
EXPLANATION: NA SERIAL DILUTION REQUIRED.

for Marlene Banner

Analyst [signature] DATE 2/19/96

Reviewer [signature] DATE 2/20/96

AR302728

~~1200~~ LMS 2/19/96 WJ

Analyst: Marlene Bannec Date: 2/16/96 Element As Inst. S10D-N Book: 44 Pg: 13 12

Print #	Sample I. D.	Time	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	11:37	-0.0000	---		
2	Standard 1	11:43	0.0121	---		High RSD Rem Sa # 8
3	Standard 2	11:48	0.0235	4.8		
4	Standard 3	11:53	0.0423	8.9		
5	Standard 4	11:58	0.1085	24.9		
6	Standard 5	12:03	0.1846	42.5		
7	Standard 6	12:09	0.3794	98.2		
8	Standard 1	13:05	0.0120	3.2		High RSD Rem Sa # 10
9	Standard 1	13:10	0.0108	2.8		
10	Standard 1	13:19	0.0109	2.9		CC = 0.99877 (Linear)
11	ICV*HIPURITY*1	13:25	0.2025	53.2	50.0	106.4% Linear
12	MB*REAGENT*1	13:32	-0.0010	-0.3		-
13	MB*QC*1	13:37	-0.0027	-0.7		
14	SP*QC*1	13:42	0.1605	42.1	40.0	105.2% Linear
15	MABBS*1	13:48	0.0206	5.4		
16	MABBS*2	13:53	0.0740	19.4		
17	MABBS*3	13:58	0.1899	49.8		
18	MABBS*4	14:03	0.0598	15.7		
19	MABBS*5	14:08	0.0787	20.6		
20	CCV*QC*1	14:13	0.1942	51	50.0	102% Linear
21	CCB*QC*1	14:18	-0.0017	-0.5		
22	MABBS*6	14:29	0.0150	3.9		
23	MABBS*7	14:34	0.9120	239.4		Abs. greater than high Std.
24	SPM1*MABBS*7	14:39	0.6450	169.3	40.0	Rem. Auto Sa # 32 - 34
25	SPM2*MABBS*7	14:45	0.3918	102.8	40.0	
26	MABBS*8	14:50	0.2057	54		
27	MABBS*9	14:55	0.2338	61.4		
28	MABBS*10	15:00	0.1702	44.7		
29	MABBS*11	15:05	0.3822	100.3		~~Abs. greater than high Std. Rem~~ Sa. # 37
30	CCV*QC*2	15:11	0.2002	52.5	50.0	105% Linear
31	CCB*QC*2	15:16	0.0056	1.5		
32	MABBS*7 1:10	15:24	0.1144	30		
33	SPM1*MABBS*7 1:10	15:29	0.0876	23		Auto Sampler tip
34	SPM2*MABBS*7 1:10	15:34	0.0512	13.4		Bent. Recalibrate
35	MABBS*11 1:2	15:41	0.1641	43.1		and Rerun
36	MABBS*11 1:2	15:46	0.0781	20.5		Sa. 2/19/96 DCH
37	MABBS*11 1:2	15:52	0.0836	21.9		
38	SD*MABBS*9 1:5	16:04	0.0003	0.1		
39	SD*MABBS*9 1:5	16:12	0.0242	6.4		
40	MABBS*9	16:19	0.0986	25.9		
41	MABBS*8 1:5	16:24	0.0149	3.9		
42	MABBS*8 1:5	16:29	0.0142	3.7		
43	CCV*QC*3	16:35	-0.0012	-0.3		
44	~~CCV~~ CCB*QC*3	16:41	-0.0032	-0.8		

~~100min~~

LMS 2/19/96 WJ

AR302729

~~1208~~ UMS 2/19/96 WI

Analyst: Lisa Swayne Date: 2/19/96 Element: As Inst: S100-A Book: 44 Pg: 13

Print #	Sample I. D.	Time	Peak Area	Conc. (ppb)	Target (ppb)	Comments
1	Calib. Blank	14:55	0.0026	0.8		
2	Standard 1	15:01	0.0153	4.4		
3	Standard 2	15:06	0.0246	4		
4	Standard 3	15:11	0.0489	9.4		
5	Standard 4	15:16	0.1164	23.4		
6	Standard 5	15:22	0.2217	47.1		
7	Standard 6	15:27	0.4297	95.4		CC = 0.99940 (Linear)
8	ICV*HIPURITY*2	15:33	0.2012	46.3	50.0	92.6% rec
9	MB	15:38	0.0062	1.4		Run to Verification on
10	SP1	15:43	0.1609	37	40.0	92.5% rec Data note
11	MABBS*7 1:10	15:48	0.0976	22.4		22.4 x 10 = 224
12	SPM1*MABBS*7 1:10	15:53	0.0837	19.3	40.0	19.3 x 10 = 193
13	SPM2*MABBS*7 1:10	15:58	0.0492	11.3	40.0	11.3 x 10 = 113
14	MABBS*11 1:2	16:04	0.1894	43.5		43.5 x 2 = 87
15	SD*MABBS*9 1:5	16:09	0.0565	13		13 x 5 = 105 ± 10.4 = 105.9% rec
16	CCV*QC*3	16:14	0.1968	45.3	50.0	90.6% rec
17	CCB*QC*3	16:19	0.0027	0.6		

~~10min~~ UMS 2/19/96 WI

AR302730

ment File: AS_FURN.GEL Element: As Wavelength: 193.9
e: 02/16/96 Time: 11:35 Slit: 0.70 L
a File: A:AS_2_16.DAT ID/Wt File: UNTITLED Lamp Current: 0
hnique: HGA Calib. Type: Linear Energy: 49
ark 1: MABBS*1-11
rk 2: Analyzed by: MARLENE BANNER
ark 3: FEBRUARY 16, 1996 Data On: BOB 2
ark 4: 5100-A Power Supply: System II-B
ark 5: Lamp No. 3524 (EDL) Modifier: 500 PPM PD(NO3)2

ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 02/16/96

licate 1 Time: 11:37
k Area (A-s): 0.003 Peak Height (A): 0.023
kground Pk Area (A-s): 0.007 Background Pk Height (A): 0.019
ank Corrected Pk Area (A-s): 0.001

licate 2 Time: 11:40
k Area (A-s): 0.001 Peak Height (A): 0.030
kground Pk Area (A-s): 0.012 Background Pk Height (A): 0.017
ank Corrected Pk Area (A-s): -0.001

an Pk Area (A-s): -0.000 SD: 0.0013 RSD(%): 7481.19

to-zero performed.

ID: Standard 1 Seq. No.: 00002 A/S Pos.: 1 Date: 02/16/96

licate 1 Time: 11:43
Area (A-s): 0.011 Peak Height (A): 0.028
kground Pk Area (A-s): 0.008 Background Pk Height (A): 0.017
ank Corrected Pk Area (A-s): 0.009

licate 2 Time: 11:45
k Area (A-s): 0.017 Peak Height (A): 0.033
kground Pk Area (A-s): 0.005 Background Pk Height (A): 0.018
ank Corrected Pk Area (A-s): 0.015

an Pk Area (A-s): 0.012 SD: 0.0046 RSD(%): 37.84

andard number 1 applied. [2.5]
rrelation coefficient: 1.00000 Slope: 0.0049

ID: Standard 2 Seq. No.: 00003 A/S Pos.: 1 Date: 02/16/96

licate 1 Time: 11:48
k Area (A-s): 0.024 Peak Height (A): 0.053
kground Pk Area (A-s): 0.005 Background Pk Height (A): 0.021
ank Corrected Pk Area (A-s): 0.023
ncentration (ug/L): 4.7

licate 2 Time: 11:51
k Area (A-s): 0.026 Peak Height (A): 0.048
kground Pk Area (A-s): 0.005 Background Pk Height (A): 0.015
ank Corrected Pk Area (A-s): 0.024

AR302731

Concentration (ug/L): 5.0

ean Conc (ug/L): 4.8 SD: 0.22 RSD(%): 4.56

Standard number 2 applied. [5.0]
orrelation coefficient: 0.99919 Slope: 0.0047

---

s ID: Standard 3 Seq. No.: 00004 A/S Pos.: 1 Date: 02/16/9

Replicate 1 Time: 11:53
eak Area (A-s): 0.046 Peak Height (A): 0.087
ackground Pk Area (A-s): 0.004 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.044
Concentration (ug/L): 9.3

Replicate 2 Time: 11:56
Peak Area (A-s): 0.042 Peak Height (A): 0.089
ackground Pk Area (A-s): 0.004 Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.040
Concentration (ug/L): 8.5

ean Conc (ug/L): 8.9 SD: 0.57 RSD(%): 6.36

Standard number 3 applied. [10.0]
orrelation coefficient: 0.99444 Slope: 0.0044

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s ID: Standard 4 Seq. No.: 00005 A/S Pos.: 2 Date: 02/16/

Replicate 1 Time: 11:58
Peak Area (A-s): 0.108 Peak Height (A): 0.215
ackground Pk Area (A-s): 0.013 Background Pk Height (A): 0.025
Blank Corrected Pk Area (A-s): 0.106
Concentration (ug/L): 24.3

eplicate 2 Time: 12:01
Peak Area (A-s): 0.112 Peak Height (A): 0.211
ackground Pk Area (A-s): 0.013 Background Pk Height (A): 0.023
lank Corrected Pk Area (A-s): 0.111
Concentration (ug/L): 25.4

ean Conc (ug/L): 24.9 SD: 0.73 RSD(%): 2.95

Standard number 4 applied. [25.0]
orrelation coefficient: 0.99946 Slope: 0.0043

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s ID: Standard 5 Seq. No.: 00006 A/S Pos.: 2 Date: 02/16/

Replicate 1 Time: 12:03
Peak Area (A-s): 0.185 Peak Height (A): 0.354
ackground Pk Area (A-s): 0.017 Background Pk Height (A): 0.032
Blank Corrected Pk Area (A-s): 0.183
Concentration (ug/L): 42.2

eplicate 2 Time: 12:06
Peak Area (A-s): 0.188 Peak Height (A): 0.375
ackground Pk Area (A-s): 0.011 Background Pk Height (A): 0.024

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ank Corrected Pk Area (A-s): 0.186
ncentration (ug/L): 42.8

an Conc (ug/L): 42.5 SD: 0.48 RSD(%): 1.13

andard number 5 applied. [50.0]
rrelation coefficient: 0.99452 Slope: 0.0039

ID: Standard 6 Seq. No.: 00007 A/S Pos.: 3 Date: 02/16/96

plicate 1 Time: 12:09
ak Area (A-s): 0.385 Peak Height (A): 0.725
ckground Pk Area (A-s): 0.022 Background Pk Height (A): 0.044
ank Corrected Pk Area (A-s): 0.383
ncentration (ug/L): 99.2

plicate 2 Time: 12:11
ak Area (A-s): 0.377 Peak Height (A): 0.728
ckground Pk Area (A-s): 0.025 Background Pk Height (A): 0.048
ank Corrected Pk Area (A-s): 0.376
ncentration (ug/L): 97.3

an Conc (ug/L): 98.2 SD: 1.35 RSD(%): 1.38

andard number 6 applied. [100.0]
rrelation coefficient: 0.99875 Slope: 0.0038

ID: Standard 1 Seq. No.: 00008 A/S Pos.: 1 Date: 02/16/96

plicate 1 Time: 13:05
k Area (A-s): 0.017 Peak Height (A): 0.039
ckground Pk Area (A-s): 0.004 Background Pk Height (A): 0.021
ank Corrected Pk Area (A-s): 0.015
ncentration (ug/L): 4.0

plicate 2 Time: 13:07
ak Area (A-s): 0.010 Peak Height (A): 0.045
ckground Pk Area (A-s): 0.007 Background Pk Height (A): 0.021
ank Corrected Pk Area (A-s): 0.009
ncentration (ug/L): 2.3

an Conc (ug/L): 3.2 SD: 1.25 RSD(%): 39.71

andard number 1 applied. [2.5]
rrelation coefficient: 0.99875 Slope: 0.0038

ID: Standard 1 Seq. No.: 00009 A/S Pos.: 1 Date: 02/16/96

plicate 1 Time: 13:10
ak Area (A-s): 0.007 Peak Height (A): 0.031
ckground Pk Area (A-s): 0.005 Background Pk Height (A): 0.021
ank Corrected Pk Area (A-s): 0.0[illegible]
ncentration (ug/L): 1.5

plicate 2 Time: 13:13
ak Area (A-s): 0.018 Peak Height (A): 0.042

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Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.017
lank Corrected Pk Area (A-s): 0.016
oncentration (ug/L): 4.2

Mean Conc (ug/L): 2.8 SD: 1.86 RSD(%): 65.66

standard number 1 applied. [2.5]
Correlation coefficient: 0.99877 Slope: 0.0038

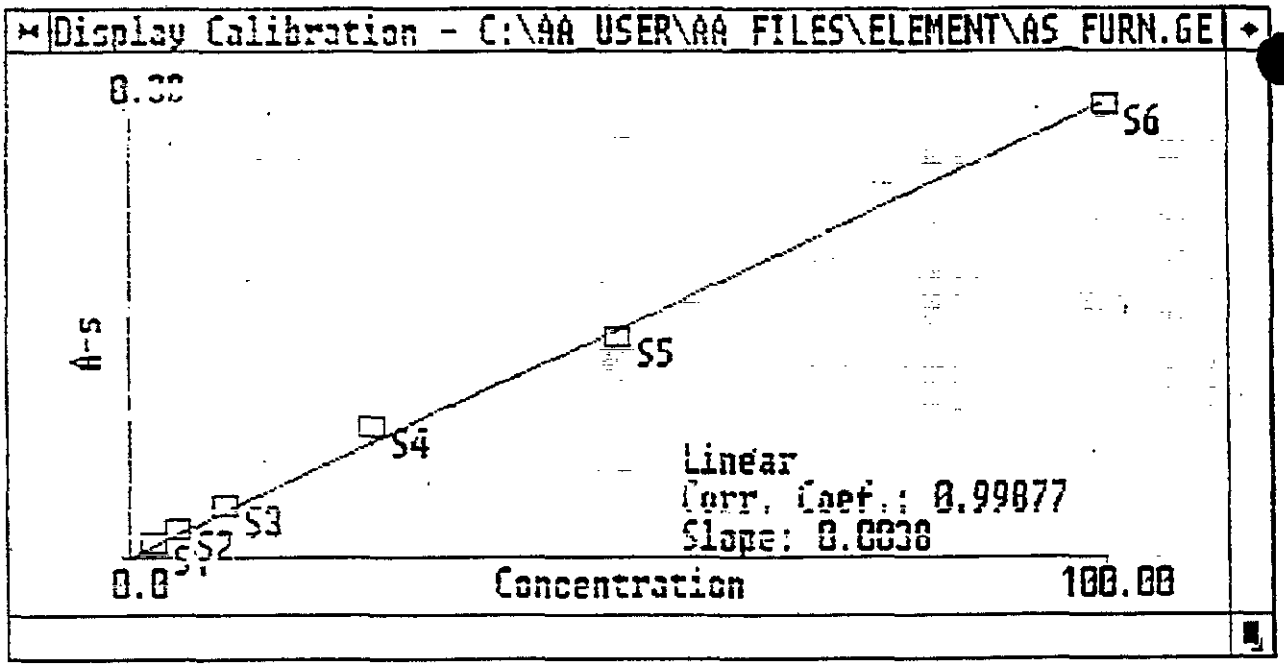
As ID: Standard 1 Seq. No.: 00010 A/S Pos.: 1 Date: 02/16/9

eplicate 1 Time: 13:19
Peak Area (A-s): 0.011 Peak Height (A): 0.041
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.017
lank Corrected Pk Area (A-s): 0.010
oncentration (ug/L): 2.6

eplicate 2 Time: 13:21
eak Area (A-s): 0.014 Peak Height (A): 0.035
Background Pk Area (A-s): 0.007 Background Pk Height (A): 0.019
lank Corrected Pk Area (A-s): 0.012
oncentration (ug/L): 3.2

Mean Conc (ug/L): 2.9 SD: 0.44 RSD(%): 15.52

tandard number 1 applied. [2.5]
orrelation coefficient: 0.99877 Slope: 0.0038



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s ID: ICV*HIPURITY*1 Seq. No.: 00011 A/S Pos.: 4 Date: 02/16/

eplicate Time: [illegible]
eak Area (A-s): [illegible] Peak Height (A): 0.400
Background Pk Area (A-s): 0.015 Background Pk Height (A): 0.032

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.ank Corrected Pk Area (A-s): 0.201
ɔncentration (ug/L): 52.7

eplicate 2 Time: 13:27
eak Area (A-s): 0.206 Peak Height (A): 0.387
ackground Pk Area (A-s): 0.013 Background Pk Height (A): 0.035
ank Corrected Pk Area (A-s): 0.204
ncentration (ug/L): 53.6

ean Conc (ug/L): 53.2 SD: 0.64 RSD(%): 1.21

; ID: MB*REAGENT*1 Seq. No.: 00012 A/S Pos.: 5 Date: 02/16/96

eplicate 1 Time: 13:32
eak Area (A-s): 0.003 Peak Height (A): 0.025
ackground Pk Area (A-s): 0.003 Background Pk Height (A): 0.015
lank Corrected Pk Area (A-s): 0.002
ɔncentration (ug/L): 0.4

eplicate 2 Time: 13:34
eak Area (A-s): -0.002 Peak Height (A): 0.021
ackground Pk Area (A-s): 0.009 Background Pk Height (A): 0.020
lank Corrected Pk Area (A-s): -0.004
ɔncentration (ug/L): -0.9

ean Conc (ug/L): -0.3 SD: 0.98 RSD(%): 390.77

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s ID: MB*QC*1 Seq. No.: 00013 A/S Pos.: 6 Date: 02/16/96

eplicate 1 Time: 13:37
k Area (A-s): -0.006 Peak Height (A): 0.016
ackground Pk Area (A-s): 0.008 Background Pk Height (A): 0.019
lank Corrected Pk Area (A-s): -0.007
oncentration (ug/L): -1.9

eplicate 2 Time: 13:39
eak Area (A-s): 0.004 Peak Height (A): 0.017
ackground Pk Area (A-s): 0.004 Background Pk Height (A): 0.021
lank Corrected Pk Area (A-s): 0.002
oncentration (ug/L): 0.5

ean Conc (ug/L): -0.7 SD: 1.70 RSD(%): 239.46

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s ID: SP*QC*1 Seq. No.: 00014 A/S Pos.: 7 Date: 02/16/96

eplicate 1 Time: 13:42
eak Area (A-s): 0.165 Peak Height (A): 0.313
ackground Pk Area (A-s): 0.012 Background Pk Height (A): 0.024
lank Corrected Pk Area (A-s): 0.164
oncentration (ug/L): 42.9

eplicate 2 Time: 13:44
eak Area (A-s): 0.159 Peak Height (A): 0.321
ackground Pk Area (A-s): 0.015 Background Pk Height (A): 0.029
ank Corrected Pk Area (A-s): 0.158
ɔncentration (ug/L): 41.3

Mean Conc (ug/L): 42.1 SD: 1.11 RSD(%): 2.64

As ID: MABBS*1 Seq. No.: 00015 A/S Pos.: 8 Date: 02/16/9

Replicate 1 Time: 13:48
Peak Area (A-s): 0.023 Peak Height (A): 0.066
Background Pk Area (A-s): 0.868 Background Pk Height (A): 0.572
Blank Corrected Pk Area (A-s): 0.022
Concentration (ug/L): 5.7

Replicate 2 Time: 13:50
Peak Area (A-s): 0.021 Peak Height (A): 0.075
Background Pk Area (A-s): 0.915 Background Pk Height (A): 0.584
Blank Corrected Pk Area (A-s): 0.019
Concentration (ug/L): 5.1

Mean Conc (ug/L): 5.4 SD: 0.43 RSD(%): 7.85

As ID: MABBS*2 Seq. No.: 00016 A/S Pos.: 9 Date: 02/16/9

Replicate 1 Time: 13:53
Peak Area (A-s): 0.075 Peak Height (A): 0.141
Background Pk Area (A-s): 0.916 Background Pk Height (A): 0.599
Blank Corrected Pk Area (A-s): 0.073
Concentration (ug/L): 19.1

Replicate 2 Time: 13:55
Peak Area (A-s): 0.077 Peak Height (A): 0.181
Background Pk Area (A-s): 1.005 Background Pk Height (A): 0.678
Blank Corrected Pk Area (A-s): 0.075
Concentration (ug/L): 19.7

Mean Conc (ug/L): 19.4 SD: 0.43 RSD(%): 2.20

As ID: MABBS*3 Seq. No.: 00017 A/S Pos.: 10 Date: 02/16/

Replicate 1 Time: 13:58
Peak Area (A-s): 0.189 Peak Height (A): 0.293
Background Pk Area (A-s): 1.235 Background Pk Height (A): 0.780
Blank Corrected Pk Area (A-s): 0.187
Concentration (ug/L): 49.2

Replicate 2 Time: 14:00
Peak Area (A-s): 0.194 Peak Height (A): 0.375
Background Pk Area (A-s): 1.281 Background Pk Height (A): 0.806
Blank Corrected Pk Area (A-s): [illegible]
Concentration (ug/L): [illegible]

Mean Conc (ug/L): 48.8 SD: 0.95 RSD(%): 1.90

As ID: MABBS*4 Seq. No.: 00018 A/S Pos.: 11 Date: 02/16,

Replicate 1 Time: 14:03
Peak Area (A-s): 0.057 Peak Height (A): 0.179
Background Pk Area (A-s): 1.226 Background Pk Height (A): 0.881

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.ank Corrected Pk Area (A-s): 0.055
oncentration (ug/L): 14.5

eplicate 2 Time: 14:06
eak Area (A-s): 0.066 Peak Height (A): 0.198
ackground Pk Area (A-s): 1.201 Background Pk Height (A): 0.829
nk Corrected Pk Area (A-s): 0.064
ncentration (ug/L): 16.8

ean Conc (ug/L): 15.7 SD: 1.61 RSD(%): 10.24

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s ID: MABBS*5 Seq. No.: 00019 A/S Pos.: 12 Date: 02/16/96

eplicate 1 Time: 14:08
eak Area (A-s): 0.079 Peak Height (A): 0.107
ackground Pk Area (A-s): 0.889 Background Pk Height (A): 0.530
lank Corrected Pk Area (A-s): 0.077
oncentration (ug/L): 20.2

eplicate 2 Time: 14:11
eak Area (A-s): 0.082 Peak Height (A): 0.102
ackground Pk Area (A-s): 0.873 Background Pk Height (A): 0.536
lank Corrected Pk Area (A-s): 0.080
oncentration (ug/L): 21.1

ean Conc (ug/L): 20.6 SD: 0.58 RSD(%): 2.82

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s ID: CCV*QC*1 Seq. No.: 00020 A/S Pos.: 13 Date: 02/16/96

plicate 1 Time: 14:13
k Area (A-s): 0.195 Peak Height (A): 0.322
ackground Pk Area (A-s): 0.057 Background Pk Height (A): 0.257
lank Corrected Pk Area (A-s): 0.193
oncentration (ug/L): 50.7

eplicate 2 Time: 14:16
eak Area (A-s): 0.197 Peak Height (A): 0.341
ackground Pk Area (A-s): 0.016 Background Pk Height (A): 0.029
lank Corrected Pk Area (A-s): 0.195
oncentration (ug/L): 51.3

ean Conc (ug/L): 51.0 SD: 0.40 RSD(%): 0.79

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s ID: CCB*QC*1 Seq. No.: 00021 A/S Pos.: 14 Date: 02/16/96

eplicate 1 Time: 14:18
eak Area (A-s): -0.000 Peak Height (A): 0.025
ackground Pk Area (A-s): 0.012 Background Pk Height (A): 0.020
lank Corrected Pk Area (A-s): -0.002
oncentration (ug/L): -0.5

eplicate 2 Time: 14:21
eak Area (A-s): -0.000 Peak Height (A): 0.020
ackground Pk Area (A-s): 0.006 Background Pk Height (A): 0.018
ank Corrected Pk Area (A-s): -0.001
oncentration (ug/L): -0.4

Mean Conc (ug/L): -0.5 SD: 0.13 RSD(%): 27.49

As ID: MABBS*6 Seq. No.: 00022 A/S Pos.: 15 Date: 02/16/9

eplicate 1 Time: 14:29
eak Area (A-s): 0.013 Peak Height (A): 0.087
Background Pk Area (A-s): 0.948 Background Pk Height (A): 0.743
lank Corrected Pk Area (A-s): 0.011
oncentration (ug/L): 3.0

eplicate 2 Time: 14:32
eak Area (A-s): 0.020 Peak Height (A): 0.100
Background Pk Area (A-s): 0.986 Background Pk Height (A): 0.710
lank Corrected Pk Area (A-s): 0.019
oncentration (ug/L): 4.9

Mean Conc (ug/L): 3.9 SD: 1.36 RSD(%): 34.58

As ID: MABBS*7 Seq. No.: 00023 A/S Pos.: 16 Date: 02/16/9

ample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:34
eak Area (A-s): 0.921 Peak Height (A): 0.951
ackground Pk Area (A-s): 0.556 Background Pk Height (A): 0.281
lank Corrected Pk Area (A-s): 0.919
oncentration (ug/L): 241.3

ample abs. is greater than that of the largest standard.
Replicate 2 Time: 14:37
eak Area (A-s): 0.906 Peak Height (A): 1.036
ackground Pk Area (A-s): 0.564 Background Pk Height (A): 0.300
lank Corrected Pk Area (A-s): 0.905
oncentration (ug/L): 237.4

ample abs. is greater than that of the largest standard.
Mean Conc (ug/L): 239.4 SD: 2.77 RSD(%): 1.16

As ID: SPM1*MABBS*7 Seq. No.: 00024 A/S Pos.: 17 Date: 02/16/

ample abs. is greater than that of the largest standard.
Replicate 1 Time: 14:39
eak Area (A-s): 0.545 Peak Height (A): 0.589
ackground Pk Area (A-s): 0.621 Background Pk Height (A): 0.337
lank Corrected Pk Area (A-s): 0.543
oncentration (ug/L): 142.6

ample abs. is greater than that of the largest standard.
Replicate 2 Time: 14:42
eak Area (A-s): 0.748 Peak Height (A): 0.724
ackground Pk Area (A-s): 0.638 Background Pk Height (A): 0.327
lank Corrected Pk Area (A-s): 0.747
oncentration (ug/L): 196.0

ample abs. is greater than that of the largest standard.
Mean Conc (ug/L): 169.3 SD: 37.77 RSD(%): [illegible]31

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ID: SPM2*MABBS*7 Seq. No.: 00025 A/S Pos.: 18 Date: 02/16/96

plicate 1 Time: 14:45
ak Area (A-s): 0.373 Peak Height (A): 0.378
ckground Pk Area (A-s): 0.561 Background Pk Height (A): 0.257
nk Corrected Pk Area (A-s): 0.371
ncentration (ug/L): 97.3

plicate 2 Time: 14:47
ak Area (A-s): 0.414 Peak Height (A): 0.383
ckground Pk Area (A-s): 0.499 Background Pk Height (A): 0.232
ank Corrected Pk Area (A-s): 0.413
ncentration (ug/L): 108.3

an Conc (ug/L): 102.8 SD: 7.76 RSD(%): 7.55

ID: MABBS*8 Seq. No.: 00026 A/S Pos.: 19 Date: 02/16/96

plicate 1 Time: 14:50
ak Area (A-s): 0.212 Peak Height (A): 0.384
ckground Pk Area (A-s): 1.115 Background Pk Height (A): 0.681
ank Corrected Pk Area (A-s): 0.210
ncentration (ug/L): 55.2

plicate 2 Time: 14:52
ak Area (A-s): 0.203 Peak Height (A): 0.384
ckground Pk Area (A-s): 1.145 Background Pk Height (A): 0.722
ank Corrected Pk Area (A-s): 0.201
ncentration (ug/L): 52.8

n Conc (ug/L): 54.0 SD: 1.65 RSD(%): 3.06

ID: MABBS*9 Seq. No.: 00027 A/S Pos.: 20 Date: 02/16/96

plicate 1 Time: 14:55
ak Area (A-s): 0.236 Peak Height (A): 0.477
ckground Pk Area (A-s): 1.085 Background Pk Height (A): 0.671
ank Corrected Pk Area (A-s): 0.234
ncentration (ug/L): 61.4

plicate 2 Time: 14:57
ak Area (A-s): 0.235 Peak Height (A): 0.526
ckground Pk Area (A-s): 1.078 Background Pk Height (A): 0.715
ank Corrected Pk Area (A-s): 0.234
ncentration (ug/L): 61.3

an Conc (ug/L): 61.4 SD: 0.08 RSD(%): 0.13

ID: MABBS*10 Seq. No.: 00028 A/S Pos.: 21 Date: 02/16/96

plicate 1 Time: 15:00
ak Area (A-s): 0.169 Peak Height (A): 0.334
ckground Pk Area (A-s): 1.067 Background Pk Height (A): 0.701
nk Corrected Pk Area (A-s): 0.168
ncentration (ug/L): 44.0

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Replicate [illegible] Time: 15:02
Peak Area (A-s): 0.174 Peak Height (A): 0.355
Background Pk Area (A-s): 1.072 Background Pk Height (A): 0.711
Blank Corrected Pk Area (A-s): 0.173
Concentration (ug/L): 45.3

Mean Conc (ug/L): 44.7 SD: 0.90 RSD(%): 2[illegible]

[illegible]s ID: MABBS*11 Seq. No.: 00029 A/S Pos.: 22 Date: 02/16/

Replicate 1 Time: 15:05
Peak Area (A-s): 0.375 Peak Height (A): 0.689
Background Pk Area (A-s): 1.463 Background Pk Height (A): 0.908
Blank Corrected Pk Area (A-s): 0.373
Concentration (ug/L): 98.0

Replicate 2 Time: 15:07
Peak Area (A-s): 0.393 Peak Height (A): 0.594
Background Pk Area (A-s): 1.451 Background Pk Height (A): 0.853
Blank Corrected Pk Area (A-s): 0.391
Concentration (ug/L): 102.7

Mean Conc (ug/L): 100.3 SD: 3.32 RSD(%): 3.31

[illegible]s ID: CCV*QC*2 Seq. No.: 00030 A/S Pos.: 23 Date: 02/16/

Replicate 1 Time: 15:11
Peak Area (A-s): 0.204 Peak Height (A): 0.339
Background Pk Area (A-s): 0.058 Background Pk Height (A): 0.107
Blank Corrected Pk Area (A-s): 0.203
Concentration (ug/L): 53.2

Replicate 2 Time: 15:13
Peak Area (A-s): 0.199 Peak Height (A): 0.403
Background Pk Area (A-s): 0.020 Background Pk Height (A): 0.038
Blank Corrected Pk Area (A-s): 0.198
Concentration (ug/L): 51.9

Mean Conc (ug/L): 52.5 SD: 0.95 RSD(%): 1.82

[illegible]s ID: CCB*QC*2 Seq. No.: 00031 A/S Pos.: 24 Date: 02/16/

Replicate 1 Time: 15:16
Peak Area (A-s): 0.009 Peak Height (A): 0.022
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.007
Concentration (ug/L): 2.0

Replicate 2 Time: [illegible]
Peak Area (A-s): 0.005 Peak Height (A): 0.017
Background Pk Area (A-s): 0.008 Background Pk Height (A): 0.017
Blank Corrected Pk Area (A-s): 0.004
Concentration (ug/L): 1.0

Mean Conc (ug/L): 1.5 SD: 0.71 RSD(%): [illegible]5

AR302740

ID: MABBS*7 1:10 Seq. No.: 00032 A/S Pos.: 16 Date: 02/16/96

plicate 1 Time: 15:24
ak Area (A-s): 0.115 Peak Height (A): 0.140
ckground Pk Area (A-s): 0.067 Background Pk Height (A): 0.056
nk Corrected Pk Area (A-s): 0.113
ncentration (ug/L): 29.7

plicate 2 Time: 15:26
ak Area (A-s): 0.117 Peak Height (A): 0.139
ckground Pk Area (A-s): 0.073 Background Pk Height (A): 0.054
ank Corrected Pk Area (A-s): 0.116
ncentration (ug/L): 30.3

an Conc (ug/L): 30.0 SD: 0.44 RSD(%): 1.45

ID: SPM1*MABBS*7 1:10 Seq. No.: 00033 A/S Pos.: 17 Date: 02/16/96

vms 2/19/96

plicate 1 Time: 15:29
ak Area (A-s): 0.089 Peak Height (A): 0.102
ckground Pk Area (A-s): 0.088 Background Pk Height (A): 0.061
ank Corrected Pk Area (A-s): 0.087
ncentration (ug/L): 22.9

plicate 2 Time: 15:31
ak Area (A-s): 0.089 Peak Height (A): 0.104
ckground Pk Area (A-s): 0.090 Background Pk Height (A): 0.071
ank Corrected Pk Area (A-s): 0.088
ncentration (ug/L): 23.0

n Conc (ug/L): 23.0 SD: 0.07 RSD(%): 0.32

ID: SPM2*MABBS*7 1:10 Seq. No.: 00034 A/S Pos.: 18 Date: 02/16/96

vms 2/19/96

plicate 1 Time: 15:34
ak Area (A-s): 0.053 Peak Height (A): 0.061
ckground Pk Area (A-s): 0.089 Background Pk Height (A): 0.062
ank Corrected Pk Area (A-s): 0.051
ncentration (ug/L): 13.3

plicate 2 Time: 15:36
ak Area (A-s): 0.053 Peak Height (A): 0.055
ckground Pk Area (A-s): 0.086 Background Pk Height (A): 0.061
ank Corrected Pk Area (A-s): 0.052
ncentration (ug/L): 13.5

an Conc (ug/L): 13.4 SD: 0.13 RSD(%): 0.99

ID: MABBS*11 [illegible] Seq. No.: 00035 A/S Pos.: [illegible] Date: 02/16/96

plicate 1 Time: [illegible]
ak Area (A-s): 0.212 Peak Height (A): [illegible]
ckground Pk Area (A-s): 0.668 Background Pk Height (A): 0.428
nk Corrected Pk Area (A-s): 0.210
ncentration (ug/L): 55.1

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Replicate 2 Time: 15:43
eak Area (A-s): 0.120 Peak Height (A): 0.223
ackground Pk Area (A-s): 0.395 Background Pk Height (A): 0.348
Blank Corrected Pk Area (A-s): 0.118
Concentration (ug/L): 31.0

Mean Conc (ug/L): 43.1 SD: 17.05 RSD(%): 39.58

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s ID: MABBS*11 1:2 Seq. No.: 00036 A/S Pos.: 22 Date: 02/16/9

Replicate 1 Time: 15:46
eak Area (A-s): 0.094 Peak Height (A): 0.180
Background Pk Area (A-s): 0.331 Background Pk Height (A): 0.300
Blank Corrected Pk Area (A-s): 0.092
oncentration (ug/L): 24.2

Replicate 2 Time: 15:48
eak Area (A-s): 0.066 Peak Height (A): 0.148
ackground Pk Area (A-s): 0.205 Background Pk Height (A): 0.219
Blank Corrected Pk Area (A-s): 0.064
Concentration (ug/L): 16.8

Mean Conc (ug/L): 20.5 SD: 5.25 RSD(%): 25.62

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s ID: MABBS*11 1:2 Seq. No.: 00037 A/S Pos.: 22 Date: 02/16/9

eplicate 1 Time: 15:52
eak Area (A-s): 0.076 Peak Height (A): 0.137
Background Pk Area (A-s): 0.207 Background Pk Height (A): 0.176
lank Corrected Pk Area (A-s): 0.074
oncentration (ug/L): 19.4

eplicate 2 Time: 15:54
eak Area (A-s): 0.095 Peak Height (A): 0.213
ackground Pk Area (A-s): 0.312 Background Pk Height (A): 0.281
lank Corrected Pk Area (A-s): 0.093
oncentration (ug/L): 24.5

ean Conc (ug/L): 21.9 SD: 3.57 RSD(%): 16.25

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s ID: SD*MABBS*9 1:5 Seq. No.: 00038 A/S Pos.: 20 Date: 02/16/

eplicate 1 Time: 16:04
eak Area (A-s): 0.006 Peak Height (A): 0.024
ackground Pk Area (A-s): 0.004 Background Pk Height (A): 0.022
lank Corrected Pk Area (A-s): 0.004
oncentration (ug/L): 1.2

eplicate 2 Time: 16:06
eak Area (A-s): -0.002 Peak Height (A): 0.021
ackground Pk Area (A-s): 0.003 Background Pk Height (A): 0.018
lank Corrected Pk Area (A-s): -0.004
oncentration (ug/L): -1.0

ean Conc (ug/L): 0.1 SD: 1.57 RSD(%): 2[illegible]6.

