9513354.1326

0041460

TMA START

Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.

QUALITY ENVIRONMENTAL SERVICES

AUG 1992
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JUN 1995
RECEIVED
EDMC

Report for

TMA/Norcal

WORK ORDER #S207151

Scientific Services Since 1922

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Page 1 Skinner&Sherman REPORT Work Order # S2-07-151

Received: 07/17/92 07/28/92 15:25:35

REPORT TO: TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804

ATTEN: Dan Steurmer

CLIENT: HANFORD NOR SAMPLES: 4
COMPANY: TMA/NORCAL
FACILITY: Richmond, CA

PREPARED BY: TMA / Skinner & Sherman Labs.
300 Second Avenue
P.O. Box 521
Waltham, MA 02254

ATTEN: Client Services
PHONE: (617) 890-7200

CERTIFIED BY

CONTACT: DP

WORK ID: RUSH!!!!!!!! N2-07-077
TAKEN: By Client
TRANS: Fedex # 2521035090
TYPE: 3 Soils (Cr+6)
P.O. #: N2-07-077
INVOICE: under separate cover

SAMPLE IDENTIFICATION	TEST CODES and NAMES used on this workorder
01 B018Z1	CRHEXS Hexavalent Chromium/Soil
01 B018Z1D	
01 B018Z1S	
02 B018Z2	
03 B018Z4	
04 LCSS	

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisfied. Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. Client will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the invoice amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. will exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held for thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

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Received: 07/17/92

Results by Sample

SAMPLE ID B018Z1 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 07/15/92 11:55:00 Category SOIL

CRHEXS <0.50
mg/kg

SAMPLE ID B018Z1D SAMPLE # 01 FRACTIONS: B
Date & Time Collected 07/15/92 11:55:00 Category SOIL

CRHEXS <0.50
mg/kg

SAMPLE ID B018Z1S SAMPLE # 01 FRACTIONS: C
Date & Time Collected 07/15/92 11:55:00 Category SOIL

CRHEXS <0.50
mg/kg

SAMPLE ID B018Z2 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 07/15/92 11:55:00 Category SOIL

CRHEXS <0.50
mg/kg

SAMPLE ID B018Z4 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 07/15/92 14:15:00 Category SOIL

CRHEXS <0.50
mg/kg

SAMPLE ID LCSS SAMPLE # 04 FRACTIONS: A
Date & Time Collected not specified Category SOIL

CRHEXS 2.26
mg/L

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Received: 07/17/92 07/28/92 15:25:35

TMA/NORCAL

QUALITY CONTROL

HEXAVALENT CHROMIUM

MATRIX SPIKE

Sample ID	Sample Result	Spike Added	Spike Result	% Recovery
S207151-01	<0.50 mg/kg	1.00 mg/kg	<0.50 mg/kg	0

DUPLICATE

Sample ID	Sample Result	Duplicate Result	Relative % Difference
S207151-01	<0.50 mg/kg	<0.50 mg/kg	not calculable

QUALITY CONTROL SAMPLES

Sample ID	True Value	Found Value	% Recovery
LCS	2.00 ug/L	2.26 ug/L	113.0
Prep Blank	--	<10 ug/L	--

NOTE: The samples formed an emulsion during the extraction, which may have caused the low matrix spike recovery.

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1-800-4 LAB TEST FAX (617) 890-3883

Received: 07/17/92

Test Methodology

TEST CODE CRHEXS NAME Hexavalent Chromium/Soil

The soil was digested in accordance with EPA Method 3020 and subsequently analyzed by for hexavalent chromium by EPA Method 7197.

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0517354 1331

FLAME ATOMIC ABSORPTION RUN BENCH SHEET
Skinner and Sherman Laboratories, Inc.

AA Sequence #: 254 Instrument ID: F7 Page 1 of 1
Date: 7/27/92 Operator: DN Reviewed by: [illegible]

Instrument Method: Cr=7
Background: BS BD
Time Calibrated:
ACQ
Run ID: 9220901
Element: Cr
STD1: 0 STD2: 1ug
STD3: 2ug STD4: 5ug

Standard Source:
1. Calibration: 10ppm
2. ICV: 2ug
3. CCV: 2ug
Wavelength (nm): 3579
Slitwidth (nm): 0.7
Integration Time (sec): 20

	SAMPLE ID	DILUTION	COMMENTS
1	Zero		
2	1ug		
3	5ug		
4	S207151-01		
5	010		Note emulsions formed on
6	015		samples 01, 02 and had
7	02		to be treated with
8	03		sodium sulfate
9	Cal		
10	Cal3		
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			7/27/92
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			

CR

(CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.001		

0.29

	AA	AA-BG	BG
ABSORBANCE	0.002		

0.35

	AA	AA-BG	BG
ABSORBANCE	0.001		

0.31 Dup std

MEAN= 0.32 STD.DEV.= 0.03 COEF.VAR.= 9.82 %

****

0.00 AUTOZERO

****

CR

	AA	AA-BG	BG
ABSORBANCE	0.004		

0.004

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.003

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.003 10ug std

MEAN= 0.003 STD.DEV.= 0.000 COEF.VAR.= 7.44 %

****

1.00 STANDARD 1

****

CR

	AA	AA-BG	BG
ABSORBANCE	0.011		

3.29

	AA	AA-BG	BG
ABSORBANCE	0.011		

3.26

	AA	AA-BG	BG
ABSORBANCE	0.011		

(CONTINUED)