AR302742

ID: SD*MABBS*9 1:5 Seq. No.: 00039 A/S Pos.: 20 Date: 02/16/96

plicate 1 Time: 16:12
ak Area (A-s): 0.024 Peak Height (A): 0.064
ckground Pk Area (A-s): 0.075 Background Pk Height (A): 0.069
nk Corrected Pk Area (A-s): 0.022
ncentration (ug/L): 5.8

plicate 2 Time: 16:14
ak Area (A-s): 0.028 Peak Height (A): 0.062
ckground Pk Area (A-s): 0.069 Background Pk Height (A): 0.078
ank Corrected Pk Area (A-s): 0.026
ncentration (ug/L): 6.9

an Conc (ug/L): 6.4 SD: 0.76 RSD(%): 11.89

ID: MABBS*9 Seq. No.: 00040 A/S Pos.: 20 Date: 02/16/96

plicate 1 Time: 16:19
ak Area (A-s): 0.099 Peak Height (A): 0.231
ckground Pk Area (A-s): 0.425 Background Pk Height (A): 0.422
ank Corrected Pk Area (A-s): 0.098
ncentration (ug/L): 25.7

plicate 2 Time: 16:21
ak Area (A-s): 0.101 Peak Height (A): 0.254
ckground Pk Area (A-s): 0.495 Background Pk Height (A): 0.483
ank Corrected Pk Area (A-s): 0.099
ncentration (ug/L): 26.1

an Conc (ug/L): 25.9 SD: 0.28 RSD(%): 1.09

ID: MABBS*8 1:5 Seq. No.: 00041 A/S Pos.: 19 Date: 02/16/96

plicate 1 Time: 16:24
ak Area (A-s): 0.013 Peak Height (A): 0.034
ckground Pk Area (A-s): 0.044 Background Pk Height (A): 0.063
ank Corrected Pk Area (A-s): 0.012
ncentration (ug/L): 3.1

plicate 2 Time: 16:27
ak Area (A-s): 0.020 Peak Height (A): 0.074
ckground Pk Area (A-s): 0.074 Background Pk Height (A): 0.078
ank Corrected Pk Area (A-s): 0.018
ncentration (ug/L): 4.8

an Conc (ug/L): 3.9 SD: 1.21 RSD(%): 30.84

ID: MABBS*8 1:5 Seq. No.: 00042 A/S Pos.: 19 Date: 02/16/96

plicate 1 Time: 16:29
ak Area (A-s): 0.029 Peak Height (A): 0.067
ckground Pk Area (A-s): 0.089 Background Pk Height (A): 0.095
ank Corrected Pk Area (A-s): 0.027
ncentration (ug/L): 7.2

Replicate 2 Time: 16:32
Peak Area (A-s): 0.003 Peak Height (A): 0.021
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.019
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.3

Mean Conc (ug/L): 3.7 SD: 4.84 RSD(%): 1[illegible].5

As ID: CCV*QC*3 Seq. No.: 00043 A/S Pos.: 23 Date: 02/16/

Replicate 1 Time: 16:35
Peak Area (A-s): -0.004 Peak Height (A): 0.017
Background Pk Area (A-s): 0.005 Background Pk Height (A): 0.020
Blank Corrected Pk Area (A-s): -0.006
Concentration (ug/L): -1.5

Replicate 2 Time: 16:38
Peak Area (A-s): 0.005 Peak Height (A): 0.020
Background Pk Area (A-s): -0.002 Background Pk Height (A): 0.021
Blank Corrected Pk Area (A-s): 0.003
Concentration (ug/L): 0.9

Mean Conc (ug/L): -0.3 SD: 1.69 RSD(%): 535.2

As ID: ~~CCV~~ CCB*QC*3 Seq. No.: 00044 A/S Pos.: 23 Date: 02/16/

Ums 2/19/90 WT

Replicate 1 Time: 16:41
Peak Area (A-s): -0.003 Peak Height (A): 0.022
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.013
Blank Corrected Pk Area (A-s): -0.005
Concentration (ug/L): -1.2

Replicate 2 Time: 16:43
Peak Area (A-s): -0.000 Peak Height (A): 0.016
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.019
Blank Corrected Pk Area (A-s): -0.002
Concentration (ug/L): -0.5

Mean Conc (ug/L): -0.8 SD: 0.50 RSD(%): 58.7[illegible]

ement File: AS_FURN.GEL Element: As Wavelength: 193.9
te: 02/19/96 Time: 14:53 Slit: 0.70 L
ta File: A:AS_02_19.DAT ID/Wt File: AS.IDW Lamp Current: 0
chnique: HGA Calib. Type: Linear Energy: 49
mark 1: MABBS*1-11 RERUNS
mark 2: Analyzed by: LISA SWAYZE
mark 3: FEBRUARY 19, 1996 Data On: RAM 4
mark 4: 5100-A Power Supply: System II-B
mark 5: Lamp No. 536 (EDL) Modifier: 500 PPM PD(NO3)2

ID: Calib. Blank Seq. No.: 00001 A/S Pos.: 36 Date: 02/19/96

plicate 1 Time: 14:55
eak Area (A-s): 0.003 Peak Height (A): 0.023
ckground Pk Area (A-s): 0.000 Background Pk Height (A): 0.016
ank Corrected Pk Area (A-s): 0.005
oncentration (ug/L): 1.6

plicate 2 Time: 14:58
eak Area (A-s): -0.003 Peak Height (A): 0.017
ckground Pk Area (A-s): 0.000 Background Pk Height (A): 0.017
ank Corrected Pk Area (A-s): -0.000
oncentration (ug/L): -0.0

ean Conc (ug/L): 0.8 SD: 1.13 RSD(%): 149.50

uto-zero performed.

ID: Standard 1 Seq. No.: 00002 A/S Pos.: 1 Date: 02/19/96

plicate 1 Time: 15:01
eak Area (A-s): 0.017 Peak Height (A): 0.048
ckground Pk Area (A-s): 0.000 Background Pk Height (A): 0.015
lank Corrected Pk Area (A-s): 0.017
oncentration (ug/L): 5.0

plicate 2 Time: 15:03
eak Area (A-s): 0.013 Peak Height (A): 0.035
ackground Pk Area (A-s): -0.001 Background Pk Height (A): 0.013
lank Corrected Pk Area (A-s): 0.013
oncentration (ug/L): 3.8

ean Conc (ug/L): 4.4 SD: 0.78 RSD(%): 17.75

tandard number 1 applied. [2.5]
orrelation coefficient: 1.00000 Slope: 0.0061

ID: Standard 2 Seq. No.: 00003 A/S Pos.: 1 Date: 02/19/96

plicate 1 Time: 15:06
eak Area (A-s): 0.025 Peak Height (A): 0.063
ackground Pk Area (A-s): 0.001 Background Pk Height (A): 0.016
lank Corrected Pk Area (A-s): 0.025
oncentration (ug/L): 4.2

AR302745

Replicate 1 Time: 15:09
Peak Area (A-s): 0.024 Peak Height (A): 0.066
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.015
Blank Corrected Pk Area (A-s): 0.024
Concentration (ug/L): 3.9

Mean Conc (ug/L): 4.0 SD: 0.20 RSD(%): 5

Standard number 2 applied. [5.0]
Correlation coefficient: 0.95513 Slope: 0.0052

---

s ID: Standard 3 Seq. No.: 00004 A/S Pos.: 1 Date: 02/19/9

Replicate 1 Time: 15:11
Peak Area (A-s): 0.048 Peak Height (A): 0.105
Background Pk Area (A-s): -0.002 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): 0.048
Concentration (ug/L): 9.3

Replicate 2 Time: 15:14
Peak Area (A-s): 0.050 Peak Height (A): 0.104
Background Pk Area (A-s): 0.001 Background Pk Height (A): 0.016
Blank Corrected Pk Area (A-s): 0.049
Concentration (ug/L): 9.5

Mean Conc (ug/L): 9.4 SD: 0.16 RSD(%): 1.73

Standard number 3 applied. [10.0]
Correlation coefficient: 0.99366 Slope: 0.0050

---

s ID: Standard 4 Seq. No.: 00005 A/S Pos.: 2 Date: 02/[illegible]/9

Replicate 1 Time: 15:16
Peak Area (A-s): 0.114 Peak Height (A): 0.266
Background Pk Area (A-s): 0.003 Background Pk Height (A): 0.025
Blank Corrected Pk Area (A-s): 0.114
Concentration (ug/L): 23.0

Replicate 2 Time: 15:19
Peak Area (A-s): 0.119 Peak Height (A): 0.262
Background Pk Area (A-s): 0.002 Background Pk Height (A): 0.022
Blank Corrected Pk Area (A-s): 0.119
Concentration (ug/L): 23.9

Mean Conc (ug/L): 23.4 SD: 0.66 RSD(%): 2.80

Standard number 4 applied. [25.0]
Correlation coefficient: 0.99862 Slope: 0.0047

---

s ID: Standard 5 Seq. No.: 00006 A/S Pos.: 2 Date: 02/19/

Replicate 1 Time: 15:22
Peak Area (A-s): 0.224 Peak Height (A): 0.462
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.034
Blank Corrected Pk Area (A-s): 0.224
Concentration (ug/L): 47.5

AR302746

plicate 2 Time: 15:24
ak Area (A-s): 0.219 Peak Height (A): 0.470
ckground Pk Area (A-s): 0.010 Background Pk Height (A): 0.037
ank Corrected Pk Area (A-s): 0.219
ncentration (ug/L): 46.6

n Conc (ug/L): 47.1 SD: 0.71 RSD(%): 1.50

andard number 5 applied. [50.0]
rrelation coefficient: 0.99901 Slope: 0.0045

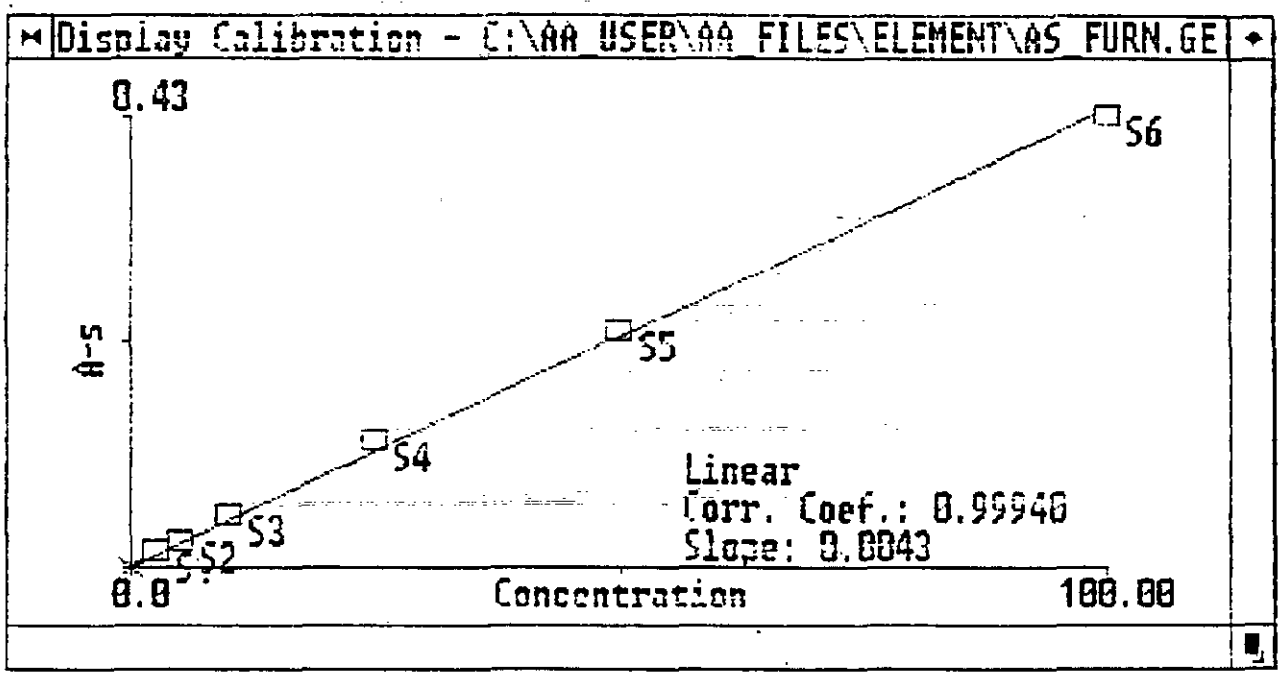
ID: Standard 6 Seq. No.: 00007 A/S Pos.: 3 Date: 02/19/96

plicate 1 Time: 15:27
ak Area (A-s): 0.431 Peak Height (A): 0.880
ckground Pk Area (A-s): 0.024 Background Pk Height (A): 0.059
ank Corrected Pk Area (A-s): 0.431
ncentration (ug/L): 95.7

plicate 2 Time: 15:29
ak Area (A-s): 0.429 Peak Height (A): 0.885
ckground Pk Area (A-s): 0.026 Background Pk Height (A): 0.064
ank Corrected Pk Area (A-s): 0.429
ncentration (ug/L): 95.2

an Conc (ug/L): 95.4 SD: 0.33 RSD(%): 0.34

andard number 6 applied. [100.0]
rrelation coefficient: 0.99940 Slope: 0.0043



ID: ICV*HIPURITY*2 Seq. No.: 00008 A/S Pos.: 4 Date: 02/19/96

plicate 1 Time: 15:33

AR302747

Peak Area (A-s): 0.201 Peak Height (A): 0.422
Background Pk Area (A-s): 0.009 Background Pk Height (A): 0.033
Blank Corrected Pk Area (A-s): 0.201
Concentration (ug/L): 46.2

Replicate 2 Time: 15:35
Peak Area (A-s): 0.202 Peak Height (A): 0.411
Background Pk Area (A-s): 0.012 Background Pk Height (A): 0.042
Blank Corrected Pk Area (A-s): 0.201
Concentration (ug/L): 46.3

Mean Conc (ug/L): 46.3 SD: 0.10 RSD(%): 0.21

ID: MB Seq. No.: 00009 A/S Pos.: 5 Date: 02/19/

Replicate 1 Time: 15:38
Peak Area (A-s): 0.007 Peak Height (A): 0.014
Background Pk Area (A-s): -0.003 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): 0.007
Concentration (ug/L): 1.6

Replicate 2 Time: 15:41
Peak Area (A-s): 0.006 Peak Height (A): 0.017
Background Pk Area (A-s): -0.006 Background Pk Height (A): 0.014
Blank Corrected Pk Area (A-s): 0.006
Concentration (ug/L): 1.3

Mean Conc (ug/L): 1.4 SD: 0.22 RSD(%): 15.07

ID: SP1 Seq. No.: 00010 A/S Pos.: 6 Date: 02/19/

Replicate 1 Time: 15:43
Peak Area (A-s): 0.159 Peak Height (A): 0.338
Background Pk Area (A-s): 0.013 Background Pk Height (A): 0.030
Blank Corrected Pk Area (A-s): 0.159
Concentration (ug/L): 36.4

Replicate 2 Time: 15:46
Peak Area (A-s): 0.163 Peak Height (A): 0.331
Background Pk Area (A-s): 0.006 Background Pk Height (A): 0.026
Blank Corrected Pk Area (A-s): 0.163
Concentration (ug/L): 37.6

Mean Conc (ug/L): 37.0 SD: 0.79 RSD(%): 2.15

ID: MABEBNT 1:10 Seq. No.: [illegible] A/S Pos.: [illegible] Date: 02/19/

Replicate 1 Time: 15:48
Peak Area (A-s): 0.095 Peak Height (A): 0.126
Background Pk Area (A-s): 0.045 Background Pk Height (A): 0.047
Blank Corrected Pk Area (A-s): 0.092
Concentration (ug/L): 21.3

Replicate 2 Time: 15:51
Peak Area (A-s): 0.103 Peak Height (A): 0.147
Background Pk Area (A-s): 0.043 Background Pk Height (A): 0.052

ank Corrected Pk Area (A-s): 0.103
ncentration (ug/L): 23.6

an Conc (ug/L): 22.4 SD: 1.66 RSD(%): 7.39

ID: SPM1*MABBS*7 1:10 Seq. No.: 00012 A/S Pos.: 8 Date: 02/19/9

VMS 2/19/96 WI

plicate 1 Time: 15:53
ak Area (A-s): 0.085 Peak Height (A): 0.109
ckground Pk Area (A-s): 0.058 Background Pk Height (A): 0.058
ank Corrected Pk Area (A-s): 0.085
ncentration (ug/L): 19.6

plicate 2 Time: 15:56
ak Area (A-s): 0.082 Peak Height (A): 0.106
ckground Pk Area (A-s): 0.064 Background Pk Height (A): 0.063
ank Corrected Pk Area (A-s): 0.082
ncentration (ug/L): 18.9

an Conc (ug/L): 19.3 SD: 0.46 RSD(%): 2.37

ID: SPM2*MABBS*7 1:10 Seq. No.: 00013 A/S Pos.: 9 Date: 02/19/96

VMS 2/19/96 WI

plicate 1 Time: 15:58
ak Area (A-s): 0.049 Peak Height (A): 0.058
ckground Pk Area (A-s): 0.061 Background Pk Height (A): 0.056
ank Corrected Pk Area (A-s): 0.049
ncentration (ug/L): 11.2

plicate 2 Time: 16:01
k Area (A-s): 0.050 Peak Height (A): 0.058
ckground Pk Area (A-s): 0.061 Background Pk Height (A): 0.064
ank Corrected Pk Area (A-s): 0.050
ncentration (ug/L): 11.5

an Conc (ug/L): 11.3 SD: 0.21 RSD(%): 1.82

ID: MABBS*11 1:2 Seq. No.: 00014 A/S Pos.: 10 Date: 02/19/96

plicate 1 Time: 16:04
ak Area (A-s): 0.189 Peak Height (A): 0.335
ckground Pk Area (A-s): 0.635 Background Pk Height (A): 0.446
ank Corrected Pk Area (A-s): 0.189
ncentration (ug/L): 43.5

plicate 2 Time: 16:06
ak Area (A-s): 0.190 Peak Height (A): 0.363
ckground Pk Area (A-s): 0.636 Background Pk Height (A): 0.439
ank Corrected Pk Area (A-s): [illegible]
ncentration (ug/L): 43.6

an Conc (ug/L): 43.5 SD: 0.10 RSD(%): 0.24

ID: SD*MABBS*9 1:5 Seq. No.: 00015 A/S Pos.: 11 Date: 02/19/

AR302749

Replicate 1 Time: 16:09
Peak Area (A-s): 0.060 Peak Height (A): 0.091
Background Pk Area (A-s): 0.158 Background Pk Height (A): 0.114
Blank Corrected Pk Area (A-s): 0.060
Concentration (ug/L): 13.7

Replicate 2 Time: 16:11
Peak Area (A-s): 0.053 Peak Height (A): 0.086
Background Pk Area (A-s): 0.153 Background Pk Height (A): 0.109
Blank Corrected Pk Area (A-s): 0.053
Concentration (ug/L): 12.2

Mean Conc (ug/L): 13.0 SD: 1.07 RSD(%): 8.20

As ID: CCV*QC*3 Seq. No.: 00016 A/S Pos.: 12 Date: 02/19/

Replicate 1 Time: 16:14
Peak Area (A-s): 0.196 Peak Height (A): 0.466
Background Pk Area (A-s): 0.007 Background Pk Height (A): 0.028
Blank Corrected Pk Area (A-s): 0.196
Concentration (ug/L): 45.1

Replicate 2 Time: 16:17
Peak Area (A-s): 0.198 Peak Height (A): 0.466
Background Pk Area (A-s): 0.010 Background Pk Height (A): 0.036
Blank Corrected Pk Area (A-s): 0.198
Concentration (ug/L): 45.4

Mean Conc (ug/L): 45.3 SD: 0.27 RSD(%): 0.59

As ID: CCB*QC*3 Seq. No.: 00017 A/S Pos.: 13 Date: 02/19/

Replicate 1 Time: 16:19
Peak Area (A-s): 0.001 Peak Height (A): 0.017
Background Pk Area (A-s): -0.003 Background Pk Height (A): 0.011
Blank Corrected Pk Area (A-s): 0.001
Concentration (ug/L): 0.3

Replicate 2 Time: 16:21
Peak Area (A-s): 0.004 Peak Height (A): 0.013
Background Pk Area (A-s): -0.001 Background Pk Height (A): 0.012
Blank Corrected Pk Area (A-s): 0.004
Concentration (ug/L): 1.0

Mean Conc (ug/L): 0.6 SD: 0.51 RSD(%): 81.58

AR302750

Other Relevant Documentation

ATOMIC SPECTROSCOPY SAMPLE PREP

Book No. 31 Pg. No. 000230

Matrix SOILS Method/QC Type GFAA/ FDER

SOP No. ASM 3233-003 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ASM 3233-003 50CNA-(12:254)	1-31-96	DVN	3-4-96
2.			

*Final Vol. (mL) 100 Pipets Used BIOHIT 1000 # 2

Balance No. 13 Hood No. 5 Hotplate No. 1

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RE BLANK	—	
ERA BLANK MB	1.0077	
SAND #58001 SP1	1.0101	1ml=1
MABBS * 1	1.0214	
2	1.0010	
3	1.0547	
4	1.0293	
5	1.0169	
6	1.0408	
7	1.0204	
7spm1	1.0117	1ml=1
7spm2	1.0329	1ml=1
8	1.0578	
9	1.0489	
10	1.0250	
11	1.0384	

David V. Vitcho 2-14-96 Signed Date

Read & Understood By 2/15/96 Date

AR302752

NAME: DAVID NICHOLS LOT NO.s: NA

DATE: 2-14-96 003

FIELD GROUP	WEIGHT	FIELD GROUP	WEIGHT
MB	1.0077		
Sp1	1.0101		
MABBS* 1	1.0214		
2	1.0010		
3	1.0547		
4	1.0293		
5	1.0169		
6	1.0408		
7	1.0204		
8	1.0578		
9	1.0489		
10	1.0250		
11	1.0384		
7#1	1.0117		
7#2	1.0329		

AR302753

ELEMENT: As METHOD # ASM3233-011 BK# 44 PG# 137A

ANALYST: Marlene Banner EMP. # 1745 DATE: 2/16/96

SAMPLES ANALYZED:

MABBS #1-11

BATCH #

C 68602

LMS 2/19/96

INSTRUMENT PARAMETERS:

Inst. model	5100-A
Wavelength	193.7
Bandwidth	0.7 nm
EDL/HCL#	3524 System II
Energy/Watts	49
Power Supply	System II-B
HGA model	1000
Tube type	pyrolytic graphite tube
Sample aliq.	20 ul
Modifier	500 ug Pd(NO3)2
Modifier aliq.	5 ul
Zeeman type	longitudinal

STANDARDS:

1000 ppm stock

Manufacturer	High Purity
Lot number	590013
Date received	5/24/95
Date expires	9/96

Working Standards

Date prep'ed:	
10 mg/L std.	1/15/96 (3:49-1a)
100 ug/L std.	2/16/96 (3:49-2a)
10 ug/L std.	2/16/96 (3:49-4a)
50 ug/L Std	2/16/96 (3:49-3a)

CCV = 50 ug/L Std = (3:49-3a)

ICV = (3:45)

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	0.002
Std.1	2.5	0.013
Std.2	5.0	0.025
Std.3	10.0	0.044
Std.4	25.0	0.110
Std.5	50.0	0.187
Std.6	100.0	0.381
Std.7		
Std.8		
c.c.:	0.9987 / 15	
Det. L.	2.5 ppb	

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	140	1300	20	2200	2600
Ramp (sec)	5	10	1	0	1
Hold (sec)	50	20	10	5	5
Read Step				x	
Gas (ml/min)	300	300	300	20	300

PREVENTATIVE MAINTENANCE/COMMENTS:

- Data on BOB 2 File: As-2-16.DAT
- Changes made to Runlog Reflect the changes made to the Raw Data.

LMS 2/19/96

READ AND UNDERSTOOD BY: Lisa Swaggo 2/19/96

AR302754

000

ELEMENT: As METHOD # ASM3233-011 BK# 44 PG# 138A

ANALYST: Lisa Sorenson EMP. # 2705 DATE: 2/19/96

SAMPLES ANALYZED:

MABBS# 1-11 reruns

BATCH #

G68602
2/19/96
VMS

INSTRUMENT PARAMETERS:

Inst. model	5100-A
Wavelength	193.9
Bandwidth	0.7 low
EDL/HCL#	536 Sys II
Energy/Watts	49
Power Supply	System I-B
HGA model	600
Tube type	pyro w/ Fixed platform
Sample aliq.	20 ul
Modifier	500 ppm Pd (NO_3)2
Modifier aliq.	5 ul
Zeeman type	longitudinal

STANDARDS:

1000 ppm stock

Manufacturer	High Purity
Lot number	590613
Date received	9/24/95
Date expires	9/96

Working Standards

Date prep'ed:	
10 mg/L std.	2/19/96 (3:60-1a)
100 ug/L std.	2/19/96 (3:60-2a)
10 ug/L std.	2/19/96 (3:60-4a)
50 ug/L Std	2/19/96 (3:60-3a)

CCV = 50 ug/L Std = (3:60-3a)

ICV = (3:45)

CALIBRATION CURVE:

	conc.	abs.
Blank	0.0	0.0
Std.1	2.5	0.015
Std.2	5.0	0.025
Std.3	10.0	0.049
Std.4	25.0	0.117
Std.5	50.0	0.222
Std.6	100.0	0.43
Std.7	/	
Std.8	/	
c.c.:	0.99940 (linear)	
Det. L.	2.5 ppb	

HGA KEYBOARD ENTRIES:

STEP	1	2	3	4	5
Temp(C)	140	1300	00	2200	2600
Ramp (sec)	5	10	1	0	1
Hold (sec)	50	20	10	5	5
Read Step				*	
Gas (ml/min)	300	300	300	20	300

PREVENTATIVE MAINTENANCE/COMMENTS:

- Data on RAM 4 File: As.02-19.0AT
- Changes made to Runlog Reflect the changes made to the Raw Data.

READ AND UNDERSTOOD BY: [signature] 2/19/96

AR302755

000138

00080

Book No. 12 Page No

ASM 3233-007 Solution "A"

Element	Stock Conc. (ppm)	Mls.	Final Conc. Used	Target (ppb)	(ppb)	Manufacturer	Lot Number	Date Expi
As	1000	4.0	4000	40	HIGH PURITY	490613		09/96
Cr	1000	2.0	2000	20	HIGH PURITY	590313		06/96
Pb	1000	2.0	2000	20	HIGH PURITY	590517		06/96
Mo	1000	2.0	2000	20	HIGH PURITY	490331		04/96
Se	1000	1.0	1000	10	HIGH PURITY	590608		09/96
Tl	1000	5.0	5000	50	HIGH PURITY	590628		09/96
V	1000	2.0	2000	20	HIGH PURITY	590331		06/96

Pipets Used: 2,4,5 mls Class "A" volumetrics; Eppendorf #166737

Final Volume = 1000 mls

Note: Solution is 1% conc. HNO_3

Solution Expires: 03/04/96

David V. [illegible] — Made by

1-31-96 — Date

[illegible] — Read & Understood by

1/3 — Date

AR302756

00

[1]As, Se, Tl, Pb--10 ppm solution and working standards

1000 ppm Stock Solutions:

Element	Manufacturer	Lot Number	Date Received	Date Expires
As	High Purity	590613	05/24/95	09/96
Se	High Purity	590608	N/A	09/96
Tl	High Purity	590628	N/A	09/96
Pb	High Purity	590517	05/24/95	06/96

10 ppm solution: 2.0 ml of each stock solution was transferred to a 200 ml volumetric flask containing 10 ml conc. HNO_3, and was brought up to volume with DI water. (Expires: 2\17\96)

Lisa Swayze — 1/15/96 — [illegible] — 1/15/96

Made by — Date — Read & Understood by — Date

****

Daily Working Standards:

[2]100 ppb - 2.0 ml of the 10 ppm solution was transferred to a 200 ml volumetric flask containing 10 ml conc. HNO_3 and was brought up to volume with DI water.

[3]50 ppb - 0.5 ml of the 10 ppm solution was transferred to a 100 ml volumetric flask containing 5.0 ml conc. HNO_3 and was brought up to volume with DI water.

[4]10 ppb - 10 ml of the 100 ppb working standard was transferred to a 100 ml volumetric flask containing 5.0 ml conc. HNO_3 and was brought up to volume with DI water.

[5]4.0 ppb - 4 ml of the 100 ppb working standard was transferred to a 100 ml volumetric flask containing 5.0 ml conc. HNO_3 and was brought up to volume with DI water.

NOTE: All standards and solutions are 5% conc. HNO_3 and are stored at room temperature.

	Signed	Date	Witnessed by	Date
a	Lisa Swayze	1/15/96	[illegible]	1/15/96
b	Lisa Swayze	1/16/96	Marlene Brown	1/16/96
c	Lisa Swayze	1/17/96	Robert W. Floyd	1/17/96
d	Robert W. Floyd	1/18/96	[illegible]	1/18/96
e	Lisa Swayze	1/19/96	[illegible]	1-19-96
f	Lisa Swayze	1/22/96	Robert W. Floyd	1/22/96
g	Lisa Swayze	1/23/96	[illegible]	1/23/96
h	[illegible]	01/25/96	Lisa Swayze	1/25/96
i	Robert W. Floyd	1/30/96	Lisa Swayze	1/30/96
j	Robert W. Floyd	1/31/96	Lisa Swayze	1/31/96
k	Robert W. Floyd	2/1/96	Lisa Swayze	2/1/96
l	Robert W. Floyd	2/2/96	Marlene Brown	2/2/96
m	Lisa Swayze	2/5/96	[illegible]	2/5/
n	Lisa Swayze	2/6/96	Robert W. Floyd	2/6/96

(Continued on back side)

/ Book No. 3 Page No. _

[1]As, Se, Tl, Pb–10 ppm solution and working standards

1000 ppm Stock Solutions:

Element	Manufacturer	Lot Number	Date Received	Date Ex
As	High Purity	590613	05/24/95	09/96
Se	High Purity	590608	N/A	09/96
Tl	High Purity	590628	N/A	09/96
Pb	High Purity	590517	05/24/95	06/96

10 ppm solution: 2.0 ml of each stock solution was transferred to a 200 ml volumetric flask cont 10 ml conc. HNO_3, and was brought up to volume with DI water. (Expires: 3\2

Lisa Swayze 2/19/96 [illegible] 2/19/96

Made by Date Read & Understood by Date

****

Daily Working Standards:

[2]100 ppb - 2.0 ml of the 10 ppm solution was transferred to a 200 ml volumetric flask containing conc. HNO_3 and was brought up to volume with DI water.

[3]50 ppb - 0.5 ml of the 10 ppm solution was transferred to a 100 ml volumetric flask containing 5 conc. HNO_3 and was brought up to volume with DI water.

[4]10 ppb - 10 ml of the 100 ppb working standard was transferred to a 100 ml volumetric containing 5.0 ml conc. HNO_3 and was brought up to volume with DI water.

[5]4.0 ppb - 4 ml of the 100 ppb working standard was transferred to a 100 ml volumetric flask cont 5.0 ml conc. HNO_3 and was brought up to volume with DI water.

NOTE: All standards and solutions are 5% conc. HNO_3 and are stored at room temperature.

Signed	Date	Witnessed by	Date
a Lisa Swayze	2/19/96	[illegible]	2/19/96
b			
c			
d			
e			
f			
g			
h			
i			
j			
k			
l			
m			
n			

AR302758

(Continued on back side)

ICV - HIGH PURITY

Stock Solution:

Manufacturer	Lot Number	Date Received	Date Expires
HIGH PURITY	491202	~~12/19/95~~ 06/21/95 WI 12/19/95	03/96

0.25 ml of the 100 ppm stock solution was transferred to a 500 ml volumetric flask containing 25 ml of conc. HNO_3 and 10 ml H_2O_2 and was diluted to volume with DI water.

Element	Stock Solution Conc. (ppm)	ICV Solution Conc. (ppb)
Sb	100	50
As	100	50
Be	100	50
Cd	100	50
Ca	100	50
Cr	100	50
Co	100	50
Cu	100	50
Fe	100	50
Pb	100	50
Mg	100	50
Mn	100	50
Mo	100	50
Ni	100	50
Se	100	50
Tl	100	50
Ti	100	50
V	100	50
Zn	100	50

Note: Solution is 5% conc. HNO_3 and 2% H_2O_2, and is stored at room temperature.

Solution Expires: 05/19/96

Made by	Date	Read & Understood by	Date
[signature]	12/19/95	[signature]	12/19/95

AR302759

ANALYTICAL DATA REPORT

submitted to

ABB

March 28, 1996

Gainesville, Florida Laboratory

AR302760

RESULTS OF ANALYSIS

Olin Chemical: Morgantown

Prepared for:
ABB
110 Free Street
Portland, ME 04112

Prepared by:
Environmental Science & Engineering, Inc.
14220 W. Newberry Road
Gainesville, Florida 32607
(352) 332-3318

March 28, 1996

ESE Lab Project No. 1295074V L206

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Case Narrative

Environmental
Science &
Engineering, Inc.
A GILCORP Company

CASE NARRATIVE

Eleven soil samples were collected on February 5, 1996. All samples were received at ESE on February 6, 1996 at 6 degrees Centigrade. All samples were analyzed as requested in the traffic forms. All samples were extracted and analyzed within EPA holding time.

Olin Chemical: Morgantown

Analysis	Lab Batch
ICAP Metals (6010)	G68559

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness except as detailed in this case narrative.

March 26, 1996

ENVIRONMENTAL SCIENCE & ENGINEERING

Richard S. Robinson
Chemistry Project Manager

P.O. Box 1703 Gainesville, FL 32602-1703 Phone (352) 332-3318 Fax (352) 333-6622

Sample History Report

Lab Sample Cross Reference and Date Report

Client ID	Lab ID	Method	Collect Date	Receipt Date	Extract Date	HT Days	Analysis Date	HT Days	Batch
R-09	MABBS*1	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
BR-09	MABBS*2	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
BR-09	MABBS*3	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
R-09	MABBS*4	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
R-09	MABBS*5	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
BR-09	MABBS*6	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
SC-02	MABBS*7	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
SC-02	MABBS*8	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
C-02	MABBS*9	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
C-02	MABBS*10	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559
SC-02	MABBS*11	ICAP Metals(6010)	02/05/96	02/06/96	NA	NA	03/22/96	180(46)	G68559

Actual days in parentheses

G8559: Icap Metals

GENERAL COMMENTS:

PROBLEM:

Sample matrix spike not within acceptance criteria:

CU

PB

EXPLANATION: Cu: UNSPIKED SAMPLE GREATER THAN FOUR TIMES THE SPIKING LEVEL

Pb: POSSIBLE INHOMOGENEITY IN SAMPLE

PROBLEM:

Sample matrix spike duplicate not within acceptance criteria:

CU

PB

EXPLANATION: Cu: UNSPIKED SAMPLE GREATER THAN FOUR TIMES THE SPIKING LEVEL

Pb: POSSIBLE INHOMOGENEITY IN SAMPLE. / CAH / 2-15-96

RSR / 2-16-96

Chains of Custody (copies)

CHAIN OF CUSTODY RECORD & ANALYSIS REQUEST

PROJECT NO.: 6778-4

PROJECT NAME: MORGANTOWN OU-1

SAMPLERS (SIGNATURE): [signature] 2-5-96

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	SAMPLE TYPE: 4 oz. Soil JAR	REMARKS: INDICATE SOIL/WATER/AIR SEDIMENT/SLUDGE
#1 BR-09	2-5-96	11:30		✓	BR-B9-08-10	1	1	SOIL
#2 BR-09	"	12:00		✓	BR-D9-08-10	1	1	SOIL
3 BR-09	"	13:45		✓	BR-C9-08-10	1	1	SOIL
4 BR-09	"	14:00		✓	BR-E9-08-10	1	1	SOIL
5 BR-09	"	01:55		✓	BR-09-07-08	1	1	SOIL
6 BR-09	"	14:00		✓	BD-E9-08-10	1	1	SOIL
7 SC-02	"	14:30		✓	SC-D2-00-04	1	1	ASH - TAR
8 SC-02	"	14:45		✓	SC-C2-00-04	1	1	ASH - TAR
9 SC-02	"	15:00		✓	SC-B2-00-04	1	1	ASH - TAR
10 SC-02	"	15:05		✓	SC-02-00-04	1	1	ASH - TAR
SC-02	2-5-96	15:40		✓	SA-22-00-04	1	1	ASH - TAR

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
[signature]	2/6/96 18:00	[signature]	2/6/96 1118		
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR DISPOSAL BY: (SIGNATURE)	DATE/TIME	REMARKS	
				ANALYZE ALL FOR METALS BY EPA 6010 TO INCLUDE ARSENIC, CADMIUM, LEAD, AND COPPER	

ARR Environmental Services, Inc.

AR302768

100

MABBS

ESE COOLER RECEIPT FORM

THIS FORM IS TO BE EXECUTED BY THE ESE SAMPLE RECEIPT CUSTODIAN WHEN PROCESSING SHIPPING CONTAINERS. ANY *NO IS TO BE DESCRIBED IN *DETAILS/COMMENTS*. IMMEDIATE DOCUMENTATION OF PROBLEMS TO THE ANALYTICAL PROJECT MANAGER WILL FACILITATE COMMUNICATION WITH THE CLIENT TO RESOLVE ANY PROBLEMS. REFER TO ACTUAL CHAIN-OF-CUSTODY AND AIRBILL (IF APPLICABLE) FOR ADDITIONAL SAMPLE DOCUMENTATION.

Project: ABB Shipping Container # (ESE / Other): _____
Received (mm/dd/yr/hr): 2/6/96 11:18 By: _____
Opened (if different) : _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an airbill/shipping slip? ..... No Yes
If applicable, carrier name & airbill #: Fed Ex 760960552 1

Were custody seals on the outside of the container? ..... *No Yes
If Yes, a: did custody seals appear tamper-free upon arrival? ..... *No Yes
b: enter Seal Date and Name (or enter "NA" if not available): 2/5/96 Tom Langley

Was the shipping container screened for radioactivity with a GM counter? ..... *No Yes
If Yes, were readings within criteria? ..... *No Yes

Was Chain of Custody (COC) documentation provided with the shipment? ..... *No Yes
If Yes, a: was COC fully executed by the shipper (in ink)? ..... *No Yes
b: did you sign the COC in the appropriate field? ..... *No Yes
c: was the project identifiable from the COC? ..... *No Yes
If No, how was this determined? _____

Were samples received within criteria of 2-6°Deg C? ..... N/A *No Yes

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... *No Yes

Did all sample containers arrive intact and sealed? ..... *No Yes
Did all sample containers have secure and completed labels? ..... *No Yes
If sample containers possessed tags, circle: Tags only Tags + Labels
Were caps of individual bottles/vials free from tape and/or custody seals? ..... No Yes
Did all labels and/or tags agree with COC? ..... *No Yes

Were all samples examined for the following or were they audited? ..... Audited All
Did pH checks confirm indicated preservations? ..... N/A *No Yes
Did volumes, containers, & preservations seem appropriate to indicated tests? ..... *No Yes
Were VOA vials (waters) free from bubbles? ..... N/A *No Yes

Was this checklist free from deficiencies requiring notification of the Lab Project Manager? (if No, note who was contacted & when in Details/Comments below) ..... *No Yes

***Details/Comments:**

_____ (over)

Source: ESE, May 1994: crlv3hp.695

AR302769

Results of Analysis

ICP - Batch G68559

COVER PAGE

Lab Name: ESE Project No.1295074V SDG No: G68559 Matrix: SOIL/SED

Analysis: G68559 = EPA 3050,6010

Client ID	Laboratory ID	Batch	Date Collected	Date Received	Analysis Date	Time
ICV1	ICV*ICAP19*1	G68559	00/00/00	00/00/00	03/22/96	1317
ICS1	ICS*A*1	G68559	00/00/00	00/00/00	03/22/96	1324
ICS2	ICS*AB*1	G68559	00/00/00	00/00/00	03/22/96	1326
ICB1	ICB*QC*1	G68559	00/00/00	00/00/00	03/22/96	1333
SP1	SP*QC*1	G68559	00/00/00	00/00/00	03/22/96	1350
BR-09	MABBS*1	G68559	02/05/96	02/06/96	03/22/96	1356
BR-09	MABBS*2	G68559	02/05/96	02/06/96	03/22/96	1358
BR-09	MABBS*3	G68559	02/05/96	02/06/96	03/22/96	1400
BR-09	MABBS*4	G68559	02/05/96	02/06/96	03/22/96	1403
BR-09	MABBS*5	G68559	02/05/96	02/06/96	03/22/96	1406
BR-09	MABBS*6	G68559	02/05/96	02/06/96	03/22/96	1409
SC-02	MABBS*7	G68559	02/05/96	02/06/96	03/22/96	1420
SC-02SD	SD*MABBS*7	G68559	02/05/96	02/06/96	03/22/96	1424
SC-02SPX	SPX*MABBS*7	G68559	02/05/96	02/06/96	03/22/96	1427
SC-02MS	SPM1*MABBS*7	G68559	02/05/96	02/06/96	03/22/96	1430
SC-02MSD	SPM2*MABBS*7	G68559	02/05/96	02/06/96	03/22/96	1432
SC-02	MABBS*8	G68559	02/05/96	02/06/96	03/22/96	1434
SC-02	MABBS*9	G68559	02/05/96	02/06/96	03/22/96	1438
SC-02	MABBS*10	G68559	02/05/96	02/06/96	03/22/96	1441
SC-02	MABBS*11	G68559	02/05/96	02/06/96	03/22/96	1444
ICS3	ICS*A*2	G68559	00/00/00	00/00/00	03/22/96	1552
ICS4	ICS*AB*2	G68559	00/00/00	00/00/00	03/22/96	1554
ICV2	ICV*ICAP19*2	G68559	00/00/00	00/00/00	03/25/96	1546
ICS5	ICS*A*3	G68559	00/00/00	00/00/00	03/25/96	1550
ICS6	ICS*AB*3	G68559	00/00/00	00/00/00	03/25/96	1552
ICB2	ICB*QC*2	G68559	00/00/00	00/00/00	03/25/96	1559
SPX1	SPX*XMABBS*7	G68559	00/00/00	00/00/00	03/25/96	1605
ICS7	ICS*A*4	G68559	00/00/00	00/00/00	03/25/96	1607
ICS8	ICS*AB*4	G68559	00/00/00	00/00/00	03/25/96	1609

Comments:
Full SDG: G68559-1

Updated by 3249. 2087

GENERAL COMMENTS:

PROBLEM:

Sample matrix spike not within acceptance criteria:

CU

PB

EXPLANATION: Cu: UNSPIKED SAMPLE GREATER THAN FOUR TIMES THE SPIKING LEVEL
Pb: POSSIBLE INHOMOGENEITY IN SAMPLE

PROBLEM:

Sample matrix spike duplicate not within acceptance criteria:

CU

PB

EXPLANATION: Cu: UNSPIKED SAMPLE GREATER THAN FOUR TIMES THE SPIKING LEVEL
Pb: POSSIBLE INHOMOGENEITY IN SAMPLE. / CAH / 2-15-96
RSR / 2-16-96

Analyst Larry Price DATE 3/26/96

Reviewer Kathy Gary DATE 3/26/96

Sample Data

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

b Name: ESE Project No.: 1295074V SDG No.: G68559

trix: (soil/water) SOIL/ Lab Sample ID: MABBS*1

mple wt/vol: 1.003 GR Lab File ID: G68559

oisture: 22.7 Dilution Factor: 1.00

ncentrated Extract Volume: 100 ML Date Received: 02/06/96

jection Volume: 1 Date Extracted: 02/14/96

me Analyzed: 1356 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.645	U
7440-50-8	COPPER	23.7	
7439-92-1	LEAD	20.5	

FORM 1
ANALYSIS DATA SHEET

Client ID
BR-09

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*2

Sample wt/vol: 1.018 GR Lab File ID: G68559

%Moisture: 22.4 Dilution Factor: 1.00

Concentrated Extract Volume: 100 ML Date Received: 02/06/96

Injection Volume: 1 Date Extracted: 02/14/96

Time Analyzed: 1358 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.633	U
7440-50-8	COPPER	18.0	
7439-92-1	LEAD	19.0	

0(

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

ab Name: ESE Project No.: 1295074V SDG No.: G68559

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*3

ample wt/vol: 1.016 GR Lab File ID: G68559

Moisture: 27.0 Dilution Factor: 1.00

oncentrated Extract Volume: 100 ML Date Received: 02/06/96

njection Volume: 1 Date Extracted: 02/14/96

ime Analyzed: 1400 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.674	U
7440-50-8	COPPER	49.3	
7439-92-1	LEAD	27.0	

AR302777

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*4

Sample wt/vol: 1.015 GR Lab File ID: G68559

%Moisture: 21.8 Dilution Factor: 1.00

Concentrated Extract Volume: 100 ML Date Received: 02/06/96

Injection Volume: 1 Date Extracted: 02/14/96

Time Analyzed: 1403 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.630	U
7440-50-8	COPPER	23.4	
7439-92-1	LEAD	13.3	

FORM 1
ANALYSIS DATA SHEET

Client ID

BR-09

b Name: ESE Project No.: 1295074V SDG No.: G68559

trix: (soil/water) SOIL/ Lab Sample ID: MABBS*5

mple wt/vol: 1.038 GR Lab File ID: G68559

oisture: 21.8 Dilution Factor: 1.00

ncentrated Extract Volume: 100 ML Date Received: 02/06/96

jection Volume: 1 Date Extracted: 02/14/96

me Analyzed: 1406 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.616	U
7440-50-8	COPPER	384.	D2
7439-92-1	LEAD	21.5	

FORM 1
ANALYSIS DATA SHEET

Client ID
BR-09

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*6

Sample wt/vol: 1.010 GR Lab File ID: G68559

%Moisture: 22.2 Dilution Factor: 1.00

Concentrated Extract Volume: 100 ML Date Received: 02/06/96

Injection Volume: 1 Date Extracted: 02/14/96

Time Analyzed: 1409 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.636	U
7440-50-8	COPPER	20.2	
7439-92-1	LEAD	12.7	U

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

Name: ESE Project No.: 1295074V SDG No.: G68559

trix: (soil/water) SOIL/ Lab Sample ID: MABBS*7

mple wt/vol: 1.035 GR Lab File ID: G68559

oisture: 29.6 Dilution Factor: 1.00

ncentrated Extract Volume: 100 ML Date Received: 02/06/96

jection Volume: 1 Date Extracted: 02/14/96

me Analyzed: 1420 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.686	U
7440-50-8	COPPER	671.	D3
7439-92-1	LEAD	169.	

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

Matrix: (soil/water) SOIL/ Lab Sample ID: MABBS*8

Sample wt/vol: 1.036 GR Lab File ID: G68559

%Moisture: 41.2 Dilution Factor: 1.00

Concentrated Extract Volume: 100 ML Date Received: 02/06/96

Injection Volume: 1 Date Extracted: 02/14/96

Time Analyzed: 1434 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.821	U
7440-50-8	COPPER	2300.	D10
7439-92-1	LEAD	57.9	

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

Name: ESE Project No.: 1295074V SDG No.: G68559

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*9

ample wt/vol: 1.022 GR Lab File ID: G68559

Moisture: 34.2 Dilution Factor: 1.00

oncentrated Extract Volume: 100 ML Date Received: 02/06/96

njection Volume: 1 Date Extracted: 02/14/96

ime Analyzed: 1438 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	1.94	
7440-50-8	COPPER	624.	D3
7439-92-1	LEAD	422.	D3

AR302783

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

atrix: (soil/water) SOIL/ Lab Sample ID: MABBS*10

ample wt/vol: 1.000 GR Lab File ID: G68559

%Moisture: 23.6 Dilution Factor: 1.00

oncentrated Extract Volume: 100 ML Date Received: 02/06/96

Injection Volume: 1 Date Extracted: 02/14/96

ime Analyzed: 1441 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.654	U
7440-50-8	COPPER	992.	D5
7439-92-1	LEAD	24.3	

AR302784

0002

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02

Name: ESE Project No.: 1295074V SDG No.: G68559

ıtrix: (soil/water) SOIL/ Lab Sample ID: MABBS*11

ımple wt/vol: 1.023 GR Lab File ID: G68559

loisture: 28.5 Dilution Factor: 1.00

›ncentrated Extract Volume: 100 ML Date Received: 02/06/96

ıjection Volume: 1 Date Extracted: 02/14/96

.me Analyzed: 1444 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.683	U
7440-50-8	COPPER	11300.	D50
7439-92-1	LEAD	51.1	

AR302785

QC Data

FORM 1
ANALYSIS DATA SHEET

Client ID

BLK1

Name: ESE Project No.: 1295074V SDG No.: G68559

trix: (soil/water) SOIL/ Lab Sample ID: MB*REAGENTS*1

mple wt/vol: GR Lab File ID: G68559

oisture: 0.0 Dilution Factor: 1.00

ncentrated Extract Volume: 1 ML Date Received: 00/00/00

jection Volume: 1 Date Extracted: 02/14/96

me Analyzed: 1338 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.005	U
7440-50-8	COPPER	0.005	U
7439-92-1	LEAD	0.100	U

AR302787

FORM 1
ANALYSIS DATA SHEET

Client ID

BLK2

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

Matrix: (soil/water) SOIL/ Lab Sample ID: MB*QC*1

Sample wt/vol: 1.005 GR Lab File ID: G68559

%Moisture: 0.0 Dilution Factor: 1.00

Concentrated Extract Volume: 100 ML Date Received: 00/00/00

Injection Volume: 1 Date Extracted: 02/14/96

Time Analyzed: 1345 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	0.498	U
7440-50-8	COPPER	0.498	U
7439-92-1	LEAD	9.95	U

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02MS

Name: ESE Project No.: 1295074V SDG No.: G68559

atrix: (soil/water) SOIL/ Lab Sample ID: SPM1*MABBS*7

ample wt/vol: 1.049 GR Lab File ID: G68559

Moisture: 29.6 Dilution Factor: 1.00

oncentrated Extract Volume: 100 ML Date Received: 02/06/96

njection Volume: 1 Date Extracted: 02/14/96

ime Analyzed: 1430 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	7.27	
7440-50-8	COPPER	331.	D3
7439-92-1	LEAD	135.	

FORM 1
ANALYSIS DATA SHEET

Client ID

SC-02MSD

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

Matrix: (soil/water) SOIL/ Lab Sample ID: SPM2*MABBS*7

Sample wt/vol: 1.016 GR Lab File ID: G68559

%Moisture: 29.6 Dilution Factor: 1.00

Concentrated Extract Volume: 100 ML Date Received: 02/06/96

Injection Volume: 1 Date Extracted: 02/14/96

Time Analyzed: 1432 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	7.70	
7440-50-8	COPPER	705.	D3
7439-92-1	LEAD	238.	

FORM 1
ANALYSIS DATA SHEET

Client ID

SP1

Name: ESE Project No.: 1295074V SDG No.: G68559

trix: (soil/water) SOIL/ Lab Sample ID: SP*QC*1

mple wt/vol: 1.007 GR Lab File ID: G68559

oisture: 0.0 Dilution Factor: 1.00

ncentrated Extract Volume: 100 ML Date Received: 00/00/00

jection Volume: 1 Date Extracted: 02/14/96

me Analyzed: 1350 Date Analyzed: 03/22/96

CAS NO.	COMPOUND	CONCENTRATION UNITS MG/KG	Q
7440-43-9	CADMIUM	4.74	
7440-50-8	COPPER	23.8	
7439-92-1	LEAD	46.7	

ESE METHOD BLANK SUMMARY

Client ID

BLK2

Lab Name: ESE Project No: 1295074V SDG No.: G68559

Lab Sample ID: MB*QC*1 Lab File ID: G68559

Matrix: SOIL/SED Instrument ID:

Date Analyzed: 03/22/96 Date Extracted: 02/14/96

Time Analysed: 1345

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
BR-09	MABBS*1	03/22/96
BR-09	MABBS*2	03/22/96
BR-09	MABBS*3	03/22/96
BR-09	MABBS*4	03/22/96
BR-09	MABBS*5	03/22/96
BR-09	MABBS*6	03/22/96
SC-02	MABBS*7	03/22/96
SC-02MS	SPM1*MABBS*7	03/22/96
SC-02MSD	SPM2*MABBS*7	03/22/96
SC-02	MABBS*8	03/22/96
SC-02	MABBS*9	03/22/96
SC-02	MABBS*10	03/22/96
SC-02	MABBS*11	03/22/96

COMMENTS:

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

SC-02MS

ab Name: ESE Project No.: 1295074V SDG No.: G68559

COMPOUND	SPIKE ADDED (MG/KG)	SAMPLE CONCENTRATION (MG/KG)	MS CONCENTRATION (MG/KG)	MS % REC	#	QC LIMITS REC.
CADMIUM	6.77	0.543	7.27	99.4		52-144
COPPER	33.8	671	331	0	*	58-138
LEAD	67.7	169	135	0	*	67-123

COMPOUND	SPIKE ADDED (MG/KG)	MSD CONCENTRATION (MG/KG)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
CADMIUM	6.99	7.70	102.4		3.0		46	52-144
COPPER	34.9	705	97.4		200.0	*	40	58-138
LEAD	69.9	238	98.7		200.0	*	28	67-123

Column to be used to flag recovery and RPD values with an asterisk
Values outside of QC limits

PD: 2 out of 3 outside limits
pike Recovery: 2 out of 6 outside limits

OMMENT:

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client ID

SP1

Lab Name: ESE Project No.: 1295074V SDG No.: G68559

COMPOUND	SPIKE ADDED (MG/KG)	SAMPLE CONCENTRATION (MG/KG)	MS CONCENTRATION (MG/KG)	MS % REC #	QC LIMIT REC
CADMIUM	4.96	0.0	4.74	95.6	84-11
COPPER	24.8	0.0	23.8	96.0	84-10
LEAD	49.6	0.0	46.7	94.2	79-10

COMPOUND	SPIKE ADDED (MG/KG)	MSD CONCENTRATION (MG/KG)	MSD % REC #	% RPD #	QC LI[illegible]S RPD	[illegible]
CADMIUM						84-1
COPPER						84-1
LEAD						79-1

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 3 outside limits

COMMENT:

FORM III ESE

AR302794

Client ID

SP1

REFERENCE STANDARD

Lab Name: ESE SDG No: G68559

Lab Sample ID: SP*QC*1 Date Analyzed: 03/22/96

Instrument ID:

Analyte	True (MG/KG)	Found (MG/KG)	#	%Recv	Limits %
CADMIUM	4.96	4.74		95.6	84-114
COPPER	24.8	23.8		96.0	84-108
LEAD	49.6	46.7		94.2	79-109

Column to be used to flag recovery outside of QC limits
* Values outside of QC limits

Comments:

FORM V ESE

FORM V ESE

Client ID

ICB1

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68559

Lab Sample ID: ICB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
CD	0.001	U	.005
CU	0.0	U	.005
PB	0.008	U	.1

FORM VII ESE

Client ID

ICB2

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68559

Lab Sample ID: ICB*QC*2 Instrument ID:

Analyte	Conc	C	CRDL
CU	0.0006	U	.005

FORM VII ESE

Client ID

ICV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G6855

Lab Sample ID: ICV*ICAP19*1 Date Analyzed: 03/22/96

Instrument ID: Time Analyzed: 1317

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
CD				0.996	1.00		0.4
CU				0.995	1.00		0.5
PB				1.00	1.00		0.0

QC LIMITS:

FORM VIII ESE

Client ID

ICV2

CALIBRATION VERIFICATION

Name: ESE Project No: 1295074V SDG No: G68559

b Sample ID: ICV*ICAP19*2 Date Analyzed: 03/25/96

strument ID: Time Analyzed: 1546

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
CU				0.984	1.00		1.6

C LIMITS:

FORM VIII ESE

AR302799

Client ID

CCB1

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68559

Lab Sample ID: CCB*QC*1 Instrument ID:

Analyte	Conc	C	CRDL
CD	0.0008	U	.005
CU	0.0005	U	.005
PB	0.003	U	.1

FORM VII ESE

Client ID

CCB2

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68559

Lab Sample ID: CCB*QC*2 Instrument ID:

Analyte	Conc	C	CRDL
CD	0.0008	U	.005
CU	0.0	U	.005
PB	0.0	U	.1

FORM VII ESE

Client ID

CCB3

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68559

Lab Sample ID: CCB*QC*3 Instrument ID:

Analyte	Conc	C	CRDL
CD	0.0	U	.005
CU	0.002	U	.005
PB	0.017	U	.1

FORM VII ESE

Client ID

CCB4

CALIBRATION BLANKS

Lab Name: ESE Project No.: 1295074V SDG No: G68559

Lab Sample ID: CCB*QC*4 Instrument ID:

Analyte	Conc	C	CRDL
CU	0.003	U	.005

FORM VII ESE

Client ID

CCV1

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G68559

Lab Sample ID: CCV*HIGHSTD*1 Date Analyzed: 03/22/96

Instrument ID: Time Analyzed: 1314

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
CD				1.99	2.00		0.5
CU				2.00	2.00		0.0
PB				2.00	2.00		0.0

QC LIMITS:

FORM VIII ESE

AR302804

Client ID

CCV2

CALIBRATION VERIFICATION

Name: ESE Project No: 1295074V SDG No: G68559

Sample ID: CCV*QC*1 Date Analyzed: 03/22/96

trument ID: Time Analyzed: 1412

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
D				0.496	0.500		0.8
U				0.488	0.500		2.4
B				0.492	0.500		1.6

LIMITS:

FORM VIII ESE

Client ID

CCV3

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G68559

Lab Sample ID: CCV*QC*2 Date Analyzed: 03/22/96

Instrument ID: Time Analyzed: 1501

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
CD				0.510	0.500		2.0
CU				0.519	0.500		3.8
PB				0.494	0.500		1.2

QC LIMITS:

FORM VIII ESE

Client ID

CCV4

CALIBRATION VERIFICATION

Name: ESE Project No: 1295074V SDG No: G68559

Sample ID: CCV*QC*3 Date Analyzed: 03/22/96

trument ID: Time Analyzed: 1601

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
D				0.500	0.500		0.0
U				0.494	0.500		1.2
B				0.482	0.500		3.6

LIMITS:

FORM VIII ESE

Client ID

CCV5

CALIBRATION VERIFICATION

Lab Name: ESE Project No: 1295074V SDG No: G6855

Lab Sample ID: CCV*HIGHSTD*2 Date Analyzed: 03/25/96

Instrument ID: Time Analyzed: 1543

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
CU				1.96	2.00		2.0

QC LIMITS:

FORM VIII ESE

AR302808

Client ID

CCV6

CALIBRATION VERIFICATION

Name: ESE Project No: 1295074V SDG No: G68559

Sample ID: CCV*QC*4 Date Analyzed: 03/25/96

strument ID: Time Analyzed: 1612

Analyte	RT	RT WINDOW FROM	RT WINDOW TO	Found (UG/ML)	True (UG/ML)	C	%Diff
CU				0.509	0.500		1.8

LIMITS:

e 1 of 1

FORM VIII ESE

AR302809

Raw Data

BATCH UPDATE

BATCH # G68559 ANALYSIS Icp DEPT.# 1233

Request to (circle one): DEFINALIZE 3/26/96 or CHANGE

Initiated by: G. PRICE In Order to: add 2ND day QC

APPROVED/ACKNOWLEDGE BY:

Dept. Manager Kathy Berry Date 3/26/96

Lab Coordinator(s) [illegible] 3/26/96

Changes Processed by: [illegible] 3/26/96

UPDATED Batch Reviewed & Approved by: Kathy Berry 3/26/96

Batch Refinalized by: [illegible] 3/26/96

UPDATES (11/17/89)

ESE BATCH G68559

QC TYPE FDER/SW
ANALYST GARRY PRICE
EXTRACTOR DAVID NICHOLS
DATA ENTRY ICAP UPLOAD

REPORT DATE/TIME : 03/26/96 15:31
ANALYSIS DATE/TIME : 03/22/96
EXTRACT DATE : 02/14/96

STATUS : PRELIMINARY

METHOD BLANK CORRECTION METHOD : NONE

BATCH NOTES
UPDATED 3-21-96. DEFINALIZED TO REANALYZE UPLOAD NEW DATA. / SLO UPDATED 3-26-96. DEFINALIZED TO ADD 2ND DAY QC. / SLO

FIELD GRP	QC TYPE	PROJECT NUMBER	PROJECT NAME	LAB COORDINATOR
MABBS	FDER	1295074V L206	MORGANTOWN OUI ABB	RICHARD ROBINSON

Sample Specific Raw Data

SAMPLE CODE	EXTRACT DATE	ANALYSIS DATE	ANALYSIS TIME	SAMPLE WEIGHT (GRAMS)	EXTRACT VOLUME (ML)	INJECTION VOLUME (NA)	%MOISTURE
CCV*HIGHSTD*1	02/14/96	03/22/96	01:14PM			1	
ICV*ICAP19*1	02/14/96	03/22/96	01:17PM			1	
ICS*A*1	02/14/96	03/22/96	01:24PM			1	
ICS*AB*1	02/14/96	03/22/96	01:26PM			1	
ICB*QC*1	02/14/96	03/22/96	01:33PM			1	
MB*REAGENTS*1	02/14/96	03/22/96	01:38PM			1	
MB*QC*1	02/14/96	03/22/96	01:45PM	1.0050	100	1	
SP*QC*1	02/14/96	03/22/96	01:50PM	1.0074	100	1	
DA*MABBS*1	02/14/96	03/22/96	01:56PM	1.0032	100	1	22.7
DA*MABBS*2	02/14/96	03/22/96	01:58PM	1.0186	100	1	22.4
DA*MABBS*3	02/14/96	03/22/96	02:00PM	1.0169	100	1	27.0
DA*MABBS*4	02/14/96	03/22/96	02:03PM	1.0151	100	1	21.8
DA*MABBS*5	02/14/96	03/22/96	02:06PM	1.0384	100	1	21.8
DA*MABBS*6	02/14/96	03/22/96	02:09PM	1.0106	100	1	22.2
CCV*QC*1	02/14/96	03/22/96	02:12PM			1	
CCB*QC*1	02/14/96	03/22/96	02:17PM			1	
DA*MABBS*7	02/14/96	03/22/96	02:20PM	1.0358	100	1	29.6
SD*MABBS*7	02/14/96	03/22/96	02:24PM	1.0358	100	1	29.6
SPX*MABBS*7	02/14/96	03/22/96	02:27PM	1.0358	100	1	29.6
SPM1*MABBS*7	02/14/96	03/22/96	02:30PM	1.0491	100	1	29.6
SPM2*MABBS*7	02/14/96	03/22/96	02:32PM	1.0167	100	1	29.6
DA*MABBS*8	02/14/96	03/22/96	02:34PM	1.0362	100	1	41.2
DA*MABBS*9	02/14/96	03/22/96	02:38PM	1.0227	100	1	34.2
DA*MABBS*10	02/14/96	03/22/96	02:41PM	1.0009	100	1	23.6
DA*MABBS*11	02/14/96	03/22/96	02:44PM	1.0235	100	1	28.5
CCV*QC*2	02/14/96	03/22/96	03:01PM			1	
CCB*QC*2	02/14/96	03/22/96	03:18PM			1	
ICS*A*2	02/14/96	03/22/96	03:52PM			1	
ICS*AB*2	02/14/96	03/22/96	03:54PM			1	
CCV*QC*3	02/14/96	03/22/96	04:01PM			1	
CCB*QC*3	02/14/96	03/22/96	04:04PM			1	
CCV*HIGHSTD*2		03/25/96	03:43PM				
ICV*ICAP19*2		03/25/96	03:46PM				
ICS*A*3		03/25/96	03:50PM				
ICS*AB*3		03/25/96	03:52PM				
ICB*QC*2		03/25/96	03:59PM				
UN*XMABBS*7	02/14/96	03/25/96	04:02PM	1.0358	100	1	29.6
SPX*XMABBS*7	02/14/96	03/25/96	04:05PM	1.0358	100	1	29.6
ICS*A*4		03/25/96	04:07PM				
ICS*AB*4		03/25/96	04:09PM				
CCV*QC*4		03/25/96	04:12PM				
CCB*QC*4		03/25/96	04:14PM				

AR302812

imeter Specific Raw Data

LE	STORET NAME	STATUS	RESPONSE (UG/ML)	UNC CONC (UG/ML)	DIL	TYPE	CURVE	RET TIME	SPIKE SOL CONC (UG/ML)	SPIKE SAMP VOL (NA)	SPIKE VOLUME (NA)	DIL CODE	CALC'D TARGET (UG/ML)
GHSTD*1	CD	OK	1.98705	1.99	1	FINAL							2
	CU	OK	2.00459	2.00	1	FINAL							2
	PB	OK	1.99721	2.00	1	FINAL							2
*ICAP19*1	CD	OK	.99642	0.996	1	FINAL							1
	CU	OK	.99543	0.995	1	FINAL							1
	PB	OK	1.0014	1.00	1	FINAL							1
*A*1	CD	OK	.0000	0.0	1	FINAL							
	CU	OK	.00189	0.002	1	FINAL							
	PB	OK	.0000	0.0	1	FINAL							
*AB*1	CD	OK	.93932	0.939	1	FINAL							1
	CU	OK	.47938	0.479	1	FINAL							.5
	PB	OK	.90972	0.910	1	FINAL							1
*QC*1	CD	OK	.00108	0.001	1	FINAL							
	CU	OK	.0000	0.0	1	FINAL							
	PB	OK	.00807	0.008	1	FINAL							
REAGENTS*1	CD	OK	.0000	0.0	1	FINAL							
	CU	OK	.0000	0.0	1	FINAL							
	PB	OK	.0000	0.0	1	FINAL							
QC*1	CD	OK	.0	0.0	1	FINAL							
	CU	OK	.0	0.0	1	FINAL							
	PB	OK	.0	0.0	1	FINAL							
QC*1	CD	OK	.04772	0.048	1	FINAL			.05			C	4.9633
	CU	OK	.23973	0.240	1	FINAL			.25			C	24.816
	PB	OK	.47094	0.471	1	FINAL			.5			C	49.633
MABBS*1	CD	OK	.0007	0.0007	1	FINAL							
	CU	OK	.18376	0.184	1	FINAL							
	PB	OK	.1589	0.159	1	FINAL							
MABBS*2	CD	OK	.00193	0.002	1	FINAL							
	CU	OK	.14267	0.143	1	FINAL							
	PB	OK	.15052	0.151	1	FINAL							
MABBS*3	CD	OK	.00133	0.001	1	FINAL							
	CU	OK	.36575	0.366	1	FINAL							
	PB	OK	.20043	0.200	1	FINAL							
ABBS*4	CD	OK	.0005	0.0005	1	FINAL							
	CU	OK	.18568	0.186	1	FINAL							
	PB	OK	.10589	0.106	1	FINAL							
ABBS*5	CD	OK	.0004	0.0004	1	FINAL							
	CU	OK	1.55868	3.12	2	FINAL							
	PB	OK	.17499	0.175	1	FINAL							
MABBS*6	CD	OK	.00119	0.001	1	FINAL							
	CU	OK	.15905	0.159	1	FINAL							
	PB	OK	.08991	0.090	1	FINAL							
/*QC*1	CD	OK	.49635	0.496	1	FINAL							.5
	CU	OK	.4884	0.488	1	FINAL							.5
	PB	OK	.49206	0.492	1	FINAL							.5
3*QC*1	CD	OK	.0008	0.0008	1	FINAL							
	CU	OK	.0005	0.0005	1	FINAL							
	PB	OK	.00293	0.003	1	FINAL							
*MABBS*7	CD	OK	.00396	0.004	1	FINAL							
	CU	OK	1.63107	4.89	3	FINAL							
	PB	OK	1.22912	1.23	1	FINAL							
*MABBS*7	CD	OK	.0009	0.005	5	FINAL							
	CU	OK	.99968	5.00	5	FINAL							
	PB	OK	.26022	1.30	5	FINAL							
K*MABBS*7	CD	OK	.25402	0.508	2	FINAL			.5			C	68.568
	PB	OK	.87712	1.75	2	FINAL			.5			C	68.568
M1*MABBS*7	CD	OK	.05367	0.054	1	FINAL			.05			C	6.7699
	CU	OK	.8156	2.45	3	FINAL			.25			C	33.849
	PB	OK	1.00033	1.00	1	FINAL			.5			C	67.699
M2*MABBS*7	CD	OK	.05513	0.055	1	FINAL			.05			C	6.9856
	CU	OK	1.683	5.05	3	FINAL			.25			C	34.928
	PB	OK	1.70469	1.70	1	FINAL			.5			C	69.856
*MABBS*8	CD	OK	.00234	0.002	1	FINAL							
	CU	OK	1.39998	14.0	10	FINAL							
	PB	OK	.35259	0.353	1	FINAL							
*MABBS*9	CD	OK	.01306	0.013	1	FINAL							
	CU	OK	1.3992	4.20	3	FINAL							
	PB	OK	.94769	2.84	3	FINAL							
S*10	CD	OK	.0021	0.002	1	FINAL							
	CU	OK	1.51786	7.59	5	FINAL							
	PB	OK	.18594	0.186	1	FINAL							
*MABBS*11	CD	OK	.00432	0.004	1	FINAL							
	CU	OK	1.65722	82.9	50	FINAL							
	PB	OK	.37387	0.374	1	FINAL							

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CV*QC*2	CD	OK	.50952	0.510	1	FINAL		
	CU	OK	.51888	0.519	1	FINAL		
	PB	OK	.49422	0.494	1	FINAL		
CB*QC*2	CD	OK	.0008	0.0008	1	FINAL		
	CU	OK	.0000	0.0	1	FINAL		
	PB	OK	.0000	0.0	1	FINAL		
ICS*A*2	CD	OK	.0000	0.0	1	FINAL		
	CU	OK	.0000	0.0	1	FINAL		
	PB	OK	.01669	0.017	1	FINAL		
CS*AB*2	CD	OK	.93744	0.937	1	FINAL		
	CU	OK	.46608	0.466	1	FINAL		
	PB	OK	.91155	0.912	1	FINAL		
CV*QC*3	CD	OK	.50022	0.500	1	FINAL		
	CU	OK	.49386	0.494	1	FINAL		
	PB	OK	.48204	0.482	1	FINAL		
CCB*QC*3	CD	OK	.0000	0.0	1	FINAL		
	CU	OK	.00156	0.002	1	FINAL		
	PB	OK	.01689	0.017	1	FINAL		
CV*HIGHSTD*2	CU	OK	1.961	1.96	1	FINAL		
CV*ICAP19*2	CU	OK	.9840	0.984	1	FINAL		
ICS*A*3	CU	OK	.0035	0.004	1	FINAL		
CS*AB*3	CU	OK	.4623	0.462	1	FINAL		
CB*QC*2	CU	OK	.0006	0.0006	1	FINAL		
N*XMABBS*7	CU	OK	1.617	1.62	1	FINAL		
SPX*XMABBS*7	CU	OK	1.069	2.14	2	FINAL	.5	C 68.5
ICS*A*4	CU	OK	.0033	0.003	1	FINAL		
CS*AB*4	CU	OK	.4606	0.461	1	FINAL		
CV*QC*4	CU	OK	.5089	0.509	1	FINAL		
CB*QC*4	CU	OK	.0033	0.003	1	FINAL		

HOLDING TIMES CHECK

PLE	ANALYTE	ANL DATE	EXT DATE	SMP DATE	H.T.	OVER

HOLDING TIMES MET

STORET: 1013 METHOD: 6010-G CADMIUM, MG/KG-DRY FINAL

CALIBRATION CURVE # 1
DETECTION LIMIT = .005 DATE: 03/22/96 LARGEST RESP= %RSD=

METHOD BLANK(S)

SAMPLE ID	CONCENTRATION
REAGENTS*1	0.0
QC*1	0.0

CONTINUING CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	0.0008	
QC*2	0.0008	
QC*3	0.0	
QC*4	NA	

CONTINUING CALIBRATION VERIFICATION SAMPLE(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
HIGHSTD*1	1.99	2.00	-.5
QC*1	0.496	0.500	-.8
QC*2	0.510	0.500	2.0
QC*3	0.500	0.500	0.0
HIGHSTD*2	NA		
QC*4	NA		

INITIAL CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	0.001	
QC*2	NA	

INTERFERENCE CALIBRATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
A*1	0.0		
AB*1	0.939	1.00	6.1
A*2	0.0		
AB*2	0.937	1.00	6.3
A*3	NA		
AB*3	NA		
A*4	NA		
AB*4	NA		

INITIAL CALIBRATION VERIFICATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
ICAP19*1	0.996	1.00	0.4
ICAP19*2	NA		

SERIAL DILUTION SAMPLE ANALYSIS

SAMPLE ID	REP.1 CONC	REP.2 CONC	% DIFFERENCE
MABBS*7			N/C

STANDARD MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SP*QC*1	0.0	4.74	4.74	4.96	95.6	

SAMPLE MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SPM1*MABBS*7	0.543	7.27	6.73	6.77	99.4	
SPM2*MABBS*7	0.543	7.70	7.16	6.99	102.4	3.0

SPIKE(S) INTO SAMPLE MATRIX AFTER EXTRACTION

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SPX*MABBS*7	0.543	69.7	69.2	68.6	100.9	

STORET: 1043 METHOD: 6010-G COPPER, MG/KG-DRY FINAL

CALIBRATION CURVE # 1
DETECTION LIMIT = .005 DATE: 03/22/96 LARGEST RESP= %RSD=

METHOD BLANK(S)

SAMPLE ID	CONCENTRATION
REAGENTS*1	0.0
QC*1	0.0

CONTINUING CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	0.0005	
QC*2	0.0	

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QC*3	0.002
QC*4	0.003

CONTINUING CALIBRATION VERIFICATION SAMPLE(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
HIGHSTD*1	2.00	2.00	0.0
[illegible]*1	0.488	0.500	-2.4
[illegible]*2	0.519	0.500	3.8
QC*3	0.494	0.500	-1.2
HIGHSTD*2	1.96	2.00	-2.0
QC*4	0.509	0.500	1.8

INITIAL CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	0.0	
QC*2	0.0006	

INTERFERENCE CALIBRATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
A*1	0.002		
AB*1	0.479	0.500	4.2
A*2	0.0		
AB*2	0.466	0.500	6.8
A*3	0.004		
AB*3	0.462	0.500	7.6
A*4	0.003		
AB*4	0.461	0.500	7.8

INITIAL CALIBRATION VERIFICATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
ICAP19*1	0.995	1.00	0.5
ICAP19*2	0.984	1.00	1.6

SERIAL DILUTION SAMPLE ANALYSIS

SAMPLE ID	REP.1 CONC	REP.2 CONC	% DIFFERENCE
MABBS*7	685	671	2.1

STANDARD MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
[illegible]*QC*1	0.0	23.8	23.8	24.8	96.0	

[illegible]MPLE MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.	
SPM1*MABBS*7	671	331	-340	33.8	-1006		Recovery Exceeds criteria. (<58)
SPM2*MABBS*7	671	705	34.0	34.9	97.4	242.9	Relative Percent Difference exceeds criteria (>40)

SPIKE(S) INTO SAMPLE MATRIX AFTER EXTRACTION

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SPX*XMABBS*7	222	293	71.0	68.6	103.5	

TORET: 1052 METHOD: 6010-G LEAD, MG/KG-DRY FINAL

CALIBRATION CURVE # 1
DETECTION LIMIT = .1 DATE: 03/22/96 LARGEST RESP= %RSD=

METHOD BLANK(S)

SAMPLE ID	CONCENTRATION
REAGENTS*1	0.0
QC*1	0.0

CONTINUING CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	0.003	
QC*2	0.0	
QC*3	0.017	
QC*4	NA	

CONTINUING CALIBRATION VERIFICATION SAMPLE(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
HIGHSTD*1	2.00	2.00	0.0
QC*1	0.492	0.500	-1.6
QC*2	0.494	0.500	-1.2
QC*3	0.482	0.500	-3.6
[illegible]GHSTD*2	NA		
[illegible]4	NA		

INITIAL CALIBRATION BLANK(S) *** Optional Quality Control Check ***

SAMPLE ID	CALC. CONC	C.R.D.L.
QC*1	0.008	
QC*2	NA	

INTERFERENCE CALIBRATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
A*1	0.0		
AB*1	0.910	1.00	9.0
A*2	0.017		
AB*2	0.912	1.00	8.8
A*3	NA		
AB*3	NA		
A*4	NA		
AB*4	NA		

INITIAL CALIBRATION VERIFICATION STANDARD(S)

SAMPLE ID	CALC. CONC	KNOWN CONC	DIFFERENCE%
ICAP19*1	1.00	1.00	0.0
ICAP19*2	NA		

SERIAL DILUTION SAMPLE ANALYSIS

SAMPLE ID	REP.1 CONC	REP.2 CONC	% DIFFERENCE
MABBS*7	178	169	5.3

STANDARD MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SP*QC*1	0.0	46.7	46.7	49.6	94.2	

SAMPLE MATRIX SPIKE(S)

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.	
SPM1*MABBS*7	169	135	-34.0	67.7	-50.2		Recovery Exceeds criteria. (<67)
SPM2*MABBS*7	169	238	69.0	69.9	98.7	614.0	Relative Percent Difference exceeds criteria (>28)

SPIKE(S) INTO SAMPLE MATRIX AFTER EXTRACTION

SAMPLE ID	UNSP CONC	SPK CONC	FOUND	TARGET	% RECV	REL%DIFF.
SPX*MABBS*7	169	241	72.0	68.6	105.0	

SAMPLE RESULTS

	1028	1043	1052
	6010	6010	6010
	CADMIUM	COPPER	LEAD
ID	MG/KG-DRY	MG/KG-DRY	MG/KG-DRY
GENTS*	0.0	0.0	0.0
*1	0.0	0.0	0.0
BS*1	<0.645	23.7	20.5
BS*2	<0.633	18.0	19.0
BS*3	<0.674	49.3	27.0
BS*4	<0.630	23.4	13.3
BS*5	<0.616	384	21.5
BS*6	<0.636	20.2	<12.7
BS*7	<0.686	671	169
BS*8	<0.821	2300	57.9
BS*9	1.94	624	422
BS*10	<0.654	992	24.3
BS*11	<0.683	11300	51.1

UNITS AND EXAMPLE CALCULATIONS

UNITS ENTERED	
FINAL CONCENTRATION	MG/KG-DRY
INJECTION VOLUME	NA
SAMPLE VOLUME	GRAMS
EXTRACT VOLUME	ML
CURVE CONCENTRATION	UG/ML
SPIKE SOLN CONCENTRATION	UG/ML
SPIKE VOLUME	NA
SPIKE SAMPLE VOLUME	NA
TARGET CONCENTRATION	UG/ML
RESPONSE DESCRIPTION	UG/ML
CONVERSION FACTOR	1

FINAL CONC = CURV CONC * EXT VOL * DIL * 1 / (INJ VOL * SAMP VOL * ((100 - %MOISTURE) / 100))

MG/KG-DRY = (UG/ML) * (ML) * 1 / (NA) * (GRAMS)

) = ( ) * ( ) * ( ) / ( ) * ((100 - ( )) / 100)

TARGET CONC = SPIKE SOLN CONC * SPIKE VOL / SPIKE SAMP VOL * ((100 - %MOISTURE) / 100)

UG/ML = (UG/ML) * (NA) / (NA)

mg/kg = ug/g

*1 Cu

$$\frac{.18376\ ug/ml \times 100\ ml}{1.0032g \times .773} = 23.6$$

3/26/9

AR302820

Environmental Science and Engineering Analytical Services
Computer QC Checks

ch No.: 389559 Analysis Date: 03/22/96 Analyst: GARRY PRICE

	Yes	No	"Exceptions" Comment	Corrective Action
L units documented in batch?	X			
lysis holding time within criteria?	X			
present?	X			
within acceptance criteria?	X			
present?	X			
within acceptance criteria?	X			
present?	X			
within acceptance criteria?	X			
hod blank present?	X			
hod blank within acceptance criteria?	X			
present?	X			
within acceptance criteria?	X			
ndard matrix spike present?	X			
ndard matrix spike within acceptance criteria?	X			
ple matrix spike present?	X			
ple matrix spike within acceptance criteria?		X	CU	
			PB	
ple matrix spike duplicate present?	X			
ple matrix spike duplicate within acceptance criteria?		X	CU	
			PB	
ytical spike present?	X			
lytical spike within acceptance criteria?	X			

See Narrative 3/26/96 GP

e: Any "NO" answer requires a comment.

AR302821

Environmental Science and Engineering Analytical Services
Internal QA/QC Batch Checklist For Atomic Spectroscopy

B ch No.: G68559 Analysis Date: 03/22/96 Analyst: GARRY PRICE

	N/A	Yes	No	"Exceptions" Comment/Corrective Action
: the method blank free of contamination?		✓		
:f not, has the data been blank corrected?				
A" reported values consistent with the required units?		✓		
A detection limits reported correctly?		✓		
Are dilution factors entered correctly?		✓		
: the calibration curve (if applicable) entered correctly?	✓			
Are all the correct elements included in the spikes?		✓		
: the batch checked for data entry error(s)?		✓		
Are continuing calibration blanks analyzed at a frequency specified in the appropriate QA/QC Plan (i.e. AF, COE or FDER QA/QC plan)?		✓		
: not, is an appropriate explanation provided?				
Are continuing calibration verification (CCV) standards analyzed at a frequency specified in the appropriate QA/QC Plan?		✓		
:f not, is an appropriate explanation provided?				
. an example calculation provided?		✓		
Has the batch documentation checklist been completed?		✓		
e the first extracts/digests prepped from this sample used for sample analysis?		✓		
:f not, is an appropriate explanation provided?				

. e: Any "NO" answer requires a comment.
itional Comments:

. pleted By Garry Price
e 3/26/96

Reviewed By Kathy Barry
Date 3/26/96

otification of appropriate Laboratory Coordinators required for "Exceptions":

Signature	Date	Comments

:ATCH OVERRIDE BY: KATHY BARRY 1708

: ALIZED BY: SHARON OWENS 2087

AR302822

Batch Narrative - G58559 Analysis: EPA 3050-6010

Updated by 3249, 2087

GENERAL COMMENTS:

PROBLEM:

Sample matrix spike not within acceptance criteria:

CU

PB

EXPLANATION: Cu: UNSPIKED SAMPLE GREATER THAN FOUR TIMES THE SPIKING LEVEL
Pb: POSSIBLE INHOMOGENEITY IN SAMPLE

PROBLEM:

Sample matrix spike duplicate not within acceptance criteria:

CU

PB

EXPLANATION: Cu: UNSPIKED SAMPLE GREATER THAN FOUR TIMES THE SPIKING LEVEL
Pb: POSSIBLE INHOMOGENEITY IN SAMPLE. / CAH / 2-15-96
RSR / 2-16-96

Analyst [signature] DATE 3/26/96

Reviewer [signature] DATE 3/26/96

DATA DOCUMENTATION FOR %MOISTURE USED TO CONVERT ANALYTICAL DATA TO DRY WEIGHT

SAMPLE ID	PAN WEIGHT (GM)	PAN+SAMPLE WEIGHT-WET (GM)	PAN+SAMPLE WEIGHT-DRY (GM)	%MOISTURE (WET WT)	ESE BATCH	ANALYSIS DATE	NOTEBOOK REFERENCE
MABBS*1	1.54060	18.48350	14.62930	22.7	G68437	02/12/96	BALANCE #24, R
MABBS*2	1.55990	18.46590	14.68500	22.4	G68437	02/12/96	BALANCE #24, R
MABBS*3	1.53300	18.97940	14.26970	27.0	G68437	02/12/96	BALANCE #24, R
MABBS*4	1.55460	20.96460	16.72530	21.8	G68437	02/12/96	BALANCE #24, R
MABBS*5	1.55500	23.91670	19.03190	21.8	G68437	02/12/96	BALANCE #24, R
MABBS*6	1.55000	16.78950	13.41340	22.2	G68437	02/12/96	BALANCE #24, R
MABBS*7	1.57210	18.85440	13.73600	29.6	G68437	02/12/96	BALANCE #24, R
MABBS*8	1.56280	17.28200	10.80320	41.2	G68437	02/12/96	BALANCE #24, R
MABBS*9	1.56850	20.69050	14.14200	34.2	G68437	02/12/96	BALANCE #24, R
MABBS*10	1.55070	22.23080	17.34380	23.6	G68437	02/12/96	BALANCE #24, R
MABBS*11	1.55630	17.36820	12.85740	28.5	G68437	02/12/96	BALANCE #24, R

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#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
	CCV*HIGHSTD*1	322GLP	COE	03/22/96	13:14		S	CONC
	ICV*ICAP19*1	322GLP	COE	03/22/96	13:17	GLP	S	CONC
3	ICS*A*1	322GLP	COE	03/22/96	13:24	GLP	S	CONC
4	ICS*AB*1	322GLP	COE	03/22/96	13:26	GLP	S	CONC
5	ICB*QC*1	322GLP	COE	03/22/96	13:33	GLP	S	CONC
6	MB*REAGENTS*1	322GLP	COE	03/22/96	13:38	GLP	S	CONC
7	MB*QC*1	322GLP	COE	03/22/96	13:45	GLP	S	CONC
8	SP*QC*1	322GLP	COE	03/22/96	13:50	GLP	S	CONC
9	MABBS*1	322GLP	COE	03/22/96	13:56	GLP	S	CONC
10	MABBS*2	322GLP	COE	03/22/96	13:58	GLP	S	CONC
11	MABBS*3	322GLP	COE	03/22/96	14:00	GLP	S	CONC
12	MABBS*4	322GLP	COE	03/22/96	14:03	GLP	S	CONC
13	MABBS*5	322GLP	COE	03/22/96	14:06	GLP	S	CONC
14	MABBS*6	322GLP	COE	03/22/96	14:09	GLP	S	CONC
15	CCV*QC*1	322GLP	COE	03/22/96	14:12	GLP	S	CONC
16	CCB*QC*1	322GLP	COE	03/22/96	14:17	GLP	S	CONC
17	MABBS*7	322GLP	COE	03/22/96	14:20	GLP	S	CONC
18	SD*MABBS*7	322GLP	COE	03/22/96	14:24	GLP	S	CONC
19	SPX*MABBS*7	322GLP	COE	03/22/96	14:27	GLP	S	CONC
20	SPM1*MABBS*7	322GLP	COE	03/22/96	14:30	GLP	S	CONC
21	SPM2*MABBS*7	322GLP	COE	03/22/96	14:32	GLP	S	CONC
22	MABBS*8	322GLP	COE	03/22/96	14:34	GLP	S	CONC
23	MABBS*9	322GLP	COE	03/22/96	14:38	GLP	S	CONC
24	MABBS*10	322GLP	COE	03/22/96	14:41	GLP	S	CONC
25	MABBS*11	322GLP	COE	03/22/96	14:44	GLP	S	CONC
	CCV*QC*2	322GLP	COE	03/22/96	15:01	GLP	S	CONC
	CCB*QC*2	322GLP	COE	03/22/96	15:18	GLP	S	CONC
28	*5 1:2 Cu	322GLP	COE	03/22/96	15:22	GLP	S	CONC
29	*7 1:2 Cu	322GLP	COE	03/22/96	15:25	GLP	S	CONC
30	SPM1 1:3	322GLP	COE	03/22/96	15:27	GLP	S	CONC
31	SPM2 1:3	322GLP	COE	03/22/96	15:29	GLP	S	CONC
32	*8 1:10 Cu	322GLP	COE	03/22/96	15:32	GLP	S	CONC
33	*9 1:2 Cu, Pb	322GLP	COE	03/22/96	15:34	GLP	S	CONC
34	*10 1:2 Cu	322GLP	COE	03/22/96	15:37	GLP	S	CONC
35	*11 1:50 Cu	322GLP	COE	03/22/96	15:43	GLP	S	CONC
36	ICS*A*2	322GLP	COE	03/22/96	15:52	GLP	S	CONC
37	ICS*AB*2	322GLP	COE	03/22/96	15:54	GLP	S	CONC
38	CCV*QC*3	322GLP	COE	03/22/96	16:01	GLP	S	CONC
39	CCB*QC*3	322GLP	COE	03/22/96	16:04	GLP	S	CONC

Method: COE Standard: BLANK

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.0021	.0361	-.0012	.0008	.0000	.0013	-.0[illegible]
SDev	.0007	.0031	.0025	.0003	.0000	.0001	.0009
%RSD	33.99	8.652	204.8	43.30	.0000	8.660	31.46
#1	.0028	.0390	.0016	.0006	.0000	.0014	-.0020
#2	.0020	.0328	-.0030	.0012	.0000	.0012	-.0038
#3	.0014	.0366	-.0022	.0006	.0000	.0014	-.0028

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	.0015	.0005	.0005	.0013	.0015	.0013	.0007
SDev	.0014	.0003	.0002	.0001	.0001	.0004	.0002
%RSD	92.54	65.47	49.49	8.660	7.873	32.87	31.49
#1	.0028	.0008	.0006	.0012	.0016	.0014	.0006
#2	.0018	.0002	.0006	.0014	.0014	.0008	.0006
#3	.0000	.0004	.0002	.0014	.0014	.0016	.0010

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.0183	-.0004	.0126	.0003	.0701	.0015	.0043
SDev	.0013	.0005	.0000	.0002	.0013	.0003	.0021
%RSD	7.264	132.3	.0000	86.60	1.813	21.92	49.35
#1	.0198	-.0010	.0126	.0004	.0708	.0011	.0030
#2	.0172	.0000	.0126	.0004	.0708	.0016	.0068
#3	.0180	-.0002	.0126	.0000	.0686	.0017	.00[illegible]

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.0007	.1460	.0177	.0003	-.0036	-.0013	.0021
SDev	.0003	.0005	.0011	.0003	.0038	.0004	.0002
%RSD	45.83	.3624	6.212	91.65	106.0	31.22	10.83
#1	.0010	.1456	.0172	.0006	-.0056	-.0010	.0020
#2	.0006	.1458	.0190	.0004	-.0060	-.0012	.0024
#3	.0004	.1466	.0170	.0000	.0008	-.0018	.0020

Method: COE Standard: LOW

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.2017	1.396	.1453	.0589	.1280	.1273	.3041
SDev	.0013	.007	.0025	.0003	.0005	.0005	.0030
%RSD	.6453	.5265	1.710	.5190	.3855	.3955	.9763
#1	.2016	1.398	.1468	.0588	.1282	.1272	.3048
#2	.2030	1.402	.1466	.0592	.1283	.1278	.3066
#3	.2004	1.388	.1424	.0586	.1274	.1268	.3008

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	2.121	.1983	.1586	.2485	.1940	.2011	1.368
SDev	.011	.0006	.0003	.0008	.0008	.0012	.006
%RSD	.5298	.3082	.2184	.3047	.4124	.6076	.4[illegible]
#1	2.124	.1984	.1584	.2488	.1940	.2022	1.361
#2	2.131	.1988	.1590	.2490	.1948	.2014	1.371
#3	2.109	.1976	.1584	.2476	.1932	.1998	1.372

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.1115	.2741	.2241	.0892	1.239	.1206	.0955
SDev	.0026	.0014	.0006	.0003	.004	.0016	.0026
%RSD	2.286	.4966	.2727	.3883	.3250	1.327	2.692
#1	.1102	.2752	.2242	.0890	1.235	.1207	.0966
#2	.1144	.2746	.2246	.0896	1.243	.1190	.0974
#3	.1098	.2726	.2234	.0890	1.239	.1222	.0926

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.0516	.2609	.0961	.1478	.0493	.1441	.2467
SDev	.0009	.0011	.0006	.0002	.0033	.0010	.0013
%RSD	1.689	.4358	.6356	.1353	6.724	.6987	.5397
#1	.0520	.2622	.0956	.1478	.0458	.1442	.2474
#2	.0522	.2600	.0968	.1480	.0524	.1450	.2476
#3	.0506	.2606	.0960	.1476	.0496	.1430	.2452

Method: COE Standard: MID

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.3989	2.752	.2146	.1163	.2544	.2501	.6044
SDev	.0019	.021	.0041	.0018	.0018	.0020	.0044
%RSD	.4869	.7596	1.892	1.551	.6988	.7850	.7257
#1	.3968	2.728	.2102	.1144	.2524	.2478	.5994
#2	.4006	2.759	.2182	.1180	.2550	.2512	.6062
#3	.3994	2.768	.2154	.1164	.2558	.2512	.6076

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	4.196	.3935	.3140	.4887	.3872	.3937	2.735
SDev	.031	.0014	.0019	.0045	.0023	.0035	.020
%RSD	.7401	.3570	.6142	.9154	.5957	.8890	.7340
#1	4.160	.3920	.3118	.4836	.3846	.3902	2.713
#2	4.211	.3948	.3148	.4908	.3880	.3938	2.740
#3	4.216	.3936	.3154	.4918	.3890	.3972	2.753

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	1.831	.5453	.4313	.1776	2.398	.2346	.1893
SDev	.017	.0042	.0031	.0019	.019	.0023	.0030
%RSD	.9211	.7635	.7099	1.086	.7779	.9636	1.569
#1	1.813	.5406	.4278	.1754	2.377	.2335	.1860
#2	1.835	.5466	.4324	.1784	2.406	.2331	.1918
#3	1.846	.5486	.4336	.1790	2.412	.2372	.1900

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.1043	.3116	.1723	.2933	.0695	.2885	.4898
SDev	.0007	.0045	.0040	.0022	.0018	.0021	.0019
%RSD	.6732	1.454	2.334	.7510	2.610	.7413	.3895
#1	.1036	.3068	.1690	.2908	.0698	.2860	.4886
#2	.1050	.3122	.1712	.2944	.0676	.2896	.4888
#3	.1044	.3158	.1768	.2948	.0712	.2898	.4920

Method: COE Standard: HIGH

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.7823	5.431	.4130	.2283	.5123	.4951	1.216
SDev	.0036	.022	.0060	.0014	.0019	.0026	.009
%RSD	.4575	.4015	1.446	.5962	.3726	.5257	.7002
#1	.7784	5.409	.4086	.2268	.5109	.4924	1.208
#2	.7832	5.431	.4106	.2294	.5116	.4952	1.216
#3	.7854	5.452	.4198	.2288	.5145	.4976	1.225

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	8.404	.7721	.6261	.9686	.7648	.7764	5.350
SDev	.058	.0018	.0034	.0047	.0031	.0037	.010
%RSD	.6940	.2336	.5367	.4882	.4060	.4812	.1795
#1	8.338	.7720	.6232	.9632	.7618	.7730	5.360
#2	8.426	.7704	.6254	.9706	.7646	.7758	5.350
#3	8.449	.7740	.6298	.9720	.7680	.7804	5.341

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	3.661	1.083	.8466	.3502	4.730	.4646	.3681
SDev	.006	.003	.0046	.0009	.008	.0046	.0031
%RSD	.1509	.3126	.5449	.2489	.1713	.9901	.8492
#1	3.659	1.079	.8418	.3498	4.730	.4600	.3642
#2	3.657	1.084	.8470	.3496	4.722	.4646	.37[illegible]
#3	3.667	1.086	.8510	.3512	4.738	.4692	.36[illegible]

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.2046	.4790	.3232	.5839	.1425	.5727	.9651
SDev	.0007	.0056	.0020	.0026	.0020	.0029	.0045
%RSD	.3525	1.158	.6280	.4457	1.385	.5088	.4681
#1	.2038	.4760	.3250	.5812	.1434	.5700	.9604
#2	.2048	.4756	.3236	.5840	.1402	.5724	.9656
#3	.2052	.4854	.3210	.5864	.1438	.5758	.9694

Method: COE Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardiz
Ag3280	328.068	Multiple	Standards	2.52496	-.005259	03/22/96 01:11:
Al3082	308.215	Multiple	Standards	3.69088	-.133511	03/22/96 01:11
As1936	193.696	Multiple	Standards	5.15716	.006100	03/22/96 01:11
B_2496	249.678	Multiple	Standards	8.65051	-.006957	03/22/96 01:11
Ba4934	493.409	Multiple	Standards	3.91390	-.000001	03/22/96 01:11
Be3130	313.042	Multiple	Standards	4.03027	-.005412	03/22/96 01:11
Ca	317.933	Multiple	Standards	2.37408	-.003836	03/22/96 01:11
Ca	307.603	Multiple	Standards	16.6210	.047482	03/22/96 01:11
Cd2288	228.802	Multiple	Standards	2.58987	-.001246	03/22/96 01:11
Co2286	228.616	Multiple	Standards	3.19798	-.001514	03/22/96 [illegible]1
Cr2677	267.716	Multiple	Standards	2.04343	-.002767	03/22/96 [illegible]1

ement	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
.3247	324.754	Multiple	Standards	2.60547	-.003835	03/22/96 01:11:37
	259.940	Multiple	Standards	3.68386	-.003070	03/22/96 01:11:37
	271.441	Multiple	Standards	26.0515	-.033604	03/22/96 01:11:37
7664	766.491	Multiple	Standards	54.5773	-1.00137	03/22/96 01:11:37
790	279.079	Multiple	Standards	18.3025	.007067	03/22/96 01:11:37
576	257.610	Multiple	Standards	2.38753	-.030111	03/22/96 01:11:37
2020	202.030	Multiple	Standards	5.65253	-.001536	03/22/96 01:11:37
5889	588.995	Multiple	Standards	4.28828	-.300536	03/22/96 01:11:37
.2316	231.604	Multiple	Standards	4.27383	-.006325	03/22/96 01:11:37
2203	220.353	Multiple	Standards	5.56016	-.024093	03/22/96 01:11:37
2068	206.838	Multiple	Standards	9.85756	-.006563	03/22/96 01:11:37
1960	196.026	Multiple	Standards	6.53372	-.953947	03/22/96 01:11:37
1899	189.989	Multiple	Standards	6.39668	-.113484	03/22/96 01:11:37
.3349	334.941	Multiple	Standards	3.41125	-.001158	03/22/96 01:11:37
.1908	190.864	Multiple	Standards	13.5538	.048718	03/22/96 01:11:37
_2924	292.402	Multiple	Standards	3.48992	.004630	03/22/96 01:11:37
2138	213.856	Multiple	Standards	2.07127	-.004447	03/22/96 01:11:37

ethod: COE Slope = IR/Conc(SIR)

lement	Wavelen	High std	Low std	Slope	BEC	Date Standardized
3280	328.068	Multiple	Standards	.396045	.005259	03/22/96 01:11:37
3082	308.215	Multiple	Standards	.270938	.133511	03/22/96 01:11:37
s1936	193.696	Multiple	Standards	.193905	.006100	03/22/96 01:11:37
_2496	249.678	Multiple	Standards	.115600	.006957	03/22/96 01:11:37
a4934	493.409	Multiple	Standards	.255500	.000001	03/22/96 01:11:37
e3130	313.042	Multiple	Standards	.248122	.005412	03/22/96 01:11:37
	317.933	Multiple	Standards	.421216	.003836	03/22/96 01:11:37
	307.603	Multiple	Standards	.060165	.047482	03/22/96 01:11:37
288	228.802	Multiple	Standards	.386119	.001246	03/22/96 01:11:37
b2286	228.616	Multiple	Standards	.312698	.001514	03/22/96 01:11:37
r2677	267.716	Multiple	Standards	.489374	.002767	03/22/96 01:11:37
u3247	324.754	Multiple	Standards	.383808	.003835	03/22/96 01:11:37
e	259.940	Multiple	Standards	.271454	.003070	03/22/96 01:11:37
e	271.441	Multiple	Standards	.038385	.033604	03/22/96 01:11:37
_7664	766.491	Multiple	Standards	.018323	1.00137	03/22/96 01:11:37
d2790	279.079	Multiple	Standards	.054637	.007067	03/22/96 01:11:37
n2576	257.610	Multiple	Standards	.418842	.030111	03/22/96 01:11:37
o2020	202.030	Multiple	Standards	.176912	.001536	03/22/96 01:11:37
a5889	588.995	Multiple	Standards	.233194	.300536	03/22/96 01:11:37
i2316	231.604	Multiple	Standards	.233982	.006325	03/22/96 01:11:37
b2203	220.353	Multiple	Standards	.179851	.024093	03/22/96 01:11:37
b2068	206.838	Multiple	Standards	.101445	.006563	03/22/96 01:11:37
e1960	196.026	Multiple	Standards	.153052	.953947	03/22/96 01:11:37
n1899	189.989	Multiple	Standards	.156331	.113484	03/22/96 01:11:37
i3349	334.941	Multiple	Standards	.293148	.001158	03/22/96 01:11:37
l1908	190.864	Multiple	Standards	.073780	.048718	03/22/96 01:11:37
_2924	292.402	Multiple	Standards	.286540	.004630	03/22/96 01:11:37
n2138	213.856	Multiple	Standards	.482795	.004447	03/22/96 01:11:37

ethod: COE

ment	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
3280	328.068	BLANK	.000000	-.000040	.000040

AR302829

	LOW	.500000	.503942	-.003942
	MID	1.00000	1.00203	-.002034
	HIGH	2.00000	1.97010	.029895

CorCoef: 0.99995

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Al3082	308.215	BLANK	.000000	-.000147	.000147
		LOW	5.00000	5.01969	-.019691
		MID	10.0000	10.0226	-.022552
		HIGH	20.0000	19.9109	.089096

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
As1936	193.696	BLANK	.000000	-.000088	.000088
		LOW	.700000	.755264	-.055264
		MID	1.00000	1.11283	-.112827
		HIGH	2.00000	2.13601	-.136007

CorCoef: 0.99970

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
B_2496	249.678	BLANK	.000000	-.000036	.000036
		LOW	.500000	.502270	-.002270
		MID	1.00000	.998809	.001191
		HIGH	2.00000	1.96824	.031758

CorCoef: 0.99996

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ba4934	493.409	BLANK	.000000	-.000001	.000001
		LOW	.500000	.500848	-.0[illegible]8
		MID	1.00000	.995695	.00[illegible]
		HIGH	2.00000	2.00522	-.005220

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Be3130	313.042	BLANK	.000000	-.000039	.000039
		LOW	.500000	.507507	-.007507
		MID	1.00000	1.00242	-.002424
		HIGH	2.00000	1.98984	.010160

CorCoef: 0.99998

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ca	317.933	BLANK	.000000	-.000196	.000196
		LOW	5.00000	5.03238	-.032380
		MID	10.0000	9.95765	.042354
		HIGH	20.0000	19.9484	.051592

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Ca	307.303	BLANK	.000000	-.000165	.000165
		LOW	5.00000	5.10138	-.101385
		MID	10.0000	10.0932	-.093236
		HIGH	20.0000	20.2620	-.261986

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Cd2288	228.802	BLANK	.000000	-.000037	.000037

	LOW	.500000	.512240	-.012240
	MID	1.00000	1.01778	-.017783
	HIGH	2.00000	1.99848	.001517

rCoef: 0.99994

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
o2286	228.616	BLANK	.000000	-.000022	.000022
		LOW	.500000	.505685	-.005685
		MID	1.00000	1.00265	-.002651
		HIGH	2.00000	2.00085	-.000847

orCoef: 1.00000

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
r2677	267.716	BLANK	.000000	-.000042	.000042
		LOW	.500000	.504957	-.004957
		MID	1.00000	.995924	.004076
		HIGH	2.00000	1.97650	.023503

orCoef: 0.99998

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
u3247	324.754	BLANK	.000000	-.000014	.000014
		LOW	.500000	.501626	-.001626
		MID	1.00000	1.00500	-.005003
		HIGH	2.00000	1.98883	.011171

orCoef: 0.99998

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
e	259.940	BLANK	.000000	-.000369	.000369
		LOW	5.00000	5.03719	-.037192
		MID	10.0000	10.0735	-.073524
		HIGH	20.0000	19.7066	.293419

orCoef: 0.99992

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
e	271.441	BLANK	.000000	-.000605	.000605
		LOW	5.00000	5.20622	-.206223
		MID	10.0000	10.2237	-.223744
		HIGH	20.0000	20.1928	-.192789

orCoef: 0.99995

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
7664	766.491	BLANK	.000000	-.000788	.000788
		LOW	5.00000	5.08218	-.082179
		MID	100.000	98.9479	1.05212
		HIGH	200.000	198.817	1.18291

orCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mg2790	279.079	BLANK	.000000	-.000254	.000254
		LOW	5.00000	5.02438	-.024378
		MID	10.0000	9.98678	.013217
		HIGH	20.0000	19.8237	.176258

orCoef: 0.99999

ment	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
Mn2576	257.610	BLANK	.000000	-.000028	.000028

	LOW	.500000	.504856	-.004856
	MID	1.00000	.999554	.000446
	HIGH	2.00000	1.99118	.008824

CorCoef: 0.99999

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Mo2020	202.030	BLANK	.000000	-.000028	.000028
		LOW	.500000	.502670	-.002670
		MID	1.00000	1.00235	-.002353
		HIGH	2.00000	1.97798	.022021

CorCoef: 0.99997

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Na5889	588.995	BLANK	.000000	-.000071	.000071
		LOW	5.00000	5.01207	-.012073
		MID	10.0000	9.98419	.015807
		HIGH	20.0000	19.9833	.016676

CorCoef: 1.00000

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Ni2316	231.604	BLANK	.000000	-.000057	.000057
		LOW	.500000	.509241	-.009241
		MID	1.00000	.996316	.003684
		HIGH	2.00000	1.97930	.020703

CorCoef: 0.99997

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Pb2203	220.353	BLANK	.000000	.000001	-.000001
		LOW	.500000	.507088	-.0[illegible]88
		MID	1.00000	1.02826	-.0[illegible]60
		HIGH	2.00000	2.02279	-.02[illegible]87

CorCoef: 0.99995

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Sb2068	206.838	BLANK	.000000	.000009	-.000009
		LOW	.500000	.502087	-.002087
		MID	1.00000	1.02191	-.021909
		HIGH	2.00000	2.01029	-.010293

CorCoef: 0.99995

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Se1960	196.026	BLANK	.000000	-.000023	.000023
		LOW	.700000	.750919	-.05091[illegible]
		MID	1.00000	1.08196	-.08196[illegible]
		HIGH	2.00000	2.17571	-.17570[illegible]

CorCoef: 0.99998

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrat
Sn1899	189.989	BLANK	.000000	-.000049	.000049
		LOW	.500000	.501451	-.00145
		MID	1.00000	.988877	.011123
		HIGH	2.00000	1.95392	.046077

CorCoef: 0.99996

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrat
Tl3349	334.941	BLANK	.000000	-.000021	.000021

LOW	.500000	.503024	-.003024
MID	1.00000	.999474	.000526
HIGH	2.00000	1.99055	.009445

rCoef: 0.99999

ement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
11908	190.864	BLANK	.000000	-.000076	.000076
		LOW	.700000	.716467	-.016467
		MID	1.00000	.991157	.008843
		HIGH	2.00000	1.97968	.020320

orCoef: 0.99990

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
_2924	292.402	BLANK	.000000	-.000023	.000023
		LOW	.500000	.507411	-.007411
		MID	1.00000	1.01136	-.011355
		HIGH	2.00000	2.00342	-.003423

orCoef: 0.99998

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
n2138	213.856	BLANK	.000000	-.000028	.000028
		LOW	.500000	.506606	-.006606
		MID	1.00000	1.01006	-.010064
		HIGH	2.00000	1.99461	.005391

orCoef: 0.99997

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ethod: COE Sample Name: CCV*HIGHSTD*1 Operator:
un Time: 03/22/96 13:14:25
ment:
de: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.986	20.05	1.975	1.991	2.017	2.005	20.19
SDev	.011	.13	.013	.021	.007	.012	.15
%RSD	.5447	.6404	.6537	1.058	.3418	.5770	.7235
#1	1.982	20.01	1.960	1.967	2.015	2.002	20.15
#2	1.998	20.19	1.984	2.005	2.025	2.018	20.35
#3	1.977	19.95	1.980	2.001	2.012	1.996	20.07

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.987	2.011	2.005	2.005	19.74	200.0	19.98
SDev	.010	.010	.012	.010	.12	.9	.10
%RSD	.5027	.4739	.6179	.4969	.6278	.4611	.4897
#1	1.984	2.008	2.002	2.002	19.74	199.7	19.95
#2	1.998	2.021	2.019	2.016	19.87	201.1	20.09
#3	1.979	2.003	1.995	1.996	19.62	199.3	19.90

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
ge	2.009	1.999	20.08	1.986	1.997	1.997	2.017
ev	.013	.016	.03	.009	.023	.008	.003
%RSD	.6644	.8247	.3957	.4730	1.155	.4243	.1549

#1	2.004	2.001	20.00	1.986	1.992	2.003	2.016
#2	2.025	2.014	20.16	1.995	2.023	2.001	2.021
#3	2.000	1.981	20.07	1.976	1.977	1.987	2.01

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	2.015	2.007	1.968	2.006	2.000
SDev	.012	.011	.015	.013	.014
%RSD	.6176	.5615	.7670	.6550	.7020
#1	2.009	2.006	1.965	2.003	1.999
#2	2.029	2.018	1.984	2.021	2.014
#3	2.005	1.996	1.954	1.995	1.986

Method: COE Sample Name: ICV*ICAP19*1 Operator: GLP
Run Time: 03/22/96 13:17:34
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0015	.0142	1.009	.0080	.0012	1.002	1.003
SDev	.0009	.0120	.017	.0026	.0010	.009	.002
%RSD	58.67	84.11	1.656	32.77	88.27	.9448	.2230
#1	.0005	.0156	1.021	.0086	.0020	1.010	1.004
#2	.0020	.0254	1.017	.0103	.0016	.9916	1.00
#3	.0020	.0016	.9903	.0052	-.0000	1.004	1.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9964	.9995	1.001	.9954	.9920	.1338	1.001
SDev	.0070	.0029	.004	.0079	.0104	.4483	.007
%RSD	.7045	.2932	.3808	.7920	1.054	335.0	.7449
#1	.9923	1.001	1.005	1.001	1.003	-.2264	1.008
#2	.9924	.9961	.9972	.9864	.9827	.6359	.9932
#3	1.005	1.001	1.003	.9989	.9901	-.0081	1.001

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.010	.9958	.0174	1.002	1.001	1.000	1.001
SDev	.006	.0082	.0067	.008	.009	.005	.016
%RSD	.6169	.8198	38.36	.8376	.8922	.5276	1.635
#1	1.016	1.003	.0099	1.008	.9929	.9942	.9899
#2	1.004	.9868	.0228	.9928	1.001	1.002	.9941
#3	1.011	.9981	.0194	1.007	1.011	1.004	1.020

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0131	.9928	.9676	1.008	.9997
SDev	.0065	.0097	.0226	.009	.0032
%RSD	49.78	.9749	2.336	.8995	.3190

#1	.0200	1.001	.9929	1.013	1.001
#2	.0121	.9824	.9603	.9975	.9961
#3	.0071	.9947	.9495	1.013	1.002

Method: COE Sample Name: ICS*A*1 Operator: GLP
Run Time: 03/22/96 13:24:27
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0058	490.6	-.0490	-.0052	.0048	.0005	478.1
SDev	.0013	3.5	.0642	.0043	.0006	.0005	2.3
%RSD	23.23	.7126	131.2	81.82	12.39	97.18	.4872
#1	-.0068	488.1	-.1123	-.0007	.0047	.0010	476.5
#2	-.0042	489.0	.0161	-.0059	.0055	.0002	477.0
#3	-.0063	494.6	-.0506	-.0092	.0043	.0002	480.8

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0000	.0008	-.0055	.0019	187.5	-.3683	490.0
SDev	.0016	.0008	.0020	.0016	1.1	.3754	3.4
%RSD	3335.	103.0	36.64	82.57	.5636	101.9	.6877
#1	.0018	.0016	-.0064	.0035	186.9	.0465	487.3
#2	-.0014	.0004	-.0032	.0019	186.9	-.4665	488.9
#3	-.0003	.0002	-.0068	.0003	188.7	-.6848	493.8

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0052	.0051	-.0147	-.0122	-.0242	-.0087	-.0111
SDev	.0002	.0029	.0161	.0019	.0273	.0175	.0170
%RSD	3.658	56.12	109.6	15.58	112.5	200.9	153.3
#1	-.0054	.0081	-.0329	-.0140	.0047	-.0226	.0008
#2	-.0050	.0025	-.0029	-.0102	-.0280	-.0146	-.0035
#3	-.0051	.0047	-.0081	-.0123	-.0494	.0110	-.0306

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0233	.0061	.0046	.0026	.0101
SDev	.0080	.0008	.0956	.0021	.0010
%RSD	34.45	12.87	2090.	81.97	10.21
#1	.0302	.0070	-.0582	.0001	.0090
#2	.0145	.0057	.1146	.0037	.0110
#3	.0251	.0057	-.0427	.0040	.0103

Method: COE Sample Name: ICS*AB*1 Operator: GLP
Run Time: 03/22/96 13:26:38
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9582	499.8	-.0745	-.0136	.4930	.4719	484.1
SDev	.0064	4.5	.1111	.0052	.0049	.0051	4.6
%RSD	.6698	.8982	149.1	38.15	.9862	1.082	.951
#1	.9545	497.6	-.0707	-.0148	.4904	.4690	481.2
#2	.9656	505.0	.0346	-.0181	.4986	.4778	489.4
#3	.9545	496.9	-.1875	-.0079	.4900	.4690	481.7

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9393	.4570	.4565	.4794	190.2	-.2700	499.4
SDev	.0097	.0045	.0045	.0035	1.5	.0787	4.5
%RSD	1.035	.9871	.9879	.7229	.7959	29.15	.8916
#1	.9353	.4547	.4567	.4771	189.2	-.1827	496.8
#2	.9504	.4621	.4608	.4834	192.0	-.3355	504.5
#3	.9322	.4540	.4518	.4776	189.6	-.2919	496.9

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4556	.0037	-.0006	.9020	.9097	.0087	.0046
SDev	.0040	.0079	.0154	.0041	.0158	.0225	.0140
%RSD	.8872	215.3	2389.	.4526	1.738	257.9	307.6
#1	.4530	-.0042	.0031	.8973	.9050	.0337	.0119
#2	.4602	.0115	-.0175	.9042	.8968	-.0098	-.0116
#3	.4535	.0037	.0125	.9046	.9274	.0022	.0134

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0270	.0062	.0450	.4866	.9437
SDev	.0092	.0012	.0318	.0029	.0066
%RSD	34.14	18.97	70.57	.6068	.6949
#1	.0164	.0069	.0628	.4861	.9388
#2	.0327	.0069	.0639	.4898	.9511
#3	.0319	.0049	.0083	.4840	.9412

Method: COE , Sample Name: ICB*QC*1 Operator: GLP
Run Time: 03/22/96 13:33:22
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	-.0082	-.0094	-.0018	-.0000	-.0006	-.0045
SDev	.0008	.0022	.0033	.0026	.0000	.0000	.0026
%RSD	164.2	27.15	35.72	148.3	.0000	.8546	58.53
#1	-.0004	-.0058	-.0080	-.0012	-.0000	-.0006	-.0032
#2	.0006	-.0102	-.0069	.0005	-.0000	-.0006	-.0027
#3	.0011	-.0087	-.0132	-.0046	-.0000	-.0006	-.0075

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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Avge	.0011	-.0007	-.0006	-.0004	.0016	-.4265	-.0027
SDev	.0005	.0023	.0017	.0009	.0004	.1927	.0092
%RSD	47.39	347.9	290.0	254.7	26.49	45.18	345.4
	.0006	-.0000	-.0011	.0007	.0014	-.6070	-.0124
	.0016	.0013	.0013	-.0009	.0021	-.4491	.0059
#3	.0011	-.0032	-.0020	-.0009	.0014	-.2235	-.0015

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	-.0012	.0039	.0011	.0081	.0026	-.0017
SDev	.0003	.0024	.0094	.0041	.0153	.0079	.0119
%RSD	1021.	204.9	241.2	379.5	189.2	299.0	691.1
#1	.0003	.0007	.0131	.0055	.0040	-.0045	-.0141
#2	-.0002	-.0004	-.0058	.0004	.0250	.0013	-.0009
#3	-.0002	-.0038	.0045	-.0026	-.0048	.0111	.0097

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0035	-.0005	-.0056	.0004	.0004
SDev	.0052	.0004	.0143	.0012	.0004
%RSD	149.3	83.23	255.7	271.6	113.2
#1	.0021	-.0007	.0065	.0011	-.0001
#2	-.0082	-.0000	-.0019	.0011	.0004
#3	-.0043	-.0007	-.0213	-.0009	.0008

Method: COE Sample Name: MB*REAGENTS*1 Operator: GLP
Date Time: 03/22/96 13:38:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0022	-.0179	-.0103	.0034	-.0001	-.0003	-.0045
SDev	.0016	.0012	.0077	.0020	.0006	.0005	.0036
%RSD	72.38	6.616	74.36	58.45	454.9	151.5	79.77
#1	-.0034	-.0168	-.0162	.0057	.0004	-.0006	-.0003
#2	-.0029	-.0176	-.0016	.0022	-.0008	-.0006	-.0046
#3	-.0004	-.0191	-.0131	.0022	-.0000	.0002	-.0080

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0001	-.0000	-.0006	-.0000	.0019	-.2310	-.0063
SDev	.0008	.0029	.0009	.0011	.0022	.2304	.0085
%RSD	634.7	13120.	161.3	14630.	121.6	99.73	133.7
#1	.0001	.0032	-.0011	.0012	-.0001	-.0656	-.0014
#2	.0005	-.0007	-.0011	-.0004	.0014	-.4942	-.0161
#3	-.0010	-.0026	.0005	-.0009	.0043	-.1333	-.0014

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	-.0000	.0102	.0004	-.0015	.0065	.0005

SDev	.0000	.0017	.0228	.0011	.0154	.0113	.0053
%RSD	.2708	8045.	223.2	310.6	1057.	174.6	1031.
#1	-.0002	-.0015	-.0161	-.0005	.0162	-.0066	.005
#2	-.0002	.0019	.0233	-.0000	-.0125	.0130	-.00
#3	-.0002	-.0004	.0233	.0016	-.0081	.0130	.0005

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0072	-.0000	-.0000	-.0007	.0011
SDev	.0059	.0007	.0446	.0011	.0002
%RSD	81.41	3815.	200200.	147.7	22.51
#1	.0137	.0007	.0426	-.0016	.0012
#2	.0059	-.0000	-.0464	-.0010	.0012
#3	.0021	-.0007	.0037	.0004	.0008

Method: COE Sample Name: MB*QC*1 Operator: GLP
Run Time: 03/22/96 13:45:51
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0019	.1718	.0003	.0355	.0016	.0002	.1076
SDev	.0018	.0110	.0216	.0020	.0004	.0000	.0029
%RSD	92.67	6.428	7482.	5.592	25.02	1.971	2.698
#1	-.0009	.1841	.0088	.0366	.0012	.0002	.11
#2	-.0009	.1627	.0163	.0366	.0020	.0002	.106
#3	-.0039	.1686	-.0243	.0332	.0016	.0002	.1050

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0019	-.0002	.0010	.5423	-.0807	.0683
SDev	.0012	.0011	.0009	.0017	.0019	.3081	.0132
%RSD	248.0	59.69	528.4	162.0	.3596	382.0	19.36
#1	.0009	.0012	-.0007	.0017	.5416	.2614	.0536
#2	.0014	.0031	.0009	.0023	.5409	-.1671	.0793
#3	-.0009	.0012	-.0007	-.0009	.5445	-.3363	.0719

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0281	-.0004	.4691	-.0001	.0162	-.0000	.0037
SDev	.0006	.0011	.0070	.0019	.0113	.0128	.0033
%RSD	1.963	270.8	1.496	3523.	69.63	104800.	89.00
#1	.0284	.0007	.4631	-.0009	.0192	.0131	.0072
#2	.0284	-.0015	.4768	.0021	.0258	-.0007	.0006
#3	.0275	-.0004	.4674	-.0013	.0038	-.0124	.0033

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0025	.0032	-.0334	.0020	.0032
SDev	.0143	.0004	.0179	.0011	.0004

%RSD	577.2	12.44	53.52	54.09	12.65
#1	-.0082	.0034	-.0464	.0017	.0028
#2	.0187	.0034	-.0130	.0031	.0036
#3	-.0031	.0027	-.0408	.0010	.0032

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ethod: COE Sample Name: SP*QC*1 Operator: GLP
un Time: 03/22/96 13:50:16
omment:
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0471	2.275	1.904	1.010	1.886	.0493	9.491
SDev	.0008	.014	.012	.003	.003	.0005	.033
%RSD	1.644	.6028	.6157	.2605	.1844	.9297	.3453
#1	.0464	2.265	1.913	1.008	1.885	.0491	9.471
#2	.0479	2.290	1.890	1.013	1.890	.0499	9.529
#3	.0469	2.268	1.908	1.010	1.883	.0491	9.473

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0477	.4812	.1959	.2397	1.565	9.175	9.605
SDev	.0015	.0017	.0017	.0008	.007	.318	.017
%RSD	3.212	.3503	.8700	.3326	.4741	3.464	.1752
#1	.0485	.4824	.1953	.2396	1.572	9.069	9.601
#2	.0487	.4818	.1978	.2406	1.566	8.923	9.623
#3	.0460	.4792	.1945	.2390	1.557	9.532	9.590

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4968	.4684	9.723	.4791	.4709	.4832	1.931
SDev	.0019	.0011	.012	.0060	.0061	.0011	.027
%RSD	.3882	.2418	.1203	1.246	1.290	.2274	1.416
#1	.4957	.4672	9.736	.4834	.4772	.4845	1.956
#2	.4990	.4695	9.715	.4817	.4706	.4826	1.936
#3	.4957	.4684	9.717	.4723	.4651	.4825	1.902

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.9469	.4751	1.861	.4688	.4693
SDev	.0139	.0008	.018	.0017	.0019
%RSD	1.465	.1659	.9718	.3722	.3933
#1	.9623	.4746	1.880	.4686	.4694
#2	.9354	.4760	1.844	.4706	.4711
#3	.9431	.4746	1.860	.4672	.4674

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ethod: COE Sample Name: MABBS*1 Operator: GLP
Time: 03/22/96 13:56:45
ent:

Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0115	100.4	.0851	.0759	.3704	.0111	5.[illegible]
SDev	.0006	.4	.0214	.0028	.0015	.0005	.0[illegible]
%RSD	5.052	.4081	25.09	3.704	.4001	4.164	.4424
#1	.0108	100.2	.0933	.0735	.3710	.0106	5.423
#2	.0119	100.2	.0609	.0752	.3687	.0114	5.434
#3	.0119	100.9	.1011	.0790	.3714	.0114	5.469

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0852	.1764	.1838	304.2	8.250	13.82
SDev	.0010	.0012	.0012	.0016	2.4	.361	.09
%RSD	130.1	1.374	.6724	.8671	.7758	4.375	.6450
#1	-.0004	.0842	.1751	.1824	302.8	7.885	13.79
#2	.0015	.0848	.1771	.1834	302.9	8.257	13.75
#3	.0011	.0865	.1771	.1855	307.0	8.607	13.92

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	6.057	.0083	5.492	.1450	.1589	-.0093	-.0547
SDev	.029	.0036	.035	.0043	.0050	.0119	.0093
%RSD	.4828	42.99	.6356	2.962	3.127	128.0	16.98
#1	6.035	.0057	5.467	.1492	.1637	-.0033	-.0593
#2	6.047	.0068	5.476	.1453	.1538	-.0230	-.[illegible]
#3	6.091	.0123	5.532	.1406	.1592	-.0016	-.[illegible]

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0135	.4277	-.0094	.2314	.4826
SDev	.0061	.0022	.0632	.0008	.0048
%RSD	45.09	.5133	675.0	.3365	1.003
#1	.0107	.4268	-.0729	.2305	.4783
#2	.0094	.4261	-.0088	.2319	.4816
#3	.0205	.4302	.0536	.2318	.4878

Method: COE Sample Name: MABBS*2 Operator: GLP
Run Time: 03/22/96 13:58:59
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	84.97	.0502	.0652	1.518	.0074	9.260
SDev	.0003	.41	.0189	.0045	.006	.0008	.049
%RSD	73.64	.4833	37.64	6.875	.4167	10.84	.5330
#1	-.0006	84.50	.0288	.0685	1.512	.0066	9.[illegible]
#2	-.0001	85.19	.0647	.0601	1.519	.0074	9.[illegible]
#3	-.0006	85.22	.0572	.0670	1.524	.0082	9.[illegible]

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Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0019	.1357	.1271	.1427	160.1	7.517	18.54
SDev	.0006	.0020	.0027	.0014	1.0	.144	.12
%RSD	33.46	1.455	2.147	.9690	.6519	1.912	.6404
#1	.0013	.1335	.1239	.1416	158.9	7.682	18.40
#2	.0020	.1372	.1284	.1442	160.8	7.445	18.61
#3	.0026	.1365	.1288	.1422	160.6	7.423	18.60

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	7.893	.0070	4.956	.1631	.1505	-.0012	-.0285
SDev	.033	.0022	.043	.0060	.0158	.0049	.0080
%RSD	.4220	31.96	.8738	3.697	10.48	422.5	28.27
#1	7.855	.0048	4.908	.1567	.1469	.0035	-.0341
#2	7.918	.0070	4.970	.1687	.1678	-.0064	-.0193
#3	7.906	.0093	4.991	.1640	.1369	-.0006	-.0320

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0130	.3940	-.0011	.2216	.5485
SDev	.0114	.0025	.0571	.0016	.0035
%RSD	87.67	.6249	5408.	.7140	.6396
#1	.0013	.3933	.0307	.2199	.5456
#2	.0137	.3920	-.0670	.2217	.5524
#3	.0241	.3968	.0331	.2231	.5475

Method: COE Sample Name: MABBS#3 Operator: GLP
Run Time: 03/22/96 14:00:59
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0038	101.0	.1682	.0659	13.11	.0277	9.666
SDev	.0008	.6	.0392	.0076	.07	.0008	.053
%RSD	20.63	.5569	23.28	11.56	.5117	2.886	.5523
#1	-.0039	101.3	.2093	.0746	13.12	.0277	9.692
#2	-.0044	100.3	.1641	.0605	13.03	.0269	9.604
#3	-.0029	101.3	.1313	.0627	13.17	.0285	9.701

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0013	.0441	.1771	.3658	744.5	8.840	13.50
SDev	.0017	.0019	.0019	.0019	3.2	.113	.08
%RSD	125.3	4.390	1.044	.5146	.4259	1.278	.5870
#1	.0011	.0463	.1788	.3673	746.0	8.799	13.55
#2	.0031	.0429	.1752	.3637	740.9	8.968	13.40
#3	-.0002	.0430	.1772	.3663	746.7	8.754	13.53

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.685	.0335	4.206	.1815	.2004	.0011	L-.2135
SDev	.014	.0023	.005	.0092	.0129	.0101	.0341
%RSD	.5160	6.775	.1159	5.060	6.413	905.0	15.[illegible]
#1	2.694	.0342	4.210	.1880	.1944	-.0015	L-.2503
#2	2.669	.0309	4.200	.1710	.1917	-.0075	L-.2070
#3	2.692	.0353	4.207	.1855	.2152	.0123	-.1831

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0054	.3997	.0008	.1796	.5199
SDev	.0107	.0010	.0854	.0016	.0026
%RSD	196.7	.2609	10950.	.8761	.4911
#1	.0070	.4008	.0994	.1798	.5218
#2	.0152	.3988	-.0486	.1779	.5170
#3	-.0059	.3995	-.0484	.1811	.5209

Method: COE Sample Name: MABBS*4 Operator: GLP
Run Time: 03/22/96 14:03:34
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	123.3	.0425	.0618	.4781	.0087	7.899
SDev	.0011	.6	.0126	.0072	.0050	.0008	.0[illegible]
%RSD	89.00	.5223	29.69	11.65	1.056	9.172	.49[illegible]
#1	.0003	124.0	.0566	.0699	.4838	.0079	7.937
#2	.0024	122.7	.0322	.0594	.4740	.0095	7.860
#3	.0008	123.2	.0387	.0561	.4767	.0087	7.902

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0514	.1720	.1857	148.9	12.57	22.21
SDev	.0007	.0010	.0015	.0006	1.0	.18	.11
%RSD	143.4	2.015	.8999	.3255	.6433	1.453	.5140
#1	.0000	.0511	.1738	.1860	149.6	12.78	22.32
#2	.0013	.0525	.1709	.1850	147.8	12.45	22.09
#3	.0002	.0505	.1713	.1860	149.2	12.48	22.23

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.268	.0075	4.579	.2145	.1059	.0025	-.0054
SDev	.012	.0034	.024	.0083	.0062	.0129	.0110
%RSD	.5340	45.84	.5230	3.871	5.840	525.8	205.2
#1	2.281	.0074	4.600	.2051	.0988	.0108	.0000
#2	2.257	.0109	4.583	.2174	.1099	.0090	-.0181
#3	2.268	.0041	4.553	.2209	.1090	-.0124	.00[illegible]

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm

Avge	.0180	.4170	-.0115	.2837	.6328
SDev	.0093	.0043	.0107	.0012	.0039
%RSD	51.71	1.040	92.90	.4330	.6094
	.0237	.4220	-.0238	.2826	.6367
#2	.0229	.4145	-.0065	.2850	.6290
#3	.0072	.4145	-.0043	.2834	.6326

Method: COE Sample Name: MABBS*5 Operator: GLP
Run Time: 03/22/96 14:06:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0207	88.87	.0253	.1281	.5700	.0086	5.958
SDev	.0018	.29	.0203	.0030	.0022	.0005	.012
%RSD	8.474	.3254	80.07	2.320	.3782	5.471	.2084
#1	.0197	89.06	.0449	.1315	.5714	.0089	5.953
#2	.0197	89.01	.0044	.1265	.5710	.0089	5.972
#3	.0228	88.54	.0267	.1263	.5675	.0081	5.949

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0004	.0809	9.579	3.050	642.5	7.686	6.971
SDev	.0003	.0030	.020	.004	.8	.053	.027
%RSD	77.80	3.676	.2070	.1401	.1168	.6934	.3896
#1	.0001	.0820	9.586	3.054	642.1	7.727	6.992
#2	.0005	.0832	9.595	3.051	643.4	7.705	6.981
#3	.0008	.0776	9.557	3.045	642.1	7.626	6.941

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	7.753	.0055	7.757	.1745	.1750	-.0002	-.1678
SDev	.026	.0040	.025	.0044	.0050	.0041	.0196
%RSD	.3301	72.42	.3163	2.552	2.877	1751.	11.67
#1	7.763	.0059	7.770	.1709	.1702	-.0003	-.1466
#2	7.772	.0092	7.772	.1795	.1803	-.0043	-.1715
#3	7.724	.0013	7.728	.1731	.1745	.0039	-.1852

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0017	.4033	-.0783	.2467	.7689
SDev	.0015	.0010	.0654	.0015	.0028
%RSD	89.44	.2581	83.56	.6295	.3666
#1	-.0001	.4024	-.0038	.2463	.7687
#2	.0025	.4045	-.1045	.2454	.7719
#3	.0027	.4031	-.1266	.2484	.7663

Method: COE Sample Name: MABBS*6 Operator: GLP

Run Time: 03/22/96 14:09:11
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	81.18	.0191	.0505	.2907	.0067	7.657
SDev	.0015	.36	.0103	.0054	.0004	.0000	.031
%RSD	267.1	.4465	54.05	10.67	.1555	.0696	.4099
#1	.0003	80.84	.0276	.0527	.2904	.0067	7.625
#2	.0003	81.13	.0219	.0545	.2904	.0067	7.658
#3	-.0022	81.56	.0076	.0444	.2912	.0067	7.687

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	.0472	.1121	.1591	111.7	6.566	19.41
SDev	.0007	.0013	.0035	.0011	1.9	.119	.06
%RSD	59.86	2.843	3.118	.6842	1.714	1.818	.3104
#1	.0013	.0464	.1125	.1594	110.4	6.611	19.36
#2	.0019	.0464	.1153	.1599	110.7	6.656	19.41
#3	.0004	.0487	.1084	.1578	113.9	6.430	19.48

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.630	.0060	4.245	.1755	.0899	.0040	-.0187
SDev	.005	.0054	.012	.0033	.0039	.0059	.0128
%RSD	.3141	89.74	.2933	1.883	4.316	148.8	68.40
#1	1.625	.0121	4.233	.1718	.0912	-.0025	-.0[illegible]
#2	1.630	.0019	4.258	.1765	.0930	.0091	-.0176
#3	1.635	.0040	4.244	.1782	.0855	.0054	-.0320

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0152	.3742	-.0031	.1989	.5619
SDev	.0161	.0030	.0551	.0011	.0011
%RSD	105.4	.7958	1753.	.5663	.1932
#1	-.0017	.3729	-.0082	.1986	.5607
#2	.0302	.3722	-.0555	.1979	.5627
#3	.0172	.3776	.0543	.2001	.5624

Method: COE Sample Name: CCV*QC*1 Operator: GLP
Run Time: 03/22/96 14:12:01
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4911	4.932	.6979	.5010	.4870	.4934	4.890
SDev	.0044	.023	.0094	.0062	.0023	.0026	.022
%RSD	.9005	.4589	1.348	1.240	.4709	.5230	.4516
#1	.4874	4.925	.6883	.4992	.4861	.4923	4.8[illegible]
#2	.4899	4.913	.7071	.4958	.4853	.4915	4.878

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#3	.4960	4.957	.6984	.5079	.4896	.4963	4.916

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4964	.4908	.4943	.4884	4.966	4.754	4.941
SDev	.0051	.0018	.0030	.0035	.022	.416	.029
%RSD	1.028	.3750	.6104	.7120	.4378	8.756	.5771
#1	.4914	.4887	.4932	.4867	4.975	5.201	4.918
#2	.5016	.4919	.4920	.4861	4.941	4.378	4.932
#3	.4960	.4919	.4977	.4924	4.982	4.682	4.973

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4932	.4906	4.890	.5004	.4921	.5033	.6991
SDev	.0022	.0013	.031	.0095	.0105	.0117	.0061
%RSD	.4466	.2693	.6323	1.896	2.142	2.325	.8763
#1	.4919	.4898	4.860	.4987	.5020	.4916	.7062
#2	.4919	.4898	4.888	.4919	.4932	.5150	.6958
#3	.4957	.4921	4.922	.5107	.4810	.5035	.6954

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.4984	.4893	.6844	.4891	.4996
SDev	.0122	.0020	.0321	.0026	.0031
%RSD	2.451	.4028	4.688	.5361	.6243
#1	.4997	.4882	.6732	.4880	.5003
#2	.5099	.4882	.6593	.4873	.4961
#3	.4856	.4916	.7205	.4921	.5023

Method: CDE Sample Name: CCB*QC*1 Operator: GLP
Run Time: 03/22/96 14:17:32
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B 2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	-.0078	.0035	.0011	-.0000	-.0000	-.0034
SDev	.0009	.0055	.0117	.0040	.0000	.0005	.0051
%RSD	234.5	70.73	337.5	364.6	.0000	1142.	151.1
#1	.0006	-.0058	.0169	.0057	-.0000	.0002	.0025
#2	-.0009	-.0139	-.0027	-.0012	-.0000	.0002	-.0065
#3	-.0009	-.0035	-.0038	-.0012	-.0000	-.0006	-.0061

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0008	-.0002	.0005	.0026	-.4190	-.0063
SDev	.0004	.0019	.0025	.0011	.0011	.0396	.0148
%RSD	51.11	222.2	1427.	210.9	43.49	9.453	234.9
#1	.0003	.0019	.0026	.0017	.0036	-.4152	.0096
#2	.0010	-.0013	-.0024	.0002	.0028	-.4603	-.0198
#3	.0010	.0019	-.0007	-.0004	.0014	-.3814	-.0088

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0000	.0004	.0031	.0005	.0029	.0072	.004[illegible]
SDev	.0003	.0017	.0137	.0024	.0029	.0052	.004[illegible]
%RSD	1020.	485.1	448.8	468.9	99.27	72.18	95.43
#1	.0003	.0019	.0165	-.0022	.0018	.0013	.0004
#2	-.0002	.0007	.0036	.0025	.0007	.0092	.0045
#3	-.0002	-.0015	-.0109	.0012	.0062	.0111	.0097

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0090	-.0012	-.0343	.0004	.0004
SDev	.0045	.0008	.0140	.0007	.0004
%RSD	49.72	68.19	40.77	157.2	108.5
#1	-.0095	-.0007	-.0214	.0011	-.0000
#2	-.0133	-.0007	-.0325	.0004	.0004
#3	-.0043	-.0021	-.0492	-.0003	.0008

Method: COE Sample Name: MABBS*7 Operator: GLP
Run Time: 03/22/96 14:20:12
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0046	9.603	.1702	.0685	.3931	.0017	98.[illegible]
SDev	.0013	.064	.0343	.0083	.0016	.0009	.68[illegible]
%RSD	28.83	.6693	20.13	12.06	.4024	53.40	.6719
#1	-.0051	9.658	.1756	.0728	.3945	.0007	98.83
#2	-.0031	9.619	.2014	.0590	.3933	.0023	98.68
#3	-.0056	9.532	.1335	.0737	.3914	.0023	97.62

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0040	.0119	.1418	4.853	890.7	.9607	3.714
SDev	.0015	.0022	.0012	.028	5.9	.3516	.041
%RSD	37.37	18.66	.8368	.5869	.6656	36.60	1.110
#1	.0025	.0144	.1425	4.876	894.9	.7577	3.711
#2	.0039	.0113	.1425	4.862	893.3	.7577	3.756
#3	.0055	.0101	.1405	4.821	883.9	1.367	3.673

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	8.951	.2023	3.424	.0475	1.229	.0042	L-.2316
SDev	.052	.0027	.033	.0058	.011	.0113	.0281
%RSD	.5785	1.330	.9570	12.17	.8843	270.7	12.14
#1	8.986	.2025	3.440	.0414	1.220	.0173	L-.2163
#2	8.974	.2048	3.445	.0529	1.241	-.0024	L-.2[illegible]
#3	8.891	.1995	3.386	.0482	1.226	-.0023	L-.2[illegible]

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0571	1.854	.0365	.0890	11.65
SDev	.0200	.012	.0610	.0006	.09
%RSD	35.04	.6438	167.4	.6412	.8060
#1	.0387	1.864	-.0088	.0892	11.70
#2	.0784	1.857	.1059	.0895	11.71
#3	.0543	1.841	.0123	.0884	11.54

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ethod: COE Sample Name: SD*MABBS*7 Operator: GLP
un Time: 03/22/96 14:24:56
omment:
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0010	1.932	.0471	.0126	.0795	.0004	20.32
SDev	.0013	.013	.0032	.0026	.0010	.0005	.03
%RSD	130.0	.6622	6.791	20.87	1.303	110.9	.1362
#1	-.0025	1.921	.0503	.0149	.0787	.0010	20.2[illegible]
#2	-.0000	1.929	.0471	.0132	.0791	.0001	20.34
#3	-.0005	1.946	.0439	.0097	.0806	.0002	20.34

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0009	.0037	.0295	.9997	177.4	.0096	.7457
SDev	.0019	.0017	.0015	.0027	.1	.1813	.0093
%RSD	209.3	45.25	5.232	.2681	.0295	1895.	1.242
#1	.0031	.0031	.0288	.9974	177.4	-.1220	.7469
#2	.0001	.0056	.0313	.9990	177.5	-.0656	.7359
#3	-.0004	.0025	.0284	1.003	177.4	.2163	.7543

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.847	.0410	.6965	.0106	.2602	.0075	-.0316
SDev	.001	.0024	.0102	.0089	.0061	.0059	.0100
%RSD	.0649	5.781	1.468	84.20	2.339	79.18	31.76
#1	1.846	.0402	.6894	.0017	.2672	.0139	-.0244
#2	1.848	.0391	.6919	.0106	.2573	.0060	-.0274
#3	1.849	.0436	.7082	.0196	.2562	.0024	-.0431

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0051	.3722	-.0337	.0199	2.457
SDev	.0161	.0000	.0483	.0011	.003
%RSD	319.2	.0001	143.1	5.349	.1179
#1	-.0072	.3722	-.0894	.0208	2.458
#2	.0120	.3722	-.0032	.0201	2.458
#3	-.0200	.3722	-.0087	.0187	2.453

Method: COE Sample Name: SPX*MABBS*7 Operator: GLP
Run Time: 03/22/96 14:27:30
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2441	7.290	.4265	.2886	.4428	.2468	51.83
SDev	.0013	.011	.0047	.0029	.0010	.0005	.04
%RSD	.5213	.1484	1.111	1.019	.2224	.1888	.0786
#1	.2429	7.284	.4283	.2903	.4438	.2465	51.84
#2	.2454	7.303	.4300	.2852	.4427	.2473	51.78
#3	.2439	7.285	.4211	.2903	.4419	.2465	51.86

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2540	.2498	.3153	2.682	450.2	2.987	4.361
SDev	.0045	.0020	.0033	.003	.5	.147	.017
%RSD	1.758	.7910	1.048	.1107	.1041	4.928	.3994
#1	.2535	.2503	.3191	2.682	449.9	3.126	4.381
#2	.2499	.2477	.3134	2.684	450.7	2.833	4.347
#3	.2587	.2515	.3133	2.678	449.9	3.002	4.355

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.744	.3456	4.227	.2714	.8771	.2545	.25[illegible]
SDev	.003	.0030	.016	.0059	.0098	.0086	.02[illegible]
%RSD	.0606	.8613	.3838	2.159	1.119	3.379	11.20
#1	4.747	.3445	4.220	.2701	.8849	.2447	.2423
#2	4.745	.3490	4.246	.2662	.8661	.2604	.2925
#3	4.741	.3433	4.216	.2778	.8804	.2586	.2421

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.2595	1.174	.2519	.2903	6.175
SDev	.0052	.002	.0283	.0014	.008
%RSD	2.000	.2043	11.23	.4788	.1373
#1	.2647	1.176	.2196	.2889	6.166
#2	.2543	1.171	.2637	.2902	6.175
#3	.2595	1.174	.2724	.2917	6.183

Method: COE Sample Name: SPM1*MABBS*7 Operator: GLP
Run Time: 03/22/96 14:30:23
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0496	8.878	2.088	1.064	2.166	.0506	67[illegible]
SDev	.0010	.053	.025	.011	.014	.0008	[illegible]
%RSD	2.123	.5980	1.220	1.067	.6661	1.611	.7659
#1	.0488	8.820	2.060	1.066	2.155	.0514	66.73

#2	.0493	8.924	2.110	1.074	2.182	.0505	68.01
#3	.0508	8.890	2.094	1.052	2.160	.0498	67.59

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0537	.4916	.2631	2.417	244.3	10.28	11.52
SDev	.0021	.0025	.0035	.018	1.7	.16	.09
%RSD	3.821	.5160	1.332	.7349	.6774	1.509	.8125
#1	.0560	.4887	.2594	2.399	242.9	10.31	11.42
#2	.0530	.4935	.2664	2.435	246.2	10.41	11.61
#3	.0521	.4925	.2635	2.416	243.9	10.11	11.53

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.153	.5873	13.06	.5032	1.000	.4996	1.916
SDev	.023	.0045	.08	.0102	.018	.0052	.009
%RSD	.7230	.7654	.6091	2.033	1.848	1.044	.4822
#1	3.130	.5828	12.99	.4932	.9964	.4976	1.908
#2	3.176	.5918	13.15	.5137	1.020	.4956	1.926
#3	3.153	.5874	13.06	.5026	.9842	.5055	1.915

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.9748	1.214	1.868	.5011	3.719
SDev	.0115	.009	.048	.0035	.023
%RSD	1.182	.7029	2.576	.7047	.6183
	.9675	1.207	1.822	.4974	3.693
#2	.9881	1.223	1.918	.5045	3.737
#3	.9688	1.211	1.866	.5014	3.727

Method: COE Sample Name: SPM2*MABBS*7 Operator: GLP
Run Time: 03/22/96 14:22:15
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0462	11.75	2.041	1.066	2.302	.0502	149.4
SDev	.0010	.03	.013	.007	.004	.0004	.4
%RSD	2.280	.2527	.6241	.6840	.1893	.9028	.2960
#1	.0466	11.72	2.041	1.060	2.297	.0497	148.9
#2	.0450	11.75	2.054	1.064	2.303	.0505	149.7
#3	.0471	11.78	2.029	1.075	2.306	.0505	149.7

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0551	.4942	.3754	4.982	623.7	10.74	13.18
SDev	.0005	.0022	.0035	.017	2.0	.19	.02
%RSD	.8616	.4410	.9264	.3370	.3154	1.729	.1187
	.0557	.4931	.3719	4.963	621.5	10.95	13.17
#2	.0550	.4967	.3788	4.991	624.3	10.64	13.17

#3	.0547	.4928	.3755	4.993	625.3	10.63	13.19

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	8.993	.8843	13.60	.5197	1.705	.4830	1.8[illegible]
SDev	.017	.0001	.02	.0045	.008	.0147	.020
%RSD	.1885	.0072	.1546	.8686	.4686	3.041	1.120
#1	8.974	.8844	13.61	.5198	1.714	.4745	1.807
#2	9.001	.8843	13.62	.5150	1.701	.4744	1.789
#3	9.005	.8842	13.58	.5241	1.700	.4999	1.830

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.9742	1.667	1.805	.5122	9.910
SDev	.0070	.004	.139	.0032	.025
%RSD	.7206	.2601	7.719	.6147	.2528
#1	.9708	1.662	1.675	.5089	9.882
#2	.9695	1.670	1.952	.5125	9.917
#3	.9823	1.670	1.788	.5151	9.930

Method: COE Sample Name: MABBS*8 Operator: GLP
Run Time: 03/22/96 14:34:58
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0499	75.03	.0610	.1196	.8001	.0070	26.98
SDev	.0010	.22	.0224	.0034	.0033	.0000	.13
%RSD	2.105	.2928	36.78	2.881	.4073	.0179	.4777
#1	.0507	75.15	.0650	.1162	.8027	.0070	27.03
#2	.0502	75.16	.0368	.1231	.8012	.0070	27.07
#3	.0487	74.73	.0811	.1196	.7965	.0070	26.83

Elem	Cd2289	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0023	.1000	.1014	13.89	132.1	3.720	37.52
SDev	.0014	.0023	.0020	.04	.6	.220	.11
%RSD	59.98	2.258	1.987	.2628	.4261	5.912	.2921
#1	.0035	.1018	.1028	13.89	132.3	3.972	37.60
#2	.0027	.1006	.1023	13.93	132.6	3.622	37.56
#3	.0008	.0975	.0991	13.86	131.5	3.566	37.39

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	9.768	.0211	4.754	.1079	.3526	-.0111	.0330
SDev	.038	.0026	.015	.0073	.0170	.0074	.0311
%RSD	.3874	12.43	.3166	6.719	4.813	66.85	94.20
#1	9.808	.0226	4.769	.1082	.3583	-.0060	.0[illegible]
#2	9.812	.0181	4.739	.1150	.3660	-.0078	.00[illegible]
#3	9.745	.0226	4.756	.1005	.3335	-.0136	.0626

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Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0130	.8999	-.0428	.1290	28.85
SDev	.0065	.0057	.0387	.0003	.08
%RSD	49.82	.6364	90.33	.2348	.2917
#1	.0198	.9035	-.0001	.1292	28.92
#2	.0070	.9028	-.0530	.1291	28.86
#3	.0122	.8933	-.0753	.1286	28.76

Method: COE Sample Name: MABBS*9 Operator: GLP
Run Time: 03/22/96 14:38:02
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0025	77.67	.0720	.0745	2.158	.0066	10.20
SDev	.0010	.22	.0249	.0056	.006	.0000	.03
%RSD	40.10	.2872	34.59	7.480	.2792	.0594	.2921
#1	-.0015	77.41	.0859	.0681	2.151	.0066	10.17
#2	-.0035	77.76	.0869	.0785	2.160	.0066	10.23
#3	-.0025	77.83	.0433	.0768	2.163	.0066	10.19

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0131	.0947	.4026	4.117	203.0	3.265	28.05
SDev	.0013	.0010	.0025	.010	.7	.199	.12
%RSD	9.934	1.084	.6106	.2520	.3222	6.085	.4151
#1	.0143	.0956	.4002	4.105	202.4	3.205	27.92
#2	.0117	.0949	.4051	4.121	202.9	3.487	28.15
#3	.0131	.0936	.4026	4.124	203.7	3.103	28.03

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.441	.0480	3.440	.4546	2.794	-.0267	-.0209
SDev	.002	.0019	.010	.0118	.007	.0049	.0146
%RSD	.1317	4.069	.3021	2.593	.2457	18.28	69.70
#1	1.439	.0457	3.446	.4507	2.787	-.0319	-.0232
#2	1.442	.0491	3.428	.4678	2.801	-.0260	-.0343
#3	1.441	.0491	3.446	.4452	2.793	-.0222	-.0053

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0062	.9217	-.0020	.2184	65.82
SDev	.0049	.0022	.0156	.0009	.14
%RSD	78.04	.2381	776.6	.4347	.2054
#1	.0042	.9192	-.0063	.2173	65.67
#2	.0118	.9233	-.0149	.2186	65.94
#3	.0027	.9226	.0153	.2192	65.84

Method: CDE Sample Name: MABBS*10 Operator: GLP
Run Time: 03/22/96 14:41:18
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0179	77.02	.2131	.0686	1.070	.0081	5.721
SDev	.0029	.84	.0938	.0035	.014	.0005	.058
%RSD	16.07	1.088	44.01	5.090	1.319	5.670	1.015
#1	.0187	76.19	.1414	.0715	1.058	.0076	5.663
#2	.0202	77.02	.1787	.0697	1.066	.0084	5.719
#3	.0147	77.86	.3193	.0647	1.085	.0084	5.780

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0021	.1332	.2352	7.532	124.0	3.190	4.838
SDev	.0012	.0013	.0020	.083	1.0	.227	.058
%RSD	55.71	.9874	.8629	1.105	.8320	7.109	1.190
#1	.0024	.1317	.2328	7.451	123.6	3.002	4.772
#2	.0031	.1343	.2365	7.526	123.3	3.126	4.864
#3	.0008	.1335	.2361	7.617	125.2	3.442	4.878

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.6170	.1933	3.304	.3912	.1859	-.0297	.0017
SDev	.0064	.0049	.026	.0060	.0190	.0059	.0149
%RSD	1.034	2.544	.7767	1.527	10.20	19.89	873.8
#1	.6108	.1877	3.275	.3970	.1908	-.0309	.0073
#2	.6166	.1956	3.322	.3851	.1650	-.0232	-.0152
#3	.6236	.1967	3.316	.3915	.2020	-.0348	.0130

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0025	.7423	-.0369	.1775	60.21
SDev	.0121	.0061	.0116	.0018	.64
%RSD	492.2	.8177	31.37	.9900	1.069
#1	.0046	.7375	-.0238	.1757	59.66
#2	.0044	.7403	-.0459	.1792	60.05
#3	-.0164	.7491	-.0411	.1775	60.92

Method: CDE Sample Name: MABBS*11 Operator: GLP
Run Time: 03/22/96 14:44:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0057	120.8	.0904	.1267	1.240	.0094	15.35
SDev	.0003	.3	.0131	.0043	.002[illegible]	.0007	.03
%RSD	5.181	.2197	11.63	3.406	.2009	1.358	.1998

#1	.0060	120.6	.0875	.1307	1.238	.0096	15.33
#2	.0055	120.7	.1051	.1273	1.240	.0096	15.33
#3	.0055	121.1	.0787	.1221	1.243	.0088	15.38

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0043	.0196	.1073	85.12	204.1	3.374	3.821
SDev	.0010	.0017	.0011	.20	.1	.340	.021
%RSD	23.36	8.690	.9994	.2373	.0690	10.07	.5440
#1	.0049	.0209	.1069	84.98	204.1	3.453	3.827
#2	.0032	.0202	.1065	85.03	203.9	3.667	3.798
#3	.0050	.0177	.1085	85.35	204.2	3.002	3.838

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.3699	.0259	3.411	.1150	.3739	.0065	.0378
SDev	.0010	.0039	.012	.0031	.0154	.0134	.0206
%RSD	.2646	15.19	.3412	2.656	4.123	205.6	54.61
#1	.3695	.0282	3.404	.1156	.3901	.0170	.0316
#2	.3691	.0282	3.405	.1177	.3722	-.0085	.0210
#3	.3710	.0214	3.425	.1117	.3594	.0110	.0608

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0004	1.042	-.0335	.0645	13.85
SDev	.0064	.003	.0793	.0010	.03
%RSD	1678	.3028	236.7	1.627	.2173
#1	-.0060	1.038	-.0632	.0657	13.83
#2	.0069	1.044	-.0937	.0636	13.85
#3	.0003	1.044	.0564	.0643	13.89

Method: CQE Sample Name: CCV+QC#2 Operator: GLP
Run Time: 03/22/96 15:01:16
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4949	4.958	.7084	.5044	.4916	.4993	4.954
SDev	.0028	.025	.0161	.0062	.0024	.0024	.024
%RSD	.5635	.5116	2.270	1.228	.4972	.4915	.4764
#1	.4981	4.976	.7159	.4993	.4943	.5020	4.972
#2	.4930	4.929	.7194	.5027	.4896	.4971	4.928
#3	.4935	4.970	.6900	.5113	.4908	.4988	4.963

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5095	.4985	.4995	.5189	4.911	4.633	4.981
SDev	.0025	.0043	.0037	.0032	.023	.262	.004
%RSD	.4853	.8516	.7439	.6149	.4749	5.658	.0843

#1	.5108	.5021	.5022	.5217	4.936	4.434	4.976
#2	.5067	.4938	.4952	.5154	4.891	4.536	4.984
#3	.5111	.4995	.5010	.5196	4.905	4.930	4.984

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se19
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4983	.4940	5.003	.5078	.4942	.5013	.7198
SDev	.0019	.0024	.023	.0053	.0124	.0137	.0156
%RSD	.3869	.4786	.4607	1.042	2.506	2.732	2.161
#1	.5000	.4966	5.029	.5111	.5085	.5072	.7323
#2	.4962	.4921	4.988	.5017	.4866	.5112	.7024
#3	.4986	.4932	4.991	.5107	.4876	.4857	.7246

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.5075	.4959	.6974	.4949	.5098
SDev	.0072	.0024	.0126	.0021	.0013
%RSD	1.412	.4835	1.799	.4190	.2597
#1	.5152	.4984	.7094	.4970	.5088
#2	.5010	.4936	.6844	.4928	.5093
#3	.5062	.4957	.6983	.4949	.5113

Method: COE Sample Name: CCB*QC*2 Operator: GLP
Run Time: 03/22/96 15:18:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	-.0075	.0031	-.0035	-.0000	-.0006	-.0037
SDev	.0010	.0128	.0087	.0020	.0000	.0005	.0029
%RSD	225.3	171.2	280.5	57.04	.0000	81.01	77.84
#1	-.0004	-.0222	-.0058	-.0024	-.0000	-.0008	-.0064
#2	.0001	-.0001	.0034	-.0023	-.0000	-.0008	-.0007
#3	.0016	-.0001	.0117	-.0058	-.0000	-.0000	-.0040

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0008	.0008	-.0006	.0000	.0014	-.2040	-.0137
SDev	.0006	.0016	.0010	.0003	.0000	.0747	.0076
%RSD	75.38	193.7	174.0	3296.	.0225	36.59	55.85
#1	.0005	.0025	-.0007	-.0003	.0014	-.2526	-.0198
#2	.0015	.0006	.0005	.0002	.0014	-.1181	-.0051
#3	.0004	-.0007	-.0015	.0002	.0014	-.2414	-.0161

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0003	-.0023	.0079	-.0012	-.0123	-.0092	-.0146
SDev	.0003	.0007	.0037	.0018	.0020	.0023	.0115
%RSD	80.11	28.64	47.20	149.7	15.89	25.02	78
#1	-.0007	-.0015	.0062	-.0006	.0112	-.0079	-.0278

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#2	-.0002	-.0027	.0122	.0002	-.0146	-.0119	-.0080
#3	-.0002	-.0027	.0053	-.0032	-.0112	-.0079	-.0079

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0005	-.0002	-.0440	-.0007	-.0000
SDev	.0032	.0008	.0339	.0004	.0002
%RSD	663.3	322.9	76.95	56.50	882.8
#1	-.0039	-.0012	-.0403	-.0009	-.0002
#2	.0025	.0002	-.0122	-.0009	.0002
#3	-.0001	.0002	-.0796	-.0002	-.0002

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ethod: COE Sample Name: *5 1:2 Operator: GLP
un Time: 03/22/96 15:22:52
omment: Cu
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0108	44.39	.0383	.0570	.2862	.0032	3.000
SDev	.0013	.25	.0070	.0025	.0020	.0005	.017
%RSD	11.81	.5609	18.33	4.438	.6882	14.60	.5522
#1	.0094	44.30	.0437	.0599	.2865	.0035	3.002
#2	.0119	44.67	.0303	.0550	.2881	.0035	3.015
#3	.0109	44.20	.0409	.0563	.2841	.0027	2.982

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0005	.0435	4.804	1.559	311.0	3.552	3.501
SDev	.0006	.0011	.022	.009	1.8	.241	.059
%RSD	111.9	2.550	.4529	.5634	.5693	6.787	1.698
#1	.0011	.0433	4.794	1.557	310.9	3.817	3.474
#2	.0002	.0425	4.828	1.568	312.9	3.492	3.569
#3	.0001	.0447	4.788	1.551	309.3	3.346	3.459

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.892	.0031	3.935	.0964	.0598	-.0065	.0280
SDev	.019	.0031	.036	.0017	.0043	.0099	.0243
%RSD	.4940	98.71	.9092	1.768	7.238	153.1	86.71
#1	3.886	.0042	3.925	.0947	.0596	.0049	.0452
#2	3.914	-.0004	3.975	.0981	.0556	-.0134	.0002
#3	3.877	.0054	3.905	.0965	.0643	-.0109	.0385

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0124	.1998	.0454	.1241	.3924
SDev	.0062	.0036	.0282	.0012	.0015
%RSD	49.67	1.807	62.09	.9867	.3932
#1	.0095	.2012	.0379	.1227	.3908
#2	.0195	.2026	.0765	.1244	.3938

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#3	.0082	.1957	.0217	.1251	.3926

Method: COE Sample Name: *7 1:3 Operator: GLP
Run Time: 03/22/96 15:25:45
Comment: Cu
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	3.187	.0566	.0186	.1294	.0006	33.04
SDev	.0010	.009	.0339	.0026	.0004	.0000	.03
%RSD	163.2	.2928	59.91	14.18	.3492	.7443	.0954
#1	-.0016	3.187	.0895	.0192	.1292	.0007	33.02
#2	.0004	3.196	.0218	.0157	.1292	.0006	33.02
#3	-.0006	3.177	.0584	.0209	.1299	.0006	33.08

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0012	.0070	.0490	1.631	287.7	.3640	1.238
SDev	.0014	.0013	.0017	.004	.2	.2721	.015
%RSD	121.8	18.96	3.459	.2577	.0591	74.74	1.194
#1	-.0003	.0066	.0509	1.627	287.6	.1398	1.224
#2	.0013	.0085	.0485	1.631	287.9	.2856	1.253
#3	.0025	.0059	.0477	1.635	287.8	.6668	1.235

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.996	.0681	1.180	.0067	.3959	.0099	.0341
SDev	.002	.0043	.021	.0067	.0132	.0087	.0081
%RSD	.0639	6.322	1.779	101.0	3.341	87.47	23.75
#1	2.996	.0662	1.159	.0097	.3813	.0060	.0347
#2	2.994	.0650	1.181	-.0010	.4071	.0039	.0257
#3	2.997	.0730	1.201	.0114	.3993	.0199	.0419

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0256	.6102	.0114	.0290	4.010
SDev	.0059	.0014	.0142	.0012	.010
%RSD	22.95	.2332	123.9	4.040	.2428
#1	.0289	.6090	.0097	.0277	4.001
#2	.0289	.6097	-.0018	.0297	4.009
#3	.0188	.6118	.0264	.0297	4.021

Method: COE Sample Name: SPM1 1:3 Operator: GLP
Run Time: 03/22/96 15:27:49
Comment: Cu
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0170	2.950	.6946	.3513	.7187	.0170	22.76

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SDev	.0010	.009	.0053	.0111	.0064	.0000	.14
%RSD	5.936	.3044	.7619	3.171	.8854	.0325	.6205
#1	.0180	2.940	.6962	.3467	.7115	.0170	22.61
#2	.0170	2.958	.6887	.3433	.7209	.0170	22.80
#3	.0160	2.951	.6988	.3640	.7237	.0170	22.88

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0174	.1659	.0873	.8156	83.67	3.032	3.855
SDev	.0018	.0032	.0002	.0074	.57	.100	.059
%RSD	10.56	1.927	.2734	.9030	.6805	3.286	1.536
#1	.0191	.1655	.0876	.8074	83.08	3.111	3.791
#2	.0176	.1629	.0872	.8179	83.72	2.920	3.864
#3	.0154	.1693	.0872	.8215	84.22	3.066	3.909

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.063	.1946	4.409	.1653	.3162	.1524	.6578
SDev	.006	.0041	.031	.0074	.0136	.0026	.0109
%RSD	.5893	2.096	.7091	4.464	4.304	1.336	1.661
#1	1.056	.1957	4.383	.1595	.3240	.1523	.6632
#2	1.064	.1900	4.401	.1736	.3240	.1545	.6452
#3	1.068	.1980	4.444	.1629	.3005	.1504	.6649

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.3293	.4036	.6421	.1673	1.279
SDev	.0000	.0026	.0299	.0013	.005
%RSD	.0033	.6410	4.652	.8032	.4032
#1	.3293	.4006	.6695	.1674	1.273
#2	.3293	.4047	.6103	.1659	1.283
#3	.3293	.4054	.6466	.1686	1.281

Method: CCE Sample Name: SPM2 1:3 Operator: GLP
Run Time: 03/22/96 15:29:50
Comment: Cu
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0146	3.906	.6872	.3560	.7678	.0165	50.57
SDev	.0006	.031	.0014	.0095	.0036	.0005	.32
%RSD	4.007	.7819	.1992	2.684	.4737	2.854	.6242
#1	.0143	3.871	.6865	.3565	.7636	.0162	50.21
#2	.0143	3.921	.6887	.3463	.7695	.0170	50.70
#3	.0153	3.926	.6863	.3653	.7703	.0162	50.80

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0176	.1686	.1270	1.683	204.6	3.488	4.431
SDev	.0010	.0010	.0006	.009	1.1	.158	.033

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%RSD	5.811	.6163	.4900	.5384	.5435	4.515	.7481
#1	.0166	.1697	.1275	1.673	203.5	3.324	4.406
#2	.0186	.1677	.1263	1.685	204.7	3.638	4.4[illegible]
#3	.0176	.1683	.1271	1.691	205.7	3.503	4.46[illegible]

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	3.043	.2980	4.595	.1821	.5704	.1519	.6542
SDev	.014	.0046	.021	.0012	.0053	.0023	.0266
%RSD	.4603	1.527	.4659	.6739	.9276	1.518	4.061
#1	3.027	.2939	4.578	.1835	.5685	.1533	.6770
#2	3.048	.2973	4.619	.1814	.5662	.1492	.6250
#3	3.054	.3029	4.589	.1813	.5763	.1531	.6605

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.3379	.5575	.5831	.1719	3.430
SDev	.0092	.0031	.0255	.0013	.017
%RSD	2.713	.5527	4.382	.7666	.4878
#1	.3277	.5544	.6022	.1716	3.411
#2	.3404	.5578	.5540	.1707	3.438
#3	.3455	.5605	.5929	.1733	3.442

Method: COE Sample Name: *8 1:10 Operator: GLP
Run Time: 03/22/96 15:32:15
Comment: Cu
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0054	7.446	.0077	.0166	.0805	.0007	2.761
SDev	.0006	.015	.0083	.0043	.0004	.0000	.009
%RSD	10.78	.2068	108.1	26.16	.5614	.3987	.3096
#1	.0051	7.428	.0085	.0160	.0810	.0007	2.769
#2	.0051	7.454	-.0010	.0126	.0802	.0007	2.760
#3	.0061	7.456	.0156	.0212	.0802	.0007	2.752

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	.0116	.0100	1.400	13.47	.3902	3.726
SDev	.0014	.0013	.0021	.004	.05	.1506	.018
%RSD	227.4	11.04	20.48	.2835	.3723	38.58	.4925
#1	.0004	.0103	.0079	1.396	13.52	.2183	3.726
#2	-.0000	.0116	.0119	1.404	13.43	.4986	3.744
#3	-.0023	.0129	.0103	1.399	13.44	.4537	3.708

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9785	-.0008	.6197	.0075	.0339	-.0028	-.[illegible]
SDev	.0008	.0011	.0077	.0030	.0098	.0100	.0042
%RSD	.0844	136.0	1.240	39.99	28.90	356.1	235.8

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#1	.9790	.0003	.6157	.0054	.0230	-.0120	-.0075
#2	.9790	-.0020	.6285	.0109	.0421	.0078	.0020
#3	.9776	-.0008	.6148	.0062	.0365	-.0041	-.0007

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0089	.0895	-.0205	.0126	3.015
SDev	.0041	.0010	.0086	.0007	.014
%RSD	45.79	1.167	41.84	5.500	.4604
#1	.0043	.0904	-.0130	.0126	3.000
#2	.0119	.0884	-.0298	.0119	3.015
#3	.0106	.0897	-.0186	.0133	3.028

Method: COE Sample Name: *9 1:3 Operator: GLP
Run Time: 03/22/96 15:34:56
Comment: Cu Pb
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0024	26.16	.0290	.0233	.7288	.0021	3.483
SDev	.0003	.06	.0192	.0036	.0021	.0000	.003
%RSD	11.96	.2202	66.23	15.39	.2842	.0820	.0926
#1	-.0023	26.15	.0239	.0262	.7272	.0021	3.481
#2	-.0023	26.23	.0502	.0193	.7311	.0021	3.482
#3	-.0028	26.11	.0128	.0245	.7280	.0021	3.487

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0046	.0334	.1367	1.399	69.40	.9956	9.506
SDev	.0010	.0007	.0023	.004	.11	.4006	.035
%RSD	22.14	2.185	1.667	.2718	.1576	40.23	.3647
#1	.0034	.0330	.1346	1.397	69.23	.8349	9.479
#2	.0052	.0342	.1362	1.404	69.48	1.452	9.545
#3	.0051	.0330	.1391	1.397	69.45	.7004	9.493

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4886	.0149	1.199	.1547	.9477	-.0092	.0097
SDev	.0003	.0007	.010	.0045	.0173	.0042	.0098
%RSD	.0546	4.403	.8132	2.890	1.824	45.03	102.0
#1	.4883	.0146	1.196	.1495	.9571	-.0106	.0195
#2	.4888	.0146	1.191	.1568	.9277	-.0126	-.0002
#3	.4888	.0157	1.210	.1577	.9583	-.0046	.0097

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0081	.3122	-.0265	.0732	23.04
SDev	.0083	.0008	.0102	.0004	.06
%RSD	103.2	.2527	38.52	.5653	.2443

#1	.0068	.3118	-.0152	.0735	23.01
#2	.0170	.3131	-.0349	.0727	23.10
#3	.0004	.3118	-.0293	.0734	23.00

Method: COE Sample Name: *10 1:5 Operator: GLP
Run Time: 03/22/96 15:37:33
Comment: Cu
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0039	15.44	.0324	.0114	.2140	.0012	1.255
SDev	.0016	.08	.0166	.0053	.0012	.0005	.002
%RSD	41.54	.5337	51.19	46.36	.5589	39.96	.1949
#1	.0058	15.36	.0515	.0171	.2129	.0014	1.253
#2	.0027	15.44	.0217	.0068	.2137	.0014	1.253
#3	.0032	15.52	.0240	.0102	.2153	.0006	1.257

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0007	.0272	.0470	1.518	25.08	.3454	.9572
SDev	.0005	.0023	.0019	.009	.18	.2460	.0021
%RSD	72.90	8.438	4.107	.5715	.7145	71.22	.2202
#1	.0006	.0266	.0455	1.509	24.92	.2631	.9585
#2	.0003	.0253	.0464	1.518	25.04	.1510	.9548
#3	.0013	.0297	.0492	1.527	25.27	.6219	.95[illegible]

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.1252	.0345	.7108	.0802	.0258	-.0140	.0071
SDev	.0000	.0006	.0083	.0022	.0070	.0072	.0172
%RSD	.0117	1.900	1.163	2.779	27.14	50.97	243.4
#1	.1252	.0341	.7142	.0828	.0335	-.0081	.0084
#2	.1252	.0352	.7166	.0790	.0243	-.0120	.0236
#3	.1252	.0341	.7014	.0789	.0197	-.0220	-.0107

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0071	.1478	-.0363	.0353	12.61
SDev	.0078	.0007	.0211	.0015	.03
%RSD	109.5	.4623	58.20	4.162	.2611
#1	.0156	.1471	-.0559	.0369	12.57
#2	.0003	.1485	-.0391	.0341	12.62
#3	.0054	.1478	-.0139	.0348	12.64

Method: COE Sample Name: *11 1:50 Operator: GLP
Run Time: 03/22/96 15:43:35
Comment: Cu
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0019	2.426	.0023	.0009	.0245	-.0000	.3141
SDev	.0015	.028	.0160	.0065	.0002	.0000	.0038
%RSD	80.28	1.147	549.6	747.7	.9213	15.04	1.199
#1	-.0004	2.394	.0202	-.0037	.0247	-.0000	.3098
#2	-.0019	2.436	.0000	.0084	.0247	-.0000	.3169
#3	-.0034	2.447	-.0115	-.0020	.0243	-.0000	.3155

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0010	.0003	.0013	1.657	4.180	.0613	.0538
SDev	.0001	.0017	.0012	.011	.037	.2535	.0056
%RSD	14.64	612.8	92.53	.6387	.8797	413.3	10.41
#1	.0008	-.0010	.0001	1.646	4.138	-.2190	.0489
#2	.0010	.0022	.0025	1.659	4.194	.2744	.0599
#3	.0011	-.0004	.0013	1.667	4.207	.1286	.0525

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0073	-.0005	.0979	-.0016	.0139	-.0074	.0046
SDev	.0006	.0023	.0097	.0040	.0090	.0030	.0092
%RSD	7.551	423.6	9.943	246.1	65.21	40.73	202.7
#1	.0066	.0017	.0911	.0003	.0057	-.0100	.0119
#2	.0076	-.0005	.1091	.0011	.0236	-.0041	.0076
#3	.0076	-.0028	.0936	-.0062	.0123	-.0081	-.0058

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0102	.0207	-.0224	-.0022	.2884
SDev	.0065	.0000	.0296	.0011	.0035
%RSD	64.03	.0016	132.3	49.08	1.213
#1	.0030	.0207	-.0533	-.0024	.2849
#2	.0157	.0207	.0057	-.0010	.2882
#3	.0119	.0207	-.0196	-.0031	.2919

Method: COE Sample Name: ICS*A*2 Operator: GLP
Run Time: 03/22/96 15:52:50
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0036	486.7	.0203	-.0223	.0059	-.0000	472.3
SDev	.0015	2.8	.0338	.0031	.0007	.0000	3.2
%RSD	43.30	.5791	166.1	13.82	11.55	10.47	.6761
#1	-.0039	483.8	.0125	-.0241	.0051	-.0001	468.9
#2	-.0019	487.0	-.0089	-.0241	.0063	-.0001	472.8
#3	-.0049	489.4	.0573	-.0188	.0063	-.0000	475.3

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm

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Avge	-.0002	.0036	-.0023	-.0003	182.5	-.7160	487.0
SDev	.0006	.0010	.0019	.0000	1.2	.1603	2.6
%RSD	283.1	26.80	80.26	1.112	.6671	22.38	.5336
#1	-.0007	.0029	-.0040	-.0003	181.6	-.8917	484.[illegible]
#2	-.0005	.0047	-.0003	-.0004	182.0	-.5777	487.7
#3	.0005	.0033	-.0028	-.0003	183.9	-.6787	489.3

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0044	.0038	.0268	.0026	.0167	-.0021	.1806
SDev	.0004	.0063	.0094	.0066	.0090	.0241	.0318
%RSD	9.441	166.9	35.22	252.1	53.70	1166.	17.63
#1	-.0043	.0027	.0268	-.0041	.0064	-.0061	.2169
#2	-.0041	.0106	.0362	.0028	.0229	-.0239	.1673
#3	-.0049	-.0019	.0173	.0092	.0207	.0237	.1576

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0245	.0052	.0374	.0027	.0137
SDev	.0123	.0004	.0729	.0012	.0002
%RSD	50.34	7.545	194.7	46.53	1.405
#1	.0230	.0050	.1214	.0031	.0138
#2	.0129	.0057	-.0094	.0037	.0137
#3	.0374	.0050	.0004	.0013	.0134

Method: COE Sample Name: ICS*AB*2 Operator: GLP
Run Time: 03/22/96 15:54:37
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9302	490.3	-.0350	-.0141	.4797	.4587	473.5
SDev	.0093	4.5	.0441	.0044	.0039	.0051	4.1
%RSD	.9980	.9186	125.8	31.41	.8213	1.112	.8615
#1	.9334	493.3	-.0263	-.0192	.4834	.4616	475.4
#2	.9374	492.1	.0040	-.0123	.4802	.4616	476.3
#3	.9197	485.0	-.0829	-.0109	.4755	.4528	468.8

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9374	.4464	.4392	.4661	183.8	-.7384	490.6
SDev	.0046	.0056	.0082	.0040	2.0	.1555	4.2
%RSD	.4855	1.261	1.869	.8602	1.104	21.06	.8583
#1	.9412	.4468	.4422	.4670	185.0	-.8693	493.3
#2	.9388	.4519	.4455	.4696	184.8	-.5665	492.9
#3	.9324	.4407	.4299	.4617	181.4	-.7796	485.8

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4432	.0016	.0099	.8763	.9116	-.0012	.1656

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SDev	.0037	.0090	.0185	.0136	.0245	.0206	.0253
%RSD	.8438	557.8	186.7	1.553	2.691	1757.	15.27
#1	.4443	.0050	.0079	.8850	.9274	-.0249	.1828
#2	.4463	.0084	.0293	.8833	.9240	.0126	.1366
#3	.4391	-.0086	-.0075	.8606	.8833	.0088	.1774

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0155	.0051	.0607	.4699	.9385
SDev	.0170	.0010	.0999	.0052	.0078
%RSD	109.8	20.43	164.4	1.098	.8344
#1	.0003	.0042	.1565	.4717	.9438
#2	.0339	.0062	-.0427	.4739	.9422
#3	.0124	.0049	.0684	.4641	.9295

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ethod: COE Sample Name: CCV*QC*3 Operator: GLP
un Time: 03/22/96 16:01:18
omment:
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4916	4.954	.6814	.5025	.4928	.5000	4.932
SDev	.0036	.035	.0107	.0062	.0044	.0047	.040
%RSD	.7240	.7012	1.569	1.242	.8951	.9410	.8070
#1	.4920	4.962	.6772	.4973	.4951	.5019	4.936
#2	.4950	4.984	.6936	.5094	.4955	.5035	4.969
#3	.4879	4.916	.6735	.5008	.4877	.4946	4.890

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5002	.4987	.4996	.4939	4.965	4.729	4.999
SDev	.0065	.0073	.0057	.0046	.046	.196	.032
%RSD	1.293	1.454	1.138	.9209	.9214	4.143	.6421
#1	.5063	.5008	.5011	.4965	4.997	4.894	5.014
#2	.5010	.5046	.5044	.4965	4.984	4.782	5.021
#3	.4934	.4906	.4933	.4886	4.912	4.512	4.962

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4982	.4946	5.031	.4972	.4820	.4932	.7112
SDev	.0042	.0063	.052	.0048	.0085	.0023	.0140
%RSD	.8368	1.265	1.024	.9680	1.760	.4635	1.961
#1	.4993	.4950	5.028	.4997	.4772	.4946	.6978
#2	.5017	.5007	5.084	.5002	.4771	.4945	.7256
#3	.4936	.4882	4.981	.4916	.4918	.4906	.7103

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.5195	.4953	.6603	.4934	.5123
SDev	.0044	.0010	.0155	.0047	.0051

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%RSD	.3537	.8081	2.341	.9554	1.054
#1	.5199	.4969	.6781	.4950	.5131
#2	.5148	.4982	.6500	.4971	.5172
#3	.5237	.4907	.6529	.4881	.5065

Method: COE Sample Name: CCB*QC*3 Operator: GLP
Run Time: 03/22/96 16:04:07
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	-.0026	-.0028	-.0029	.0003	-.0000	.0039
SDev	.0015	.0047	.0157	.0036	.0006	.0000	.0016
%RSD	736.4	181.2	555.5	123.5	230.3	21.44	42.14
#1	-.0002	-.0006	-.0108	-.0058	-.0003	-.0000	.0030
#2	.0013	.0008	.0152	.0011	.0009	-.0001	.0030
#3	-.0017	-.0080	-.0129	-.0041	.0001	-.0000	.0058

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	.0023	.0019	.0016	.0023	.0149	-.0051
SDev	.0007	.0006	.0023	.0008	.0013	.4092	.0285
%RSD	104.8	27.60	124.6	51.07	54.47	2748.	561.4
#1	-.0003	.0017	.0012	.0014	.0031	-.4524	.00[illegible]
#2	-.0016	.0030	.0045	.0024	.0031	.3093	.01[illegible]
#3	-.0003	.0023	-.0000	.0009	.0009	.1878	-.03[illegible]

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0003	.0015	.0014	.0019	.0169	-.0085	.0124
SDev	.0003	.0013	.0060	.0022	.0075	.0011	.0107
%RSD	94.38	87.55	435.5	111.0	44.42	13.43	86.27
#1	.0006	.0007	.0040	.0042	.0253	-.0078	.0221
#2	.0001	.0030	.0057	-.0001	.0143	-.0098	.0141
#3	.0001	.0007	-.0055	.0017	.0110	-.0079	.0009

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0056	.0002	-.0138	.0007	-.0000
SDev	.0085	.0004	.0057	.0021	.0004
%RSD	152.7	190.6	41.59	316.8	1035.
#1	-.0077	-.0000	-.0092	.0002	-.0000
#2	-.0129	-.0000	-.0203	.0030	.0004
#3	.0038	.0007	-.0120	-.0012	-.0005

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3/25/96
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and SPX
G68559

Method: COE Standard: BLANK

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.0031	.0431	.0001	.0006	.0001	.0016	-.0
SDev	.0002	.0026	.0030	.0002	.0001	.0000	.0017
%RSD	7.531	5.971	4513.	33.33	86.60	.0000	125.8
#1	.0028	.0460	.0032	.0004	.0001	.0016	.0006
#2	.0032	.0420	-.0028	.0006	.0000	.0016	-.0022
#3	.0032	.0412	-.0002	.0008	.0001	.0016	-.0024

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	.0017	.0009	.0006	.0011	.0029	.0027	.0029
SDev	.0008	.0003	.0003	.0004	.0003	.0021	.0004
%RSD	46.63	35.25	57.74	36.74	10.41	76.86	14.19
#1	.0022	.0012	.0008	.0008	.0032	.0048	.0028
#2	.0022	.0006	.0002	.0016	.0030	.0006	.0034
#3	.0008	.0008	.0008	.0010	.0026	.0028	.0026

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.0233	.0008	.0131	.0009	.0767	.0012	.0043
SDev	.0064	.0007	.0001	.0003	.0014	.0008	.0018
%RSD	27.51	90.14	.8792	32.73	1.831	72.90	42.53
#1	.0306	.0016	.0132	.0010	.0754	.0018	.0062
#2	.0204	.0002	.0130	.0006	.0782	.0015	.0040
#3	.0188	.0006	.0132	.0012	.0766	.0002	.00

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	-.0001	.1537	.0164	.0005	-.0049	-.0008	.0029
SDev	.0004	.0005	.0016	.0002	.0013	.0003	.0001
%RSD	312.2	.3275	9.982	43.30	27.36	43.30	4.028
#1	.0000	.1532	.0160	.0008	-.0040	-.0010	.0028
#2	-.0006	.1542	.0182	.0004	-.0042	-.0004	.0030
#3	.0002	.1536	.0150	.0004	-.0064	-.0010	.0028

Method: COE Standard: LOW

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.2117	1.473	.1487	.0640	.1343	.1363	.3245
SDev	.0005	.010	.0015	.0004	.0007	.0006	.0027
%RSD	.2181	.6979	1.045	.6250	.5212	.4235	.8367
#1	.2120	1.484	.1482	.0644	.1348	.1370	.3274
#2	.2112	1.464	.1504	.0636	.1335	.1360	.3220
#3	.2120	1.471	.1474	.0640	.1346	.1360	.3242

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	2.247	.2077	.1683	.2639	.2033	.2135	1.331
SDev	.006	.0006	.0012	.0018	.0009	.0015	.008
%RSD	.2781	.2942	.7262	.6876	.4543	.7156	.5
#1	2.254	.2078	.1696	.2660	.2044	.2148	1.338
#2	2.243	.2070	.1672	.2626	.2028	.2118	1.323
#3	2.244	.2082	.1680	.2632	.2028	.2138	1.331

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	.1139	.2891	.2373	.0950	1.320	.1305	.0987
SDev	.0032	.0029	.0011	.0003	.005	.0014	.0007
%RSD	2.779	1.008	.4867	.3646	.3601	1.100	.7114
#1	.1104	.2922	.2386	.0954	1.325	.1316	.0994
#2	.1166	.2864	.2366	.0948	1.317	.1289	.0980
#3	.1146	.2888	.2366	.0948	1.316	.1311	.0988

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.0560	.2742	.0850	.1563	.0474	.1521	.2650
SDev	.0007	.0018	.0019	.0008	.0043	.0007	.0016
%RSD	1.288	.6565	2.269	.5170	9.128	.4617	.5894
#1	.0562	.2742	.0872	.1572	.0510	.1528	.2660
#2	.0552	.2724	.0842	.1556	.0486	.1514	.2632
#3	.0566	.2760	.0836	.1562	.0426	.1522	.2658

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ethod: COE Standard: MID

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.4040	2.801	.2139	.1225	.2577	.2587	.6247
SDev	.0003	.006	.0034	.0008	.0009	.0006	.0013
%RSD	.0857	.2036	1.609	.6179	.3521	.2485	.2132
#1	.4042	2.801	.2178	.1234	.2584	.2590	.6232
#2	.4042	2.806	.2128	.1220	.2581	.2592	.6258
#3	.4036	2.795	.2112	.1222	.2567	.2580	.6250

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	4.289	.4013	.3223	.5006	.3938	.4069	2.540
SDev	.008	.0001	.0006	.0022	.0014	.0015	.006
%RSD	.1767	.0288	.1896	.4449	.3555	.3818	.2516
#1	4.284	.4014	.3216	.4982	.3948	.4052	2.542
#2	4.298	.4014	.3228	.5026	.3944	.4074	2.545
#3	4.285	.4012	.3224	.5010	.3922	.4082	2.533

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	1.812	.5546	.4423	.1816	2.467	.2441	.1891
SDev	.003	.0009	.0008	.0017	.009	.0012	.0017
%RSD	.1829	.1572	.1712	.9410	.3486	.4749	.8994
#1	1.811	.5550	.4428	.1818	2.475	.2439	.1898
#2	1.815	.5552	.4426	.1832	2.469	.2430	.1904
#3	1.808	.5536	.4414	.1798	2.458	.2453	.1872

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.1063	.3175	.1475	.3022	.0639	.2954	.5098
SDev	.0008	.0040	.0012	.0011	.0035	.0009	.0014
%RSD	.7606	1.262	.7943	.3685	5.439	.2951	.2829
#1	.1072	.3130	.1462	.3032	.0652	.2950	.5114
#2	.1058	.3190	.1484	.3024	.0666	.2964	.5094
#3	.1058	.3206	.1480	.3010	.0600	.2948	.5086

Method: COE Standard: HIGH

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Avge	.7915	5.516	.4133	.2391	.5193	.5112	1.250
SDev	.0028	.022	.0040	.0005	.0019	.0015	.006
%RSD	.3541	.3974	.9791	.2105	.3597	.2954	.4481
#1	.7892	5.498	.4086	.2386	.5176	.5096	1.250
#2	.7906	5.509	.4154	.2390	.5190	.5114	1.244
#3	.7946	5.541	.4158	.2396	.5213	.5126	1.256

Elem	Ca	Cd2288	Co2286	Cr2677	Cu3247	Fe	Fe
Avge	8.585	.7938	.6395	.9901	.7749	.7931	5.207
SDev	.020	.0025	.0003	.0034	.0019	.0012	.239
%RSD	.2287	.3096	.0478	.3477	.2507	.1541	4.584
#1	8.570	.7966	.6392	.9890	.7728	.7928	4.971
#2	8.579	.7928	.6398	.9874	.7754	.7920	5.448
#3	8.607	.7920	.6394	.9940	.7766	.7944	5.203

Elem	K_7664	Mg2790	Mn2576	Mo2020	Na5889	Ni2316	Pb2203
Avge	3.632	1.096	.8665	.3573	4.855	.4786	.3748
SDev	.011	.005	.0027	.0021	.026	.0024	.0013
%RSD	.3100	.4298	.3074	.5932	.5427	.4929	.3332
#1	3.623	1.091	.8642	.3554	4.827	.4788	.375[illegible]
#2	3.629	1.095	.8658	.3570	4.858	.4761	.37[illegible]
#3	3.645	1.100	.8694	.3596	4.880	.4808	.373[illegible]

Elem	Sb2068	Se1960	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Avge	.2082	.4875	.2730	.5955	.1295	.5864	.9983
SDev	.0003	.0059	.0029	.0022	.0053	.0012	.0048
%RSD	.1664	1.205	1.079	.3699	4.068	.2075	.4814
#1	.2080	.4834	.2712	.5934	.1252	.5856	.9936
#2	.2086	.4942	.2714	.5954	.1280	.5858	.9980
#3	.2080	.4848	.2764	.5978	.1354	.5878	1.003

Method: COE Slope = Conc(SIR)/IR

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardiz
Ag3280	328.068	Multiple	Standards	2.47047	-.007688	03/25/96 03:40
Al3082	308.215	Multiple	Standards	3.59368	-.155654	03/25/96 03:40
As1936	193.696	Multiple	Standards	5.15175	-.000472	03/25/96 03:40
B_2496	249.678	Multiple	Standards	8.11999	-.004991	03/25/96 03:40
Ba4934	493.409	Multiple	Standards	3.81833	-.000328	03/25/96 03:40
Be3130	313.042	Multiple	Standards	3.85559	-.006283	03/25/96 03:40
Ca	317.933	Multiple	Standards	2.29539	-.004931	03/25/96 03:40
Ca	307.603	Multiple	Standards	15.9875	.020452	03/25/96 03:40
Cd2288	228.802	Multiple	Standards	2.51280	-.002256	03/25/96 03:40
Co2286	228.616	Multiple	Standards	3.08755	-.001952	03/25/96 [illegible]
Cr2677	267.716	Multiple	Standards	1.97064	-.002357	03/25/96 [illegible]

lement	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
u3247	324.754	Multiple	Standards	2.54990	-.007553	03/25/96 03:40:41
e	259.940	Multiple	Standards	3.84887	-.011823	03/25/96 03:40:41
e	271.441	Multiple	Standards	25.1771	-.070098	03/25/96 03:40:41
_7664	766.491	Multiple	Standards	55.5076	-1.29175	03/25/96 03:40:41
2790	279.079	Multiple	Standards	17.8510	-.015320	03/25/96 03:40:41
2576	257.610	Multiple	Standards	2.30449	-.030367	03/25/96 03:40:41
o2020	202.030	Multiple	Standards	5.47908	-.005221	03/25/96 03:40:41
a5889	588.995	Multiple	Standards	4.12963	-.317706	03/25/96 03:40:41
i2316	231.604	Multiple	Standards	4.05901	-.004897	03/25/96 03:40:41
b2203	220.353	Multiple	Standards	5.46264	-.023350	03/25/96 03:40:41
b2068	206.838	Multiple	Standards	9.39108	.001103	03/25/96 03:40:41
e1960	196.026	Multiple	Standards	6.44599	-.990668	03/25/96 03:40:41
n1899	189.989	Multiple	Standards	7.48599	-.122900	03/25/96 03:40:41
i3349	334.941	Multiple	Standards	3.29516	-.001848	03/25/96 03:40:41
l1908	190.864	Multiple	Standards	14.2652	.069185	03/25/96 03:40:41
_2924	292.402	Multiple	Standards	3.36313	.002608	03/25/96 03:40:41
n2138	213.856	Multiple	Standards	1.97589	-.005766	03/25/96 03:40:41

ethod: COE Slope = IR/Conc(SIR)

lement	Wavelen	High std	Low std	Slope	BEC	Date Standardized
g3280	328.068	Multiple	Standards	.404781	.007688	03/25/96 03:40:41
l3082	308.215	Multiple	Standards	.278267	.155654	03/25/96 03:40:41
s1936	193.696	Multiple	Standards	.194109	.000472	03/25/96 03:40:41
_2496	249.678	Multiple	Standards	.123153	.004991	03/25/96 03:40:41
a4934	493.409	Multiple	Standards	.261894	.000328	03/25/96 03:40:41
e3130	313.042	Multiple	Standards	.259364	.006283	03/25/96 03:40:41
a	317.933	Multiple	Standards	.435656	.004931	03/25/96 03:40:41
	307.603	Multiple	Standards	.062549	.020452	03/25/96 03:40:41
2288	228.802	Multiple	Standards	.397962	.002256	03/25/96 03:40:41
o2286	228.616	Multiple	Standards	.323881	.001952	03/25/96 03:40:41
r2677	267.716	Multiple	Standards	.507449	.002357	03/25/96 03:40:41
u3247	324.754	Multiple	Standards	.392173	.007553	03/25/96 03:40:41
e	259.940	Multiple	Standards	.259817	.011823	03/25/96 03:40:41
e	271.441	Multiple	Standards	.039719	.070098	03/25/96 03:40:41
_7664	766.491	Multiple	Standards	.018016	1.29175	03/25/96 03:40:41
lg2790	279.079	Multiple	Standards	.056019	.015320	03/25/96 03:40:41
In2576	257.610	Multiple	Standards	.433936	.030367	03/25/96 03:40:41
lo2020	202.030	Multiple	Standards	.182512	.005221	03/25/96 03:40:41
la5889	588.995	Multiple	Standards	.242152	.317706	03/25/96 03:40:41
li2316	231.604	Multiple	Standards	.246366	.004897	03/25/96 03:40:41
b2203	220.353	Multiple	Standards	.183062	.023350	03/25/96 03:40:41
b2068	206.838	Multiple	Standards	.106484	.001103	03/25/96 03:40:41
e1960	196.026	Multiple	Standards	.155135	.990668	03/25/96 03:40:41
n1899	189.989	Multiple	Standards	.133583	.122900	03/25/96 03:40:41
i3349	334.941	Multiple	Standards	.303476	.001848	03/25/96 03:40:41
l1908	190.864	Multiple	Standards	.070101	.069185	03/25/96 03:40:41
_2924	292.402	Multiple	Standards	.297342	.002608	03/25/96 03:40:41
n2138	213.856	Multiple	Standards	.506102	.005766	03/25/96 03:40:41

lethod: COE

ment	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
g3280	328.068	BLANK	.000000	-.000112	.000112

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		LOW	.500000	.515393	-.015393
		MID	1.00000	.990382	.009618
		HIGH	2.00000	1.94761	.052393
CorCoef:	0.99987				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratic
Al3082	308.215	BLANK	.000000	-.000886	.000886
		LOW	5.00000	5.13711	-.137112
		MID	10.0000	9.90951	.090487
		HIGH	20.0000	19.6673	.332701
CorCoef:	0.99993				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratic
As1936	193.696	BLANK	.000000	-.000129	.000129
		LOW	.700000	.765422	-.065422
		MID	1.00000	1.10166	-.101659
		HIGH	2.00000	2.12858	-.128576
CorCoef:	0.99969				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
F_2496	249.678	BLANK	.000000	-.000119	.000119
		LOW	.500000	.514689	-.014689
		MID	1.00000	.989978	.010022
		HIGH	2.00000	1.93623	.063773
CorCoef:	0.99983				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Ba4934	493.409	BLANK	.000000	-.000073	.000073
		LOW	.500000	.512474	-.0[illegible]74
		MID	1.00000	.983784	.01[illegible]
		HIGH	2.00000	1.98253	.017467
CorCoef:	0.99993				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Be3130	313.042	BLANK	.000000	-.000114	.000114
		LOW	.500000	.519362	-.019362
		MID	1.00000	.991286	.008714
		HIGH	2.00000	1.96469	.035307
CorCoef:	0.99988				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Ca	317.933	BLANK	.000000	-.000952	.000952
		LOW	5.00000	5.15280	-.152803
		MID	10.0000	9.84014	.159863
		HIGH	20.0000	19.7017	.298269
CorCoef:	0.99991				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Cd	307.603	BLANK	.000000	-.000864	.000864
		LOW	5.00000	5.20892	-.208920
		MID	10.0000	10.0073	-.007298
		HIGH	20.0000	20.0037	-.003722
CorCoef:	0.99993				

Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrat
Cd2288	228.802	BLANK	.000000	-.000078	.000078

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		LOW	.500000	.519569	-.019569
		MID	1.00000	1.00621	-.006215
		HIGH	2.00000	1.99240	.007595

rCoef: 0.99994

ment	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2286	228.616	BLANK	.000000	-.000099	.000099
		LOW	.500000	.517581	-.017581
		MID	1.00000	.993064	.006936
		HIGH	2.00000	1.97244	.027563

rCoef: 0.99991

ement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2677	267.716	BLANK	.000000	-.000123	.000123
		LOW	.500000	.517761	-.017761
		MID	1.00000	.984146	.015854
		HIGH	2.00000	1.94884	.051161

rCoef: 0.99986

ement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
3247	324.754	BLANK	.000000	-.000073	.000073
		LOW	.500000	.510926	-.010926
		MID	1.00000	.996596	.003404
		HIGH	2.00000	1.96845	.031554

rCoef: 0.99994

ement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
	259.940	BLANK	.000000	-.000533	.000533
		LOW	5.00000	5.11050	-.110505
		MID	10.0000	9.76507	.234934
		HIGH	20.0000	20.0302	-.030249

rCoef: 0.99985

ement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
	271.441	BLANK	.000000	-.001281	.001281
		LOW	5.00000	5.30438	-.304377
		MID	10.0000	10.1753	-.175311
		HIGH	20.0000	19.8970	.102962

rCoef: 0.99982

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
_7664	766.491	BLANK	.000000	-.000271	.000271
		LOW	5.00000	5.02872	-.028721
		MID	100.000	99.2622	.737816
		HIGH	200.000	200.327	-.326782

rCoef: 0.99999

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2790	279.079	BLANK	.000000	-.001039	.001039
		LOW	5.00000	5.14601	-.146008
		MID	10.0000	9.88486	.115140
		HIGH	20.0000	19.5411	.458927

rCoef: 0.99990

ent	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
2576	257.610	BLANK	.000000	-.000101	.000101

		LOW	.500000	.516412	-.016412
		MID	1.00000	.988832	.011168
		HIGH	2.00000	1.96640	.033[illegible]
CorCoef:	0.99991				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Resid[illegible] Concentratio
Mo2020	202.030	BLANK	.000000	-.000107	.000107
		LOW	.500000	.515292	-.015292
		MID	1.00000	.989780	.010220
		HIGH	2.00000	1.95264	.047363
CorCoef:	0.99989				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratio
Na5889	588.995	BLANK	.000000	-.000825	.000825
		LOW	5.00000	5.13148	-.131484
		MID	10.0000	9.87120	.128799
		HIGH	20.0000	19.7317	.268335
CorCoef:	0.99994				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratio
Ni2316	231.604	BLANK	.000000	-.000162	.000162
		LOW	.500000	.524939	-.024939
		MID	1.00000	.985771	.014229
		HIGH	2.00000	1.93761	.062392
CorCoef:	0.99975				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratio
Pb2203	220.353	BLANK	.000000	-.000043	.000043
		LOW	.500000	.515994	-.01[illegible]4
		MID	1.00000	1.00982	-.00[illegible]7
		HIGH	2.00000	2.02405	-.024046
CorCoef:	0.99998				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratio
Sb2068	206.838	BLANK	.000000	-.000149	.000149
		LOW	.500000	.527003	-.027003
		MID	1.00000	.999061	.000939
		HIGH	2.00000	1.95632	.043675
CorCoef:	0.99977				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentratio
Se1960	196.026	BLANK	.000000	-.000133	.000133
		LOW	.700000	.776824	-.076824
		MID	1.00000	1.05615	-.056150
		HIGH	2.00000	2.15154	-.151539
CorCoef:	0.99960				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentrati
Sn1899	189.989	BLANK	.000000	-.000130	.000130
		LOW	.500000	.513409	-.013409
		MID	1.00000	.981533	.018467
		HIGH	2.00000	1.92078	.079224
CorCoef:	0.99981				
Element	Wavelength	Standard	Known Concentration	Measured Concentration	Resi[illegible] Concen[illegible]ati
Ti3349	334.941	BLANK	.000000	-.000091	.000091

LOW	.500000	.513294	-.013294
MID	1.00000	.993948	.006052
HIGH	2.00000	1.96053	.039473

Coef: 0.99991

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
11908	190.864	BLANK	.000000	-.000239	.000239
		LOW	.700000	.745355	-.045355
		MID	1.00000	.981207	.018793
		HIGH	2.00000	1.91700	.082996

orCoef: 0.99903

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
_2924	292.402	BLANK	.000000	-.000082	.000082
		LOW	.500000	.514253	-.014253
		MID	1.00000	.996078	.003922
		HIGH	2.00000	1.97475	.025251

orCoef: 0.99994

lement	Wavelength	Standard	Known Concentration	Measured Concentration	Residual Concentration
n2138	213.856	BLANK	.000000	-.000101	.000101
		LOW	.500000	.517845	-.017845
		MID	1.00000	1.00154	-.001542
		HIGH	2.00000	1.96670	.033302

orCoef: 0.99988

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lethod: COE Sample Name: CCV*HIGHSTD*1 Operator: GLP
Time: 03/25/96 15:43:17
ment:
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.938	19.60	1.931	1.941	1.978	1.941	19.52
SDev	.023	.30	.024	.030	.030	.031	.28
%RSD	1.212	1.507	1.229	1.555	1.530	1.622	1.441
#1	1.945	19.61	1.921	1.944	1.975	1.953	19.65
#2	1.912	19.30	1.914	1.910	1.949	1.906	19.20
#3	1.958	19.89	1.958	1.970	2.010	1.966	19.71

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.959	1.951	1.939	1.961	20.19	199.8	19.52
SDev	.023	.030	.030	.029	.52	2.5	.27
%RSD	1.176	1.560	1.545	1.470	2.553	1.234	1.390
#1	1.971	1.965	1.956	1.963	20.51	199.9	19.55
#2	1.933	1.916	1.904	1.932	20.47	197.3	19.24
#3	1.974	1.972	1.956	1.989	19.60	202.2	19.78

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.949	1.941	19.75	1.921	1.951	1.924	1.957
SDev	.028	.023	.27	.032	.036	.017	.045
%RSD	1.432	1.189	1.344	1.647	1.823	.8609	2.293

#1	1.955	1.942	19.73	1.922	1.969	1.924	2.000
#2	1.918	1.918	19.49	1.889	1.910	1.908	1.911
#3	1.973	1.964	20.02	1.952	1.973	1.941	1.9[illegible]

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	1.996	1.950	1.901	1.952	1.942
SDev	.056	.029	.025	.034	.026
%RSD	2.781	1.478	1.294	1.758	1.336
#1	2.019	1.956	1.891	1.965	1.951
#2	1.933	1.919	1.883	1.913	1.913
#3	2.037	1.975	1.929	1.978	1.962

Method: COE Sample Name: ICV*ICAP19*1 Operator: GLP
Run Time: 03/25/96 15:46:37
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0004	-.0033	.9958	.0060	.0008	.9980	.9989
SDev	.0003	.0121	.0217	.0050	.0004	.0050	.0025
%RSD	65.64	366.9	2.175	82.19	46.70	.5004	.2542
#1	-.0001	.0097	.9827	.0049	.0012	.9929	.9963
#2	-.0006	-.0141	.9840	.0114	.0008	.9982	1.0[illegible]
#3	-.0006	-.0055	1.021	.0017	.0004	1.003	.9[illegible]

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9968	.9965	.9939	.9840	1.004	.0663	.9899
SDev	.0069	.0060	.0053	.0040	.007	.1112	.0061
%RSD	.6916	.6015	.5281	.4109	.6607	167.6	.6182
#1	.9889	.9951	.9908	.9794	.9973	.1737	.9970
#2	.9999	.9914	.9908	.9855	1.006	.0737	.9863
#3	1.002	1.003	.9999	.9870	1.010	-.0484	.9865

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.004	.9952	-.0066	.9912	1.008	.9920	.9972
SDev	.006	.0070	.0136	.0112	.010	.0117	.0124
%RSD	.6451	.7064	205.5	1.127	1.027	1.181	1.248
#1	.9968	.9923	.0036	.9914	1.018	.9788	1.008
#2	1.004	.9901	-.0014	1.002	.9977	.9959	.9994
#3	1.010	1.003	-.0220	.9800	1.009	1.001	.9838

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0002	.9910	.9855	.9959	.9890
SDev	.0105	.0069	.0178	.0058	.0076
%RSD	4539.	.6942	1.803	.5810	.7668

#1	.0111	.9831	1.005	.9897	.9828
#2	-.0022	.9943	.9713	.9971	.9867
#3	-.0096	.9957	.9798	1.001	.9974

Method: COE Sample Name: ICS*A*1 Operator: GLP
Run Time: 03/25/96 15:50:13
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0064	485.5	-.0246	-.0123	.0049	-.0001	473.3
SDev	.0012	1.6	.0546	.0052	.0008	.0000	.7
%RSD	19.52	.3387	222.0	42.47	16.25	2.479	.1561
#1	-.0077	484.8	-.0510	-.0063	.0058	-.0001	472.6
#2	-.0052	484.4	.0382	-.0161	.0043	-.0001	473.3
#3	-.0062	487.4	-.0611	-.0144	.0046	-.0001	474.0

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0014	-.0001	-.0037	.0035	186.3	-.5442	485.6
SDev	.0025	.0009	.0023	.0016	.3	.1155	1.7
%RSD	182.9	725.4	62.26	44.55	.1456	21.23	.3456
#1	-.0003	.0007	-.0023	.0052	186.2	-.4147	484.5
#2	.0004	-.0011	-.0024	.0021	186.1	-.6368	484.8
#3	-.0042	.0001	-.0063	.0032	186.6	-.5813	487.6

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0050	.0025	-.0074	-.0061	.0260	.0078	.0869
SDev	.0002	.0034	.0128	.0077	.0156	.0098	.0261
%RSD	3.119	134.5	172.6	125.8	60.06	124.6	30.08
#1	-.0049	.0062	-.0179	.0024	.0347	-.0029	.0815
#2	-.0049	.0018	.0069	-.0126	.0354	.0103	.1154
#3	-.0052	-.0004	-.0113	-.0082	.0080	.0161	.0639

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0200	.0056	.0998	.0012	.0098
SDev	.0264	.0004	.1144	.0007	.0010
%RSD	131.9	6.763	114.6	57.92	10.22
#1	.0497	.0061	.0014	.0013	.0090
#2	.0110	.0054	.0726	.0019	.0094
#3	-.0007	.0054	.2254	.0005	.0109

Method: COE Sample Name: ICS*A8*1 Operator: GLP
Run Time: 03/25/96 15:52:45
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9346	486.4	-.0013	-.0130	.4773	.4516	466.5
SDev	.0058	3.5	.0731	.0038	.0038	.0031	3.5
%RSD	.6176	.7250	5729.	29.30	.7999	.6878	.741
#1	.9284	482.7	.0371	-.0152	.4735	.4483	463.3
#2	.9358	486.8	.0447	-.0152	.4773	.4522	466.1
#3	.9397	489.8	-.0856	-.0086	.4812	.4545	470.2

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9159	.4397	.4408	.4623	183.1	-.6627	485.9
SDev	.0054	.0037	.0024	.0046	.7	.3569	3.2
%RSD	.5938	.8517	.5379	.9949	.3778	53.85	.6528
#1	.9131	.4422	.4408	.4575	182.5	-.4036	482.7
#2	.9125	.4354	.4384	.4626	182.9	-1.070	486.2
#3	.9222	.4415	.4431	.4667	183.9	-.5146	489.0

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4389	-.0020	-.0030	.8595	.9132	.0106	.0968
SDev	.0031	.0032	.0050	.0033	.0142	.0162	.0131
%RSD	.6998	158.6	165.9	.3870	1.556	151.7	13.56
#1	.4367	-.0001	-.0055	.8619	.9291	.0282	.0961
#2	.4377	-.0056	.0028	.8557	.9019	-.0037	.0841
#3	.4424	-.0002	-.0063	.8610	.9085	.0074	.1103

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0233	.0048	.1602	.4647	.9110
SDev	.0132	.0010	.0796	.0027	.0071
%RSD	56.82	20.79	49.67	.5761	.7800
#1	.0267	.0059	.0762	.4625	.9055
#2	.0087	.0046	.2344	.4638	.9085
#3	.0345	.0040	.1701	.4677	.9190

Method: COE Sample Name: ICB*QC*1 Operator: GLP
Run Time: 03/25/96 15:59:48
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0018	-.0090	-.0127	-.0044	-.0005	-.0001	-.0029
SDev	.0005	.0022	.0159	.0057	.0002	.0000	.0028
%RSD	27.99	24.11	124.5	128.2	48.44	5.267	94.09
#1	-.0018	-.0090	-.0086	-.0050	-.0003	-.0001	-.0058
#2	-.0013	-.0069	-.0303	.0015	-.0003	-.0001	-.0003
#3	-.0023	-.0112	.0006	-.0099	-.0007	-.0001	-.0026

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm

AR302876

vge	-.0010	-.0007	.0007	.0006	-.0005	-.0780	-.0201
Dev	.0015	.0012	.0002	.0005	.0012	.1449	.0125
RSD	153.6	172.7	33.82	83.81	220.8	185.8	62.43
	-.0027	-.0007	.0008	.0001	.0005	-.1927	-.0189
2	.0000	.0005	.0004	.0011	-.0003	-.1261	-.0082
3	-.0003	-.0020	.0008	.0006	-.0018	.0848	-.0332

lem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Jnits	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vge	-.0001	-.0012	-.0069	-.0025	-.0011	.0080	.0025
Dev	.0003	.0017	.0096	.0020	.0071	.0097	.0168
RSD	266.3	138.5	140.1	82.13	635.3	121.4	669.5
#1	.0001	-.0030	-.0154	-.0004	-.0080	.0106	.0034
#2	.0001	.0003	.0036	-.0025	-.0015	.0161	.0188
#3	-.0004	-.0008	-.0088	-.0045	.0062	-.0027	-.0147

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Jnits	ppm	ppm	ppm	ppm	ppm
vge	-.0016	.0003	.0226	-.0021	.0000
Dev	.0117	.0004	.0256	.0013	.0006
RSD	722.7	109.2	113.1	64.03	1637.
#1	-.0151	.0001	.0093	-.0034	.0002
#2	.0044	.0001	.0521	-.0021	.0006
#3	.0059	.0008	.0064	-.0008	-.0006

---

od: COE Sample Name: MABBS*7 1:3 Operator: GLP
Time: 03/25/96 16:02:11
omment: * UNSPIKED Cu DATA ONLY FOR SPX*
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Jnits	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vge	-.0025	3.164	.0547	.0198	.1299	-.0007	32.96
Dev	.0010	.011	.0254	.0011	.0011	.0004	.11
RSD	36.36	.3531	46.33	5.723	.8820	60.12	.3450
#1	-.0020	3.153	.0673	.0192	.1287	-.0010	32.93
#2	-.0040	3.164	.0713	.0192	.1299	-.0002	32.86
#3	-.0025	3.175	.0255	.0211	.1310	-.0010	33.08

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
vge	.0001	.0020	.0468	1.617	300.4	.1885	1.211
Dev	.0009	.0013	.0005	.006	2.5	.1406	.007
RSD	829.6	66.06	.9830	.3993	.8228	74.59	.5906
#1	.0012	.0030	.0471	1.612	299.0	.3402	1.204
#2	-.0004	.0005	.0463	1.615	298.9	.1626	1.219
#3	-.0005	.0027	.0471	1.625	303.2	.0626	1.210

em	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
its	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.990	.0660	1.117	.0153	.4137	.0106	-.0413

SDev	.013	.0029	.005	.0052	.0138	.0097	.0158
%RSD	.4196	4.434	.4072	34.26	3.345	91.64	38.40
#1	2.980	.0693	1.117	.0138	.4013	.0218	-.0[illegible]
#2	2.985	.0638	1.122	.0110	.4112	.0050	-.0[illegible]
#3	3.004	.0646	1.113	.0211	.4287	.0050	-.0231

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0076	.6102	.0402	.0270	3.936
SDev	.0093	.0030	.0257	.0004	.014
%RSD	123.5	.4989	64.02	1.622	.3487
#1	.0151	.6084	.0645	.0272	3.930
#2	-.0029	.6084	.0133	.0273	3.927
#3	.0105	.6137	.0428	.0265	3.952

Method: COE Sample Name: SPX*MABBS*7 1:3 Operator: GLP
Run Time: 03/25/96 16:05:19
Comment: * Cu DATA ONLY FOR SPX*
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2558	4.170	.3962	.2674	.3224	.2579	19.31
SDev	.0059	.050	.0060	.0049	.0021	.0027	.19
%RSD	2.306	1.201	1.523	1.825	.6522	1.031	.9855
#1	.2490	4.115	.3957	.2727	.3204	.2548	19[illegible]
#2	.2584	4.212	.4025	.2663	.3246	.2594	19.41
#3	.2599	4.183	.3905	.2631	.3223	.2594	19.42

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.2553	.2576	.2824	1.069	150.9	2.749	3.172
SDev	.0032	.0024	.0041	.007	.9	.068	.013
%RSD	1.257	.9474	1.460	.6626	.5753	2.456	.4033
#1	.2516	.2554	.2777	1.061	149.9	2.671	3.158
#2	.2575	.2602	.2852	1.073	151.4	2.783	3.182
#3	.2566	.2571	.2844	1.072	151.4	2.794	3.175

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.773	.2904	3.132	.2681	.4734	.2673	.3477
SDev	.015	.0043	.041	.0079	.0104	.0047	.0149
%RSD	.8551	1.499	1.303	2.954	2.188	1.760	4.279
#1	1.756	.2861	3.086	.2675	.4614	.2680	.3326
#2	1.784	.2948	3.145	.2606	.4788	.2716	.3481
#3	1.781	.2904	3.164	.2764	.4799	.2622	.3624

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.2755	.5648	.3882	.2713	2.251
SDev	.0120	.0040	.0635	.0029	.022

%RSD	.358	.2095	16.36	1.085	.9884
#1	.2640	.5602	.3372	.2679	2.226
#2	.2745	.5675	.3681	.2730	2.267
#3	.2880	.5668	.4594	.2730	2.261

---

ethod: COE Sample Name: ICS*A*2 Operator: GLP
un Time: 03/25/96 16:07:56
omment:
ode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0057	478.3	-.0049	-.0121	.0046	-.0001	465.8
SDev	.0009	3.6	.0771	.0052	.0000	.0000	2.9
%RSD	14.98	.7508	1578	42.66	.0000	2.375	.6135
#1	-.0062	474.3	.0131	-.0084	.0046	-.0001	462.6
#2	-.0062	479.6	.0616	-.0100	.0046	-.0001	466.4
#3	-.0047	481.1	-.0894	-.0180	.0046	-.0001	468.2

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0012	-.0008	-.0043	.0033	181.7	-.6775	478.2
SDev	.0024	.0012	.0021	.0012	.6	.2048	3.4
%RSD	200.0	142.0	48.01	35.37	.3295	30.23	.7110
#1	-.0029	-.0021	-.0067	.0047	181.4	-.6257	474.4
#2	-.0023	-.0008	-.0035	.0026	181.4	-.9032	479.4
#3	.0016	.0003	-.0027	.0026	182.4	-.5035	480.8

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0042	.0036	-.0132	.0028	.0153	.0210	.1103
SDev	.0001	.0042	.0067	.0043	.0049	.0244	.0152
%RSD	2.755	110.7	50.52	154.3	32.16	116.3	13.72
#1	-.0041	.0085	-.0121	.0068	.0202	-.0046	.0929
#2	-.0041	.0019	-.0204	.0032	.0104	.0236	.1177
#3	-.0043	.0008	-.0072	-.0017	.0152	.0441	.1204

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0293	.0056	.1240	.0014	.0173
SDev	.0115	.0004	.0461	.0007	.0022
%RSD	39.09	6.762	37.13	50.01	13.00
#1	.0253	.0054	.0933	.0008	.0199
#2	.0204	.0054	.1770	.0021	.0159
#3	.0423	.0061	.1018	.0013	.0162

Method: COE Sample Name: ICS*AB*2 Operator: GLP
n Time: 03/25/96 16:09:48
mment:

Mode: CONC . Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9302	484.2	.0635	-.0077	.4759	.4501	464
SDev	.0074	3.8	.0218	.0033	.0045	.0031	3
%RSD	.7998	.7916	34.35	43.06	.9504	.6893	.7281
#1	.9264	481.5	.0886	-.0040	.4735	.4483	463.5
#2	.9254	482.5	.0517	-.0104	.4731	.4483	462.3
#3	.9387	488.6	.0501	-.0086	.4812	.4537	468.7

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.9175	.4365	.4360	.4606	182.3	-.2741	483.7
SDev	.0072	.0008	.0021	.0044	2.0	.0678	3.5
%RSD	.7820	.1782	.4716	.9647	1.112	24.75	.7245
#1	.9116	.4362	.4348	.4575	180.7	-.2149	481.6
#2	.9154	.4373	.4349	.4586	181.7	-.2593	481.8
#3	.9255	.4359	.4384	.4657	184.6	-.3481	487.8

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.4373	.0028	-.0039	.8661	.9355	.0107	.1099
SDev	.0029	.0044	.0081	.0220	.0112	.0148	.0155
%RSD	.6579	156.6	211.1	2.541	1.191	138.3	14.14
#1	.4360	-.0012	-.0014	.8784	.9314	.0226	.1278
#2	.4354	.0020	-.0129	.8407	.9481	-.0058	.10
#3	.4407	.0075	.0028	.8793	.9270	.0153	.10

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.0297	.0062	.2223	.4617	.9110
SDev	.0233	.0008	.0882	.0034	.0057
%RSD	78.57	12.36	39.69	.7282	.6226
#1	.0432	.0066	.3171	.4602	.9092
#2	.0373	.0066	.1426	.4593	.9064
#3	.0035	.0053	.2073	.4655	.9173

Method: COE Sample Name: CCV*QC*1 Operator: GLP
Run Time: 03/25/96 16:12:26
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5102	5.234	.7397	.5141	.5099	.5114	5.188
SDev	.0021	.022	.0053	.0009	.0013	.0023	.033
%RSD	.4043	.4251	.7176	.1840	.2630	.4491	.6283
#1	.5085	5.251	.7416	.5136	.5087	.5091	5.2
#2	.5095	5.241	.7438	.5136	.5098	.5114	5.
#3	.5125	5.209	.7337	.5152	.5113	.5137	5.

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5099	.5106	.5122	.5089	5.326	4.877	5.230
SDev	.0044	.0011	.0024	.0015	.029	.322	.030
%RSD	.8599	.2081	.4697	.3054	.5383	6.607	.5710
#1	.5049	.5094	.5094	.5076	5.358	4.947	5.245
#2	.5129	.5112	.5134	.5086	5.303	4.525	5.249
#3	.5120	.5112	.5138	.5106	5.316	5.158	5.195

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.5110	.5137	5.110	.5149	.5095	.5266	.7174
SDev	.0030	.0058	.031	.0047	.0123	.0135	.0083
%RSD	.5806	1.129	.6019	.9154	2.414	2.557	1.157
#1	.5076	.5093	5.092	.5118	.5124	.5179	.7259
#2	.5122	.5115	5.093	.5204	.4960	.5197	.7093
#3	.5131	.5202	5.146	.5126	.5201	.5421	.7171

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	.5341	.5083	.7101	.5072	.5188
SDev	.0121	.0017	.0298	.0040	.0033
%RSD	2.272	.3262	4.192	.7984	.6335
#1	.5231	.5068	.7300	.5030	.5151
#2	.5321	.5081	.6759	.5077	.5198
#3	.5471	.5101	.7244	.5110	.5214

Method: COE Sample Name: CCB*QC*1 Operator: GLP
Run Time: 03/25/96 16:14:27
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	B_2496	Ba4934	Be3130	Ca
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0023	.0042	-.0036	.0004	.0001	-.0001	.0070
SDev	.0023	.0076	.0063	.0019	.0004	.0000	.0065
%RSD	100.4	180.6	176.3	446.8	707.2	7.156	92.90
#1	-.0018	.0112	-.0067	-.0017	.0001	-.0001	.0143
#2	-.0047	.0054	-.0077	.0015	-.0003	-.0001	.0020
#3	-.0003	-.0039	.0037	.0015	.0004	-.0001	.0047

Elem	Cd2288	Co2286	Cr2677	Cu3247	Fe	K_7664	Mg2790
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0007	.0011	-.0001	.0033	.0056	-.0410	.0013
SDev	.0009	.0027	.0019	.0008	.0049	.2498	.0135
%RSD	129.8	237.1	1525.	23.40	86.90	609.6	1028.
#1	-.0002	.0024	.0008	.0032	.0113	.1403	.0168
#2	-.0002	-.0020	-.0024	.0026	.0028	-.3259	-.0082
#3	-.0018	.0030	.0012	.0042	.0028	.0626	-.0046

Elem	Mn2576	Mo2020	Na5889	Ni2316	Pb2203	Sb2068	Se1960

Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0001	-.0023	-.0132	.0013	.0021	-.0013	.0101
SDev	.0000	.0006	.0038	.0051	.0013	.0094	.0209
%RSD	2.517	27.32	28.87	391.6	58.47	706.0	206.[illegible]
#1	.0001	-.0019	-.0154	.0032	.0029	.0087	-.000[illegible]
#2	.0001	-.0030	-.0154	.0052	.0029	-.0101	-.0032
#3	.0001	-.0019	-.0088	-.0045	.0007	-.0026	.0343

Elem	Sn1899	Ti3349	Tl1908	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.0076	.0003	.0330	-.0028	.0015
SDev	.0104	.0004	.0059	.0018	.0006
%RSD	136.2	109.1	17.98	64.16	40.57
#1	-.0016	.0001	.0349	-.0014	.0021
#2	-.0016	.0001	.0378	-.0048	.0013
#3	-.0196	.0008	.0264	-.0021	.0010

Other Relevant Documentation

ATOMIC SPECTROSCOPY SAMPLE PREP

Book No. 31 Pg. No. 000228

Matrix SOILS Method/QC Type ICAP / PREP

SOP No. ASM3233-004 Lot No.(s) NA

Spike Solutions Used	Prep Date	Prep'd by	Exp. Date
1. ICAP/CLP SPK SOLN (123253)	1-3-96	DVN	3-4-96
2.			

Final Vol. (mL) 100 Pipets Used 10 ml CLASS "A" VOL. PIPET

Balance No. 13 Hood No. 5 Hotplate No. 1

Sample No.	Weight (g)/ Init.Vol.(mL)	Spike Information
RE BLANK	—	
ERA BLANK MB	1.0050	
SAND # 58001 SP1	1.0074	10ml #1
MABBS * 1	1.0032	
2	1.0186	
3	1.0169	
4	1.0151	
5	1.0384	
6	1.0106	
7	1.0358	
7spm1	1.0491	10ml #1
7spm2	1.0167	10ml #1
8	1.0362	
9	1.0227	
10	1.0009	
11	1.0235	

Signed 2-14-96 Date Read & Understood By 2/15/96 Date

AR302886

0001

NAME: DAVID NICHOLS LOT NO.s: NA

DATE: 2-14-96 004

FIELD GROUP	WEIGHT	FIELD GROUP	WEIGHT
MB	1.0050		
SP1	1.0074		
MABBS* 1	1.0032		
2	1.0186		
3	1.0169		
4	1.0151		
5	1.0384		
6	1.006		
7	1.0358		
8	1.0262		
9	1.0227		
10	1.0009		
11	1.0235		
7 #1	1.0491		
7 #2	1.0147		

AR302885

BK# 5 PG# 000143

JA 61 ICAP

Instrument Log

Analyst: Gary Price Date: 3/22/96

PROFILING	Initial	Final
Time		
Temp	76°F	
Humidity	68%	
Entr. Slit	74	
Ele. Cd		

Argon Tank Level —

Argon Regulator (psi) ~80

Element File Used COE

File Name 322 GEP

Method No. SW6010A

OPTIMIZATION

Cu/Mn 1158 / 1105 = 1.045

Coolant flow (LPM) 15.0

Coolant mass flow 15.0

Nebulizer flow (LPM) 0.75

Nebulizer mass flow 0.54

Forward power 1.1 KW

Reflected power ~4W

Peristaltic pump 850

Viewing height 16 mm above coil

Y tongue 0 mm above torch

Maintenance/Comments:

Samples Analyzed: MADBS #1-11 Rerun

Read & Understood By: Thomas Reddy 3/25/96

AR302886

0001

ICAP - CCV SOLUTION (2:113)

Notebook: 2 Page: 113

Element	Manufacturer	Lot No.	Exp. Date	Stock Conc. (ppm)	Volume Used (mL)	Final Conc. (ppm)
As	High Purity	590613	09/96	1000	1.4	0.7
Se	High Purity	590608	09/96	1000	1.4	0.7
Tl	High Purity	590628	09/96	1000	1.4	0.7
Sb	High Purity	590213	06/96	1000	1.0	0.5
Ba	High Purity	590313	06/96	1000	1.0	0.5
Be	High Purity	590404	06/96	1000	1.0	0.5
Cd	High Purity	490921	04/96	1000	1.0	0.5
Co	High Purity	591006	12/96	1000	1.0	0.5
Cr	High Purity	590313	06/96	1000	1.0	0.5
Cu	High Purity	590314	06/96	1000	1.0	0.5
Pb	High Purity	590517	06/96	1000	1.0	0.5
Mn	High Purity	590426	06/96	1000	1.0	0.5
Ni	High Purity	590417	06/96	1000	1.0	0.5
V	High Purity	590331	06/96	1000	1.0	0.5
Zn	High Purity	590420	06/96	1000	1.0	0.5
Ag	High Purity	590505	06/96	1000	1.0	0.5
B	High Purity	490921	04/96	1000	1.0	0.5
Li	High Purity	590220	09/96	1000	1.0	0.5
Mo	High Purity	490331	04/96	1000	1.0	0.5
Sr	High Purity	590714	12/96	1000	1.0	0.5
Sn	High Purity	491019	06/96	1000	1.0	0.5
Ti	High Purity	490916	04/96	1000	1.0	0.5
Al	High Purity	591003	12/96	10000	1.0	5.0
Ca	High Purity	590418	06/96	10000	1.0	5.0
Fe	High Purity	590501	06/96	10000	1.0	5.0
Mg	High Purity	590328	06/96	10000	1.0	5.0
K	High Purity	590908	12/96	10000	1.0	5.0
Na	High Purity	590915	12/96	10000	1.0	5.0

Pipette used: Eppendorf #115381

ICAP - CCV solution made to a final acid concentration of 5% (v/v) HCl and 5% (v/v) HNO_3, and to a final volume of 2000 mL.

This solution expires: 3/27/96 (Good for 33 days).

Stored at room temperature.

Prepared by: Date: Read and understood by: Date:

2/23/96 2-23-96

ICAP - ICV 19 & 7 SOLUTIONS

Notebook: 2 Page: 114

ICV 19 (2:114-1)

Solution	Manufacturer	Lot No.	Exp. Date	Volume Used(mL)
QCS19	HIGH PURITY	590720	11/96	5.0

ICV 7 (2:114-2)

Solution	Manufacturer	Lot No.	Exp. Date	Volume Used(mL)
QCS7	HIGH PURITY	590323	11/96	5.0

Pipettes used: 5 mL Class "A" Volumetric

ICV Solutions made to a final acid concentration of 5% (v/v) HCl and 5% (v/v) HNO_3, and to a final volume of 500 mL.

This solution expires: 3/27/96 (Good for 33 days).

Stored at room temperature.

Prepared by: Kent Bradfield Date: 2-23-96

Read and understood by: [illegible] Date: 2/23/96

AR302888

ICAP - ICS SOLUTIONS

Notebook: 2 Page: 115

ICS A (2:115-1)

Element	Manufacturer	Lot No.	Exp. Date	Stock Conc. (ppm)	Volume Used (mL)	Final Conc. (ppm)
Al	High Purity	590922	11/96	10000	25	500
Ca	High Purity	591010	11/96	10000	25	500
Mg	High Purity	591002	11/96	10000	25	500
Fe	High Purity	591023	11/96	10000	10	200

ICS AB (2:115-2)

ICS AB Solution is prepared like the ICS A Solution with the addition of 5mL of the PE-Pure "AS STD, Analytes B" solution (Lot # 6-140AS, Expires: 03/96).

ICS AB-T (2:115-3)

ICS AB-T Solution is prepared like the ICS A Solution with the addition of 5mL of the High Purity "CLP Analyte Standard II-Trace" solution (Lot # 590428, Expires: 09/96).

Pipettes used: 5,10, & 25mL Class "A" Volumetrics

ICS Solutions made to a final acid concentration of 5%(v/v) HNO_3 and 5%(v/v) HCl, and to a final volume of 500 mL.

These solutions expire: 3/27/96 (Good for 33 days).

Stored at room temperature.

Prepared by: Kent Bakefield Date: 2-23-96

Read and understood by: [illegible] Date: 2/23/96

ICAP - MID STANDARD (2:117-1)
ICAP - HIGH STANDARD (2:117-2)

Notebook: 2 Page: 117

Element	Manufacturer	Lot No.	Exp. Date	Stock Conc. (ppm)	Volumes Used (mL)	Mid Std Conc. (ppm)	High St Conc. (p
As	High Purity	590613	09/96	1000	1.0/2.0	1.0	2.0
Se	High Purity	590608	09/96	1000	1.0/2.0	1.0	2.0
Tl	High Purity	590628	09/96	1000	1.0/2.0	1.0	2.0
Sb	High Purity	590213	06/96	1000	1.0/2.0	1.0	2.0
Ba	High Purity	590313	06/96	1000	1.0/2.0	1.0	2.0
Be	High Purity	590404	06/96	1000	1.0/2.0	1.0	2.0
Cd	High Purity	490921	04/96	1000	1.0/2.0	1.0	2.0
Co	High Purity	591006	12/96	1000	1.0/2.0	1.0	2.0
Cr	High Purity	590313	06/96	1000	1.0/2.0	1.0	2.0
Cu	High Purity	590314	06/96	1000	1.0/2.0	1.0	2.0
Pb	High Purity	590517	06/96	1000	1.0/2.0	1.0	2.0
Mn	High Purity	590426	06/96	1000	1.0/2.0	1.0	2.0
Ni	High Purity	590417	06/96	1000	1.0/2.0	1.0	2.0
V	High Purity	590331	06/96	1000	1.0/2.0	1.0	2.0
Zn	High Purity	590420	06/96	1000	1.0/2.0	1.0	2.0
Ag	High Purity	590505	06/96	1000	1.0/2.0	1.0	2.0
B	High Purity	490921	04/96	1000	1.0/2.0	1.0	2.0
Mo	High Purity	490331	04/96	1000	1.0/2.0	1.0	2.0
Sr	High Purity	590714	12/96	1000	1.0/2.0	1.0	2.0
Sn	High Purity	491019	06/96	1000	1.0/2.0	1.0	2.0
Ti	High Purity	490916	04/96	1000	1.0/2.0	1.0	0
Al	High Purity	591003	12/96	10000	1.0/2.0	10.0	0
Ca	High Purity	590418	06/96	10000	1.0/2.0	10.0	20.0
Fe	High Purity	590501	06/96	10000	1.0/2.0	10.0	20.0
Mg	High Purity	590328	06/96	10000	1.0/2.0	10.0	20.0
K	High Purity	590908	12/96	10000	10.0/20.0	100	200
Na	High Purity	590915	12/96	10000	1.0/2.0	10.0	20.0

Pipettes used: RAININ, 10 & 20mL Class "A" Volumetrics

ICAP - Mid and High Standards are made to a final acid concentration of 5% (v/v) HCl and 5% (v/v) HNO_3, and to final volumes of 1000 mL.

Solution expires: 04/25/96 (Good for 33 Days).

Stored at room temperature.

Prepared by: Date: 3/22/95

Read and understood by: Date: 3-

AR302890

ICAP SPIKE SOLUTION
(CLP/FDER/USAEC MATRIX)

Notebook: 12 Page: 253

Element	Manufacturer	Lot No.	Exp. Date	Stock Conc.(ppm)	Volume Used(mL)	Final Conc.(ppm)
Al	High Purity	591003	12/96	10000	2.0	20.0
Sb	High Purity	590213	06/96	1000	5.0	5.0
As	High Purity	590613	09/96	1000	20.0	20.0
Ba	High Purity	590313	06/96	1000	20.0	20.0
Be	High Purity	590404	06/96	1000	0.5	0.5
B	High Purity	490921	04/96	1000	10.0	10.0
Cd	High Purity	490921	04/96	1000	0.5	0.5
Ca	High Purity	590418	06/96	10000	10.0	100.0
Cr	High Purity	490922	01/96	1000	2.0	2.0
Co	High Purity	490928	09/96	1000	5.0	5.0
Cu	High Purity	590314	06/96	1000	2.5	2.5
Fe	High Purity	590501	06/96	10000	1.0	10.0
Pb	High Purity	590517	06/96	1000	5.0	5.0
Li	High Purity	590220	09/96	1000	5.0	5.0
Mg	High Purity	590328	06/96	10000	10.0	100.0
Mn	High Purity	590426	06/96	1000	5.0	5.0
Mo	High Purity	490331	04/96	1000	5.0	5.0
Ni	High Purity	590417	06/96	1000	5.0	5.0
K	High Purity	590908	12/96	10000	10.0	100.0
Se	High Purity	590608	09/96	1000	20.0	20.0
Ag	High Purity	590505	06/96	1000	0.5	0.5
Na	High Purity	590612	07/96	10000	10.0	100.0
Sr	High Purity	590714	12/96	1000	5.0	5.0
Tl	High Purity	491111	06/96	1000	20.0	20.0
Sn	High Purity	491019	06/96	1000	10.0	10.0
Ti	HIGH PURITY	490916	04/96	1000	5.0	5.0
V	High Purity	590331	06/96	1000	5.0	5.0
Zn	High Purity	590420	06/96	1000	5.0	5.0

Solution made with 20%(v/v) HCl to a final volume of 1000 ml

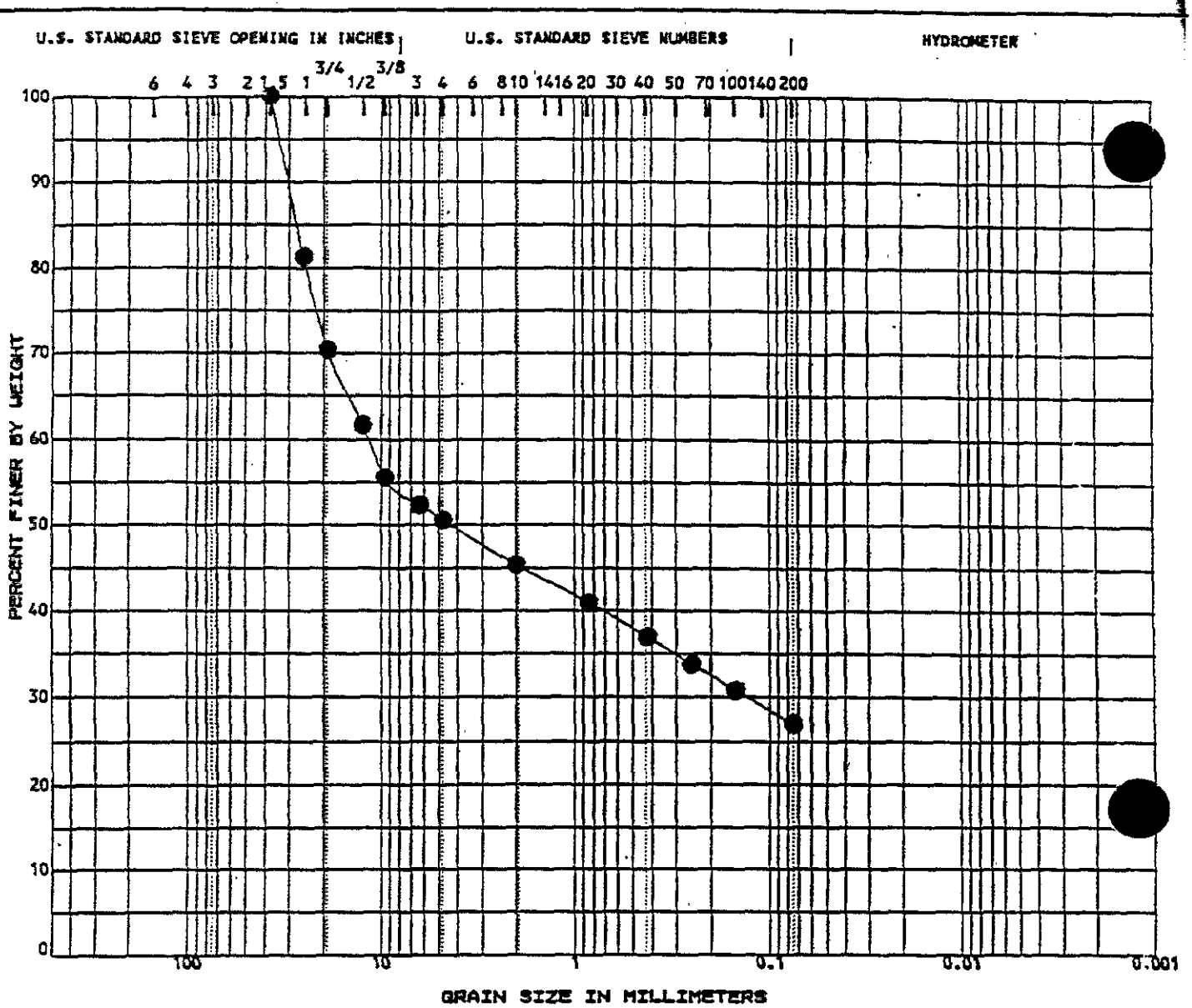
Pipet used: Eppendorf #120565; 5,10,20mL class "A" volumetrics.

This solution expires: 03/04/96 (Good for 33 days).

Stored at room temperature.

Prepared by: David V. Rooks Date: 1-31-96

Read and understood by : [illegible] Date: 1/31/96



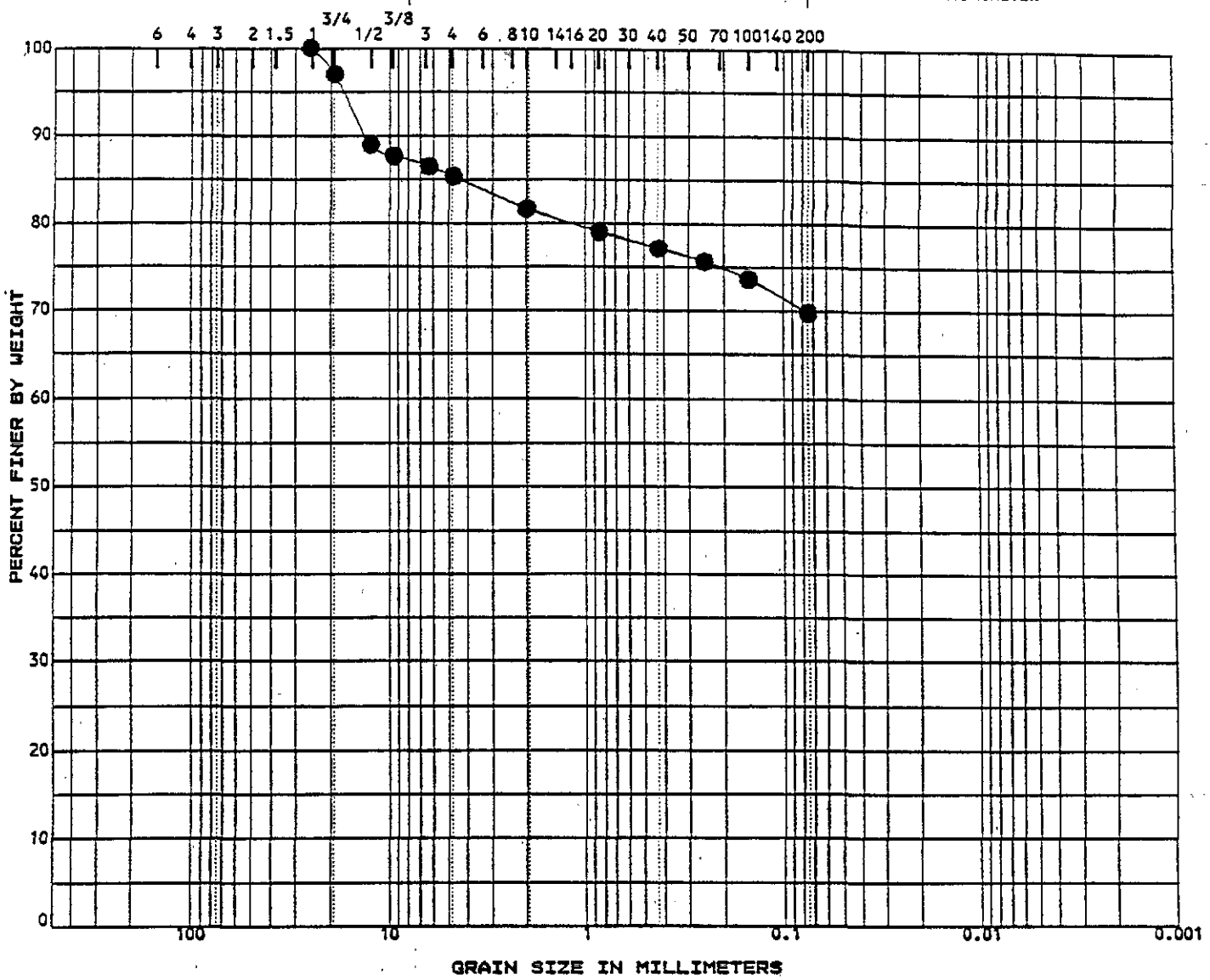
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA020002	Coarse to Fine GRAVEL; some silt; trace fine, medium, and coarse sand.	20.2					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA020002	37.50	11.58	0.130		49.4	23.6	27.0	

Project OLIN MORGANTOWN		Location West Virginia
Area		Notes Black charcoal pieces and tar.
Date April 1996		GRADATION CURVES

AR302892



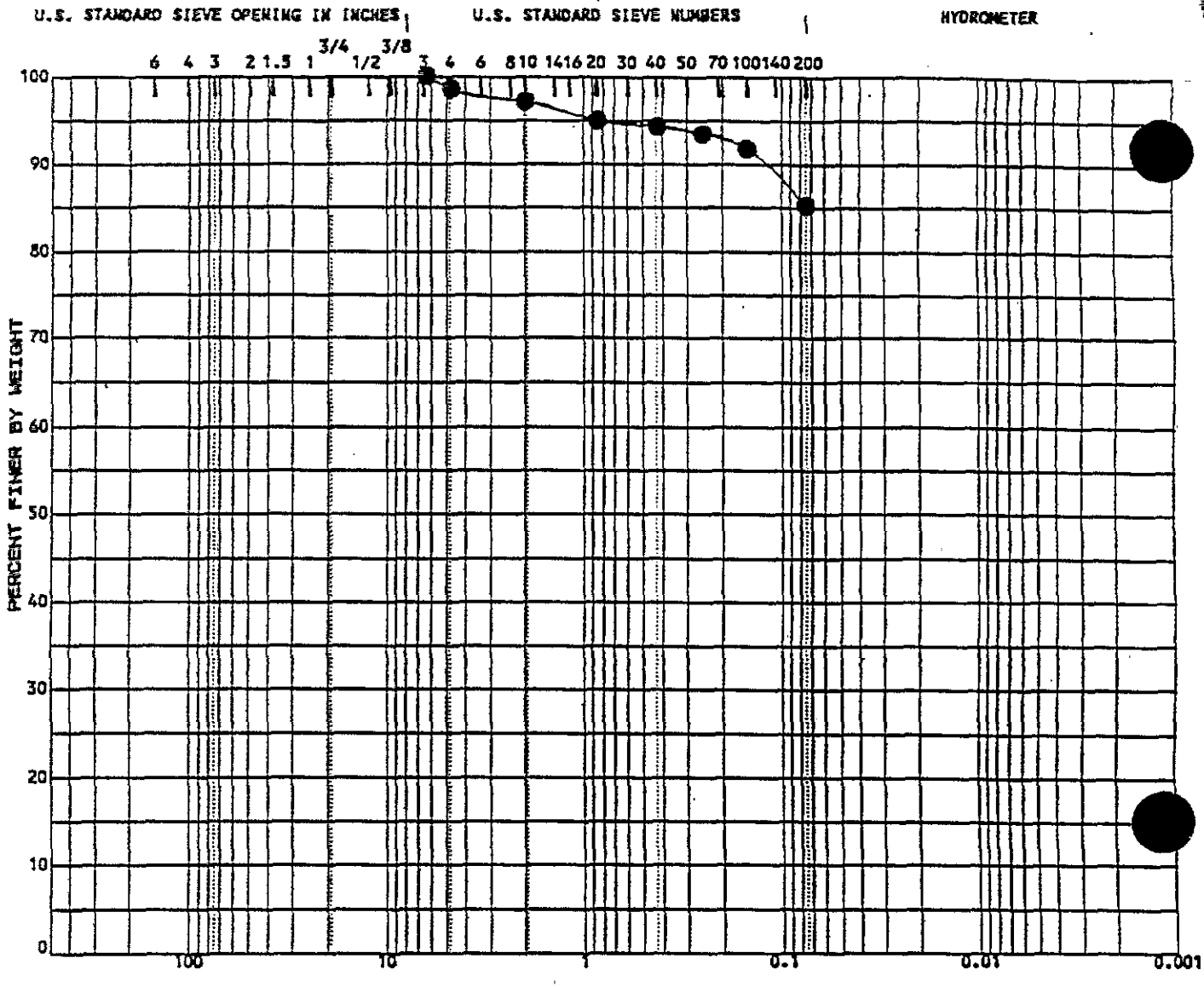
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA020204	SILT; little fine gravel; trace fine, medium, and coarse sand and coarse gravel.	27.9					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA020204	25.40				14.6	15.6	69.8	

Project OLIN MORGANTOWN	Location West Virginia	
Area	Notes Large black charcoal pieces	
Date April 1996	GRADATION CURVES	

AR302893



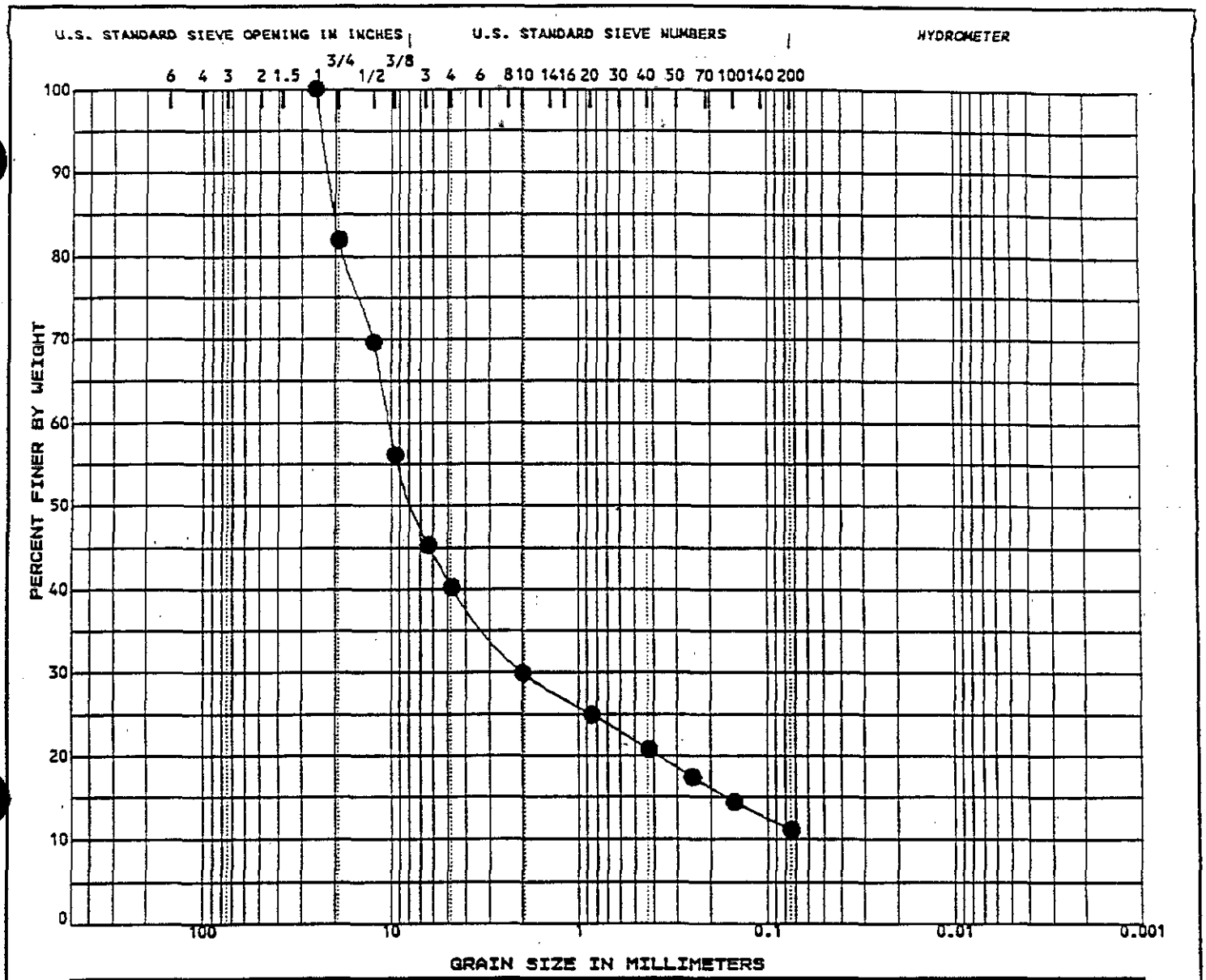
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA030004	SILT/CLAY; trace fine, medium, and coarse sand and fine gravel. Moderately plastic.	31.4					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA030004	6.30				1.5	13.2	85.3	

Project OLIN MORGANTOWN	Location West Virginia	
Area	Notes	
Date April 1996	GRADATION CURVES	

AR302894



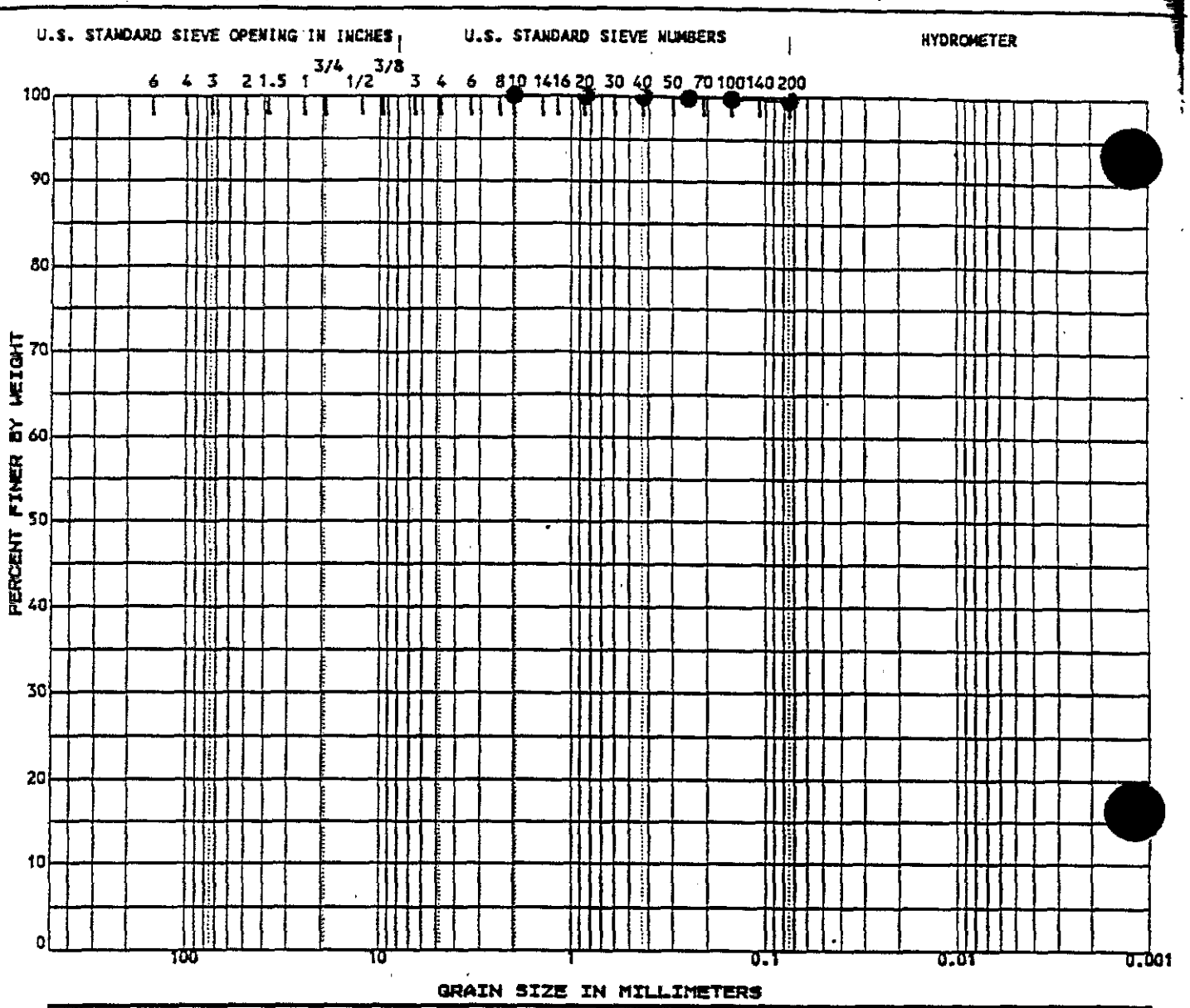
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA110004	Fine to Coarse GRAVEL; little silt; trace coarse, medium, and fine sand.	13.5				5.65	147.0

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA110004	25.40	10.29	2.017		59.8	29.1	11.1	

Project OLIN MORGANTOWN	Location West Virginia	
Area	Notes Large black charcoal pieces	
Date April 1996	GRADATION CURVES	

AR302895

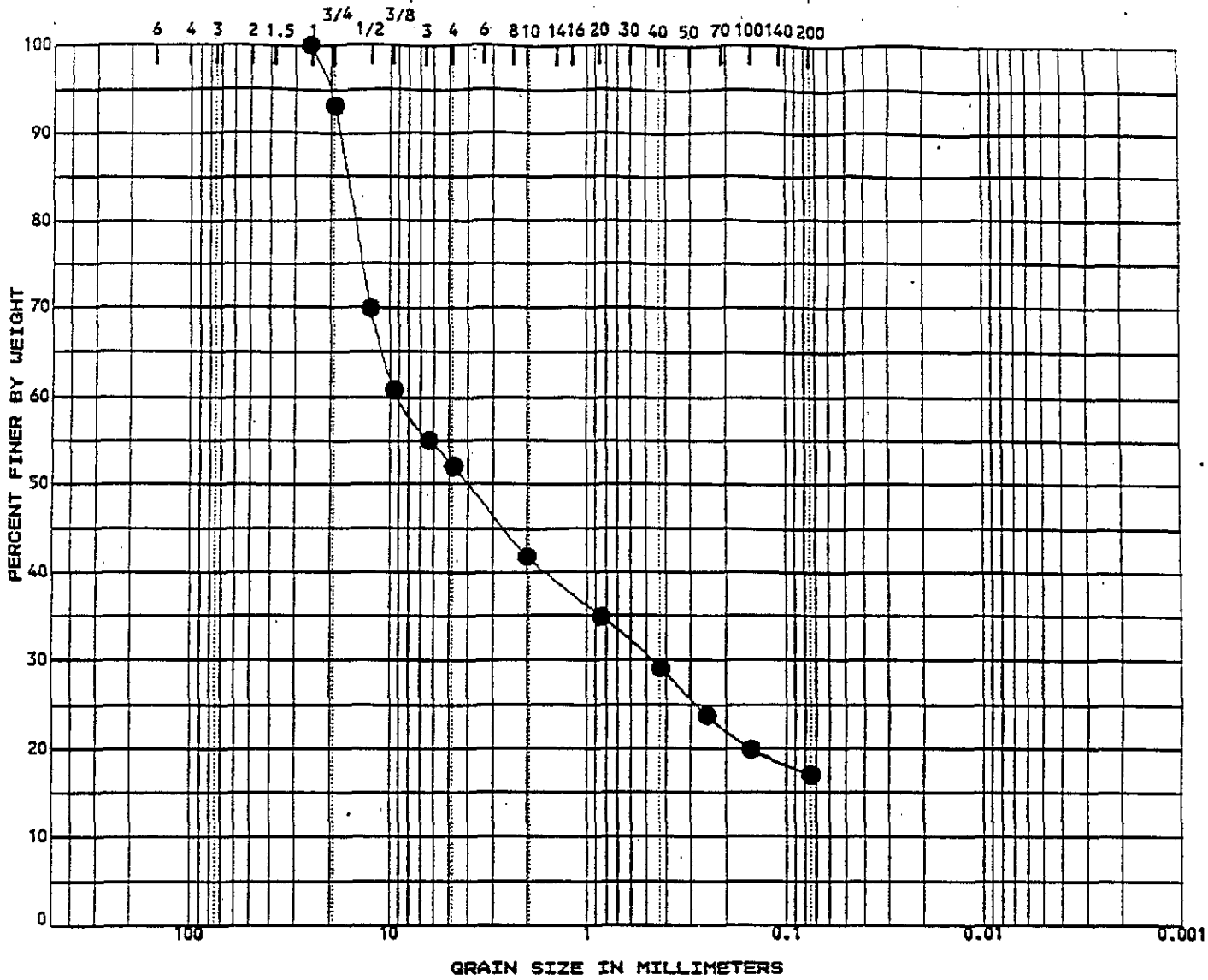


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA110408	CLAY; trace fine and medium sand.	20.9					
	Moderately plastic.						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA110408	0.85				0.0	0.5	99.5	

AR302896	Project OLIN MORGANTOWN	Location West Virginia
	Area	Notes
	Date April 1996	GRADATION CURVES



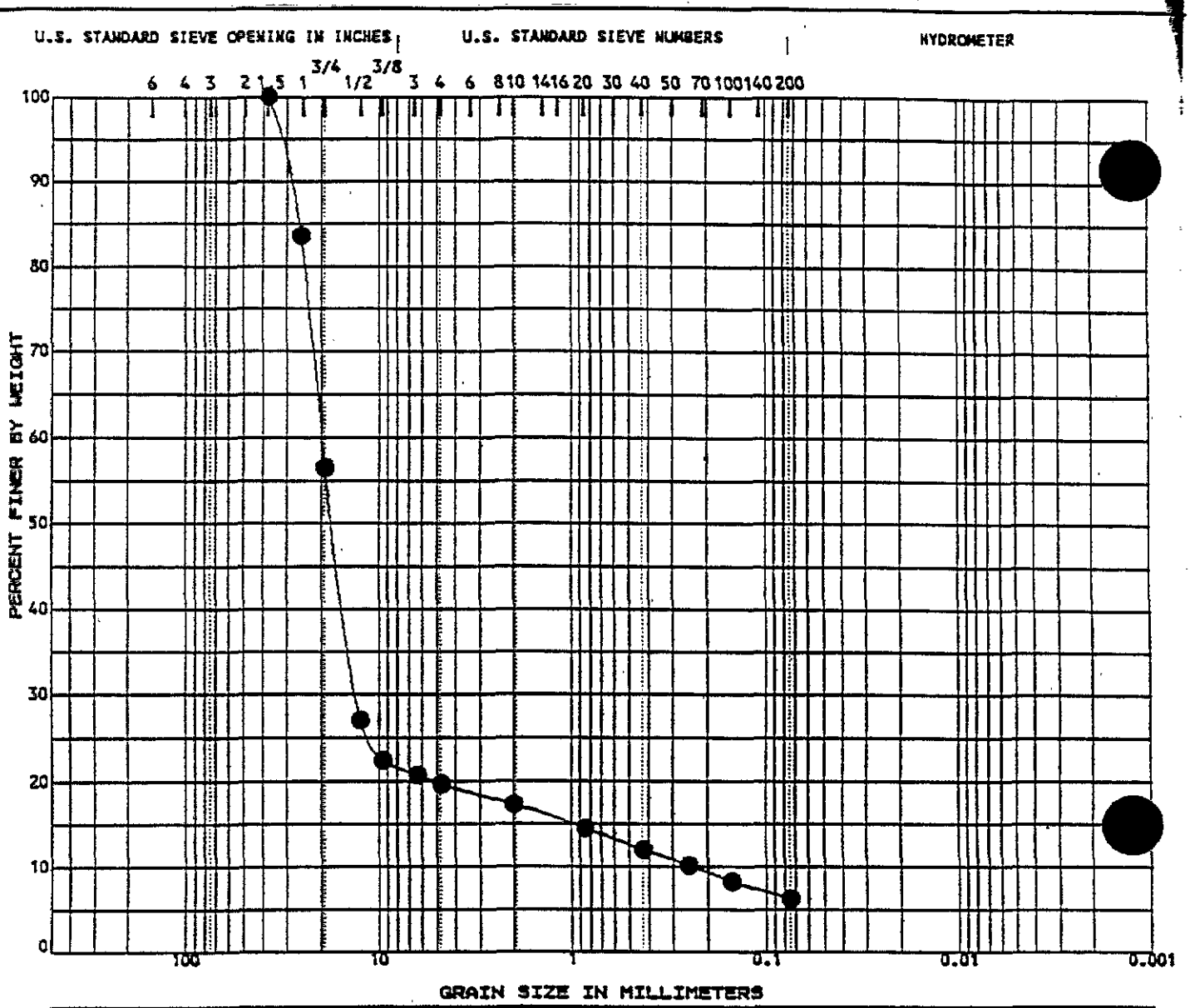
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA140004	Coarse to Fine Sandy Fine GRAVEL; little silt; trace coarse gravel.	31.1					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA140004	25.40	8.98	0.473		48.0	35.0	17.0	

Project OLIN MORGANTOWN	Location West Virginia	
Area	Notes Black charcoal pieces and tar.	
Date April 1996	GRADATION CURVES	

AR302897

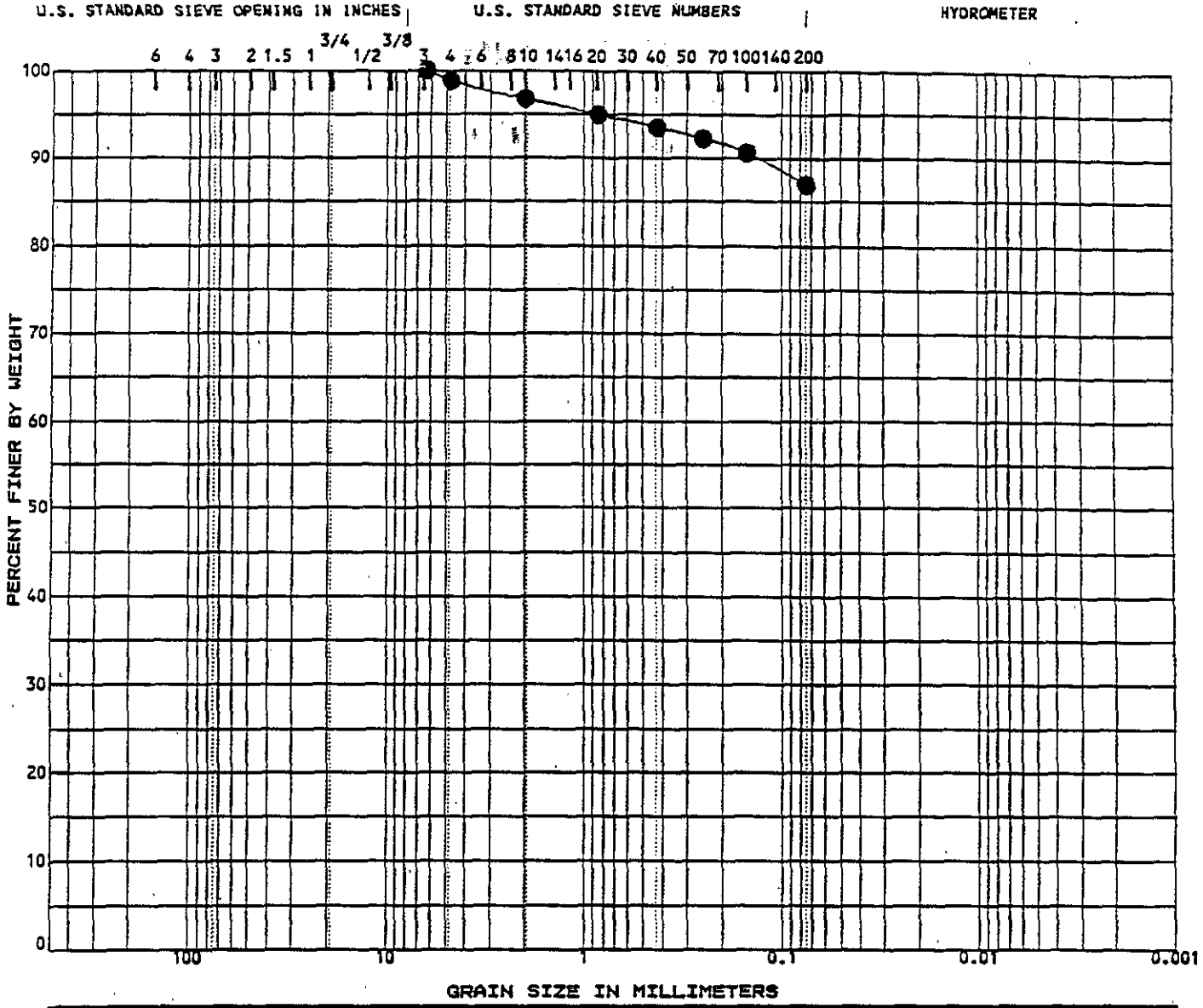


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA160004	Coarse to Fine GRAVEL; trace silt and fine, medium and coarse sand.	16.3				36.28	83.[illegible]

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA160004	37.50	19.82	13.050	0.2369	80.3	13.4	6.3	

AR302898	Project OLIN MORGANTOWN	Location West Virginia
	Area	Notes Large black charcoal pieces and
	Date April 1996	GRADATION CURVES

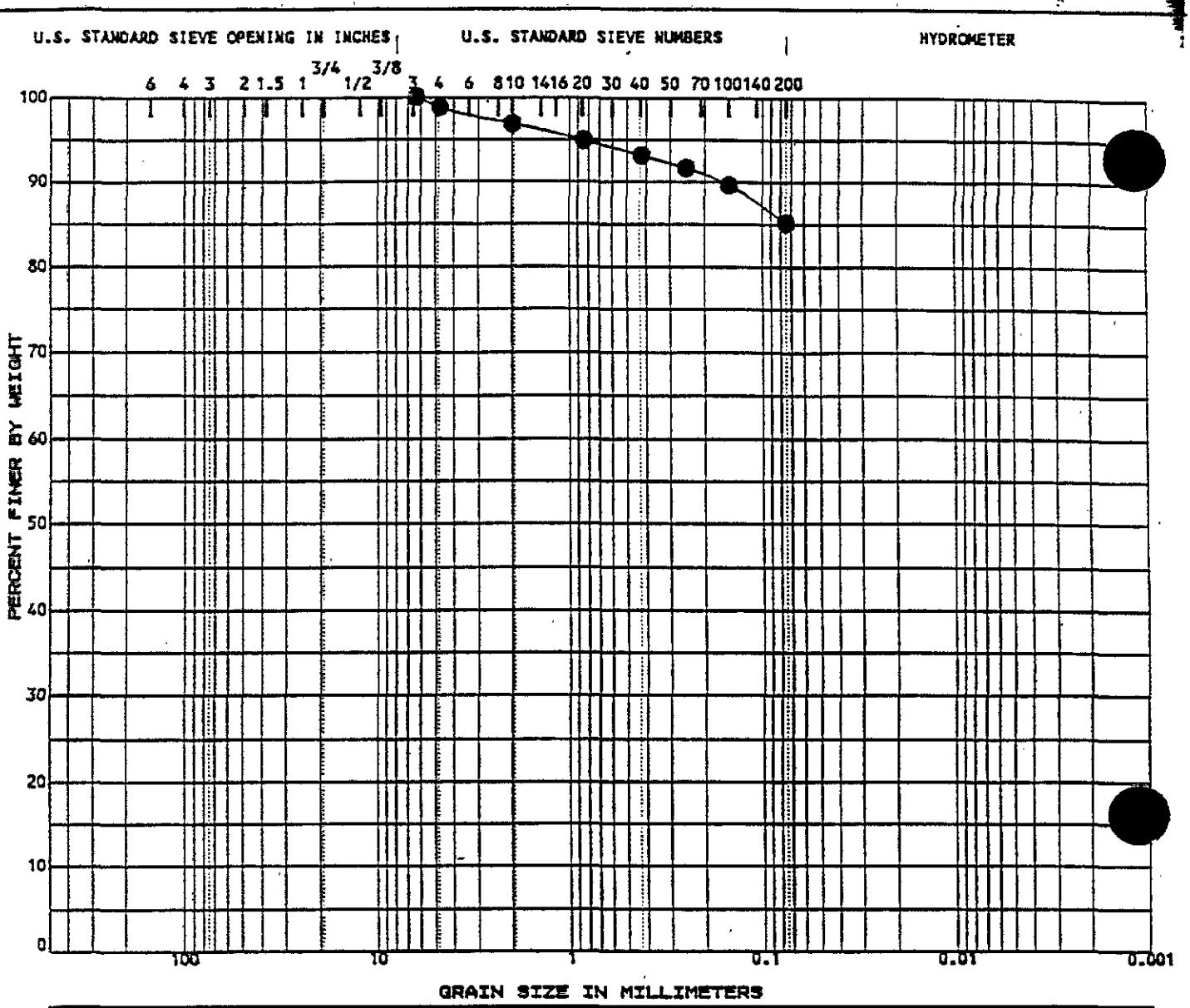


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA170004	SILT; trace fine, medium, and coarse sand and fine gravel.	25.2					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA170004	6.30				1.2	11.8	87.0	

AR302899	Project OLIN MORGANTOWN	Location West Virginia
	Area	Notes
	Date April 1996	GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	WC%	LL	PL	PI	Cc	Cu
● SA190004	SILT; trace fine, medium, and coarse sand and fine gravel.	22.7					

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SA190004	6.30				1.2	13.6	85.2	

AR302900

Project	OLIN MORGANTOWN	Location	West Virginia
Area		Notes	
Date	April 1996	GRADATION CURVES	