3.30 2.0 ug std

MEAN= 3.28 STD.DEV.= 0.02 COEF.VAR.= 0.57 %

2.00 STANDARD 2

CR

	AA	AA-BG	BG
ABSORBANCE	0.024		

2.62

	AA	AA-BG	BG
ABSORBANCE	0.023		

2.60

	AA	AA-BG	BG
ABSORBANCE	0.023		

2.59 3.0 ug std

MEAN= 2.61 STD.DEV.= 0.03 COEF.VAR.= 1.06 %

4.98 STANDARD 3

CR 0001

	AA	AA-BG	BG
ABSORBANCE	0.011		

2.27

	AA	AA-BG	BG
ABSORBANCE	0.011		

2.19

	AA	AA-BG	BG
ABSORBANCE	0.012		

2.33 200 (2.0 ug) (113%)

MEAN= 2.26 STD.DEV.= 0.07 COEF.VAR.= 3.20 %

CR 0002

	AA	AA-BG	BG
ABSORBANCE	0.000		

0704

	AA	AA-BG	BG
ABSORBANCE	0.000		

-0.03

	AA	AA-BG	BG
ABSORBANCE	0.000		

-0.06 ZCB

MEAN= -0.04 STD.DEV.= 0.01 COEF.VAR.= 27.01 %

****

CR 0003

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.15

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.10

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.16 PB

MEAN= -0.14 STD.DEV.= 0.03 COEF.VAR.= 22.04 %

****

CR 0004

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.18

	AA	AA-BG	BG
ABSORBANCE	-0.002		

-0.28

	AA	AA-BG	BG
ABSORBANCE	-0.002		

-0.35 S20751-01 <10 x 5 ÷ 1000 x 500 ÷ 5000 = < 0.5 mg/kg

MEAN= -0.27 STD.DEV.= 0.09 COEF.VAR.= 32.17 %

****

CR 0005

0005 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.24

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.19

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.24 -01D <10x5÷1000x500÷50.15 = <0.498 mg/kg

MEAN= -0.21 STD.DEV.= 0.03 COEF.VAR.= 12.26 %

****

CR 0006

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.17

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.19

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.13 -01S <10x5÷1000x500÷50.13 = <0.498 mg/kg

MEAN= -0.16 STD.DEV.= 0.03 COEF.VAR.= 19.06 %

****

CR 0007

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.20

	AA	AA-BG	BG
ABSORBANCE	0.000		

0.00

	AA	AA-BG	BG
ABSORBANCE	0.000		

0.02 -02 <10x5÷1000x500÷50.12 = <0.498 mg/k

MEAN= -0.06 STD.DEV.= 0.12 COEF.VAR.= 99.99 %

****

CR 0008

0008 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.000		

-0.07

	AA	AA-BG	BG
ABSORBANCE	0.000		

-0.07

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.14 -03 <10x5÷1000x500÷5016 = & 0.498 ug/kg

MEAN= -0.09 STD.DEV.= 0.04 COEF.VAR.= 43.31 %

****

CR 0009

	AA	AA-BG	BG
ABSORBANCE	0.010		

1.87

	AA	AA-BG	BG
ABSORBANCE	0.010		

2.00

	AA	AA-BG	BG
ABSORBANCE	0.009		

1.84 (cw) (95%)

MEAN= 1.90 STD.DEV.= 0.09 COEF.VAR.= 4.73 %

****

CR 0010

	AA	AA-BG	BG
ABSORBANCE	0.000		

0.03

	AA	AA-BG	BG
ABSORBANCE	0.000		

-0.01

	AA	AA-BG	BG
ABSORBANCE	0.001		

0.11 cw3

MEAN= 0.04 STD.DEV.= 0.06 COEF.VAR.= 99.99 %

****

PROGRAMMING MODE USER METH # 07 - CR DATE: 92/07/27

ELEMENT: CR WAVELENGTH (NM): 357.9 SLIT (NM): 0.7
FLAME: AIR-ACETYLENE, REDUCING (RICH, YELLOW)
CHAR CONC: 0.078 SENS. CHECK (MG/L): 4.0 LINEAR TO (MG/L): 5.0

DE13364 1337

2. LAMP CURRENT (MA): 15
3. SIGNAL PROCESSING: HOLD
4. CALIBRATION: AUTO SELECT
5. NOMINAL WEIGHT: 1.0
6. STATISTICS: 3 AVG. & SD & CV
7. TIME (SECONDS): 4.0
8. READ DELAY (SECONDS): 0.0
9. SCREEN FORMAT: SUPPL. DATA
10. PRINTER: MAIN SUPPL
11. RECORDER SIGNAL: 0.2 CONT ABS
12. RECORDER EXP: 1000

13. S1: 1.00
14. S2: 2.00
15. S3: 5.00
16. S4:
17. S5:
18. S6:
19. S7:
20. S8:
21. RSLP:

TIME: 12:37

9513354.1330

July 24, 1992
NEEDHAM

Hex Chrom in Soils

	Wt(g)
5207151-01	50.00
010	50.15
015	50.13
02	50.12
03	50.16
Pb	

Spike 10000 ppb x 5 ml ÷ 500 = 100 ppb

1/5 of 100 ml (extracted) gives 20 ppb = 2 µg/0.1 L

9513354.1339

TMA/Skinner & Sherman Labs SAMPLE LOG-IN

WORKORDER 92-07-151 CLIENT HANFORD-NOR No. SAMPLES:

PROTCL SW846 TURNARND 10 day Rush! 3 (Soil) (Water) (Specify Other)

COOLER TEMP: 4 oC, or NA

CUSTODIAN Bennett, Antonia SDG/BATCH N/A

CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N2-07-077

SHIPER & # Fedex # 252305090 PO/CONTRACT# ✓

TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT Delores Sanchez

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: NONE

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO

SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)

CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES/NO (COMMENT)

SHIPMENT DATES 7-17-92

LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME UP
1	B01871	soil	7/17/92	N/A	Cr^{+6} D,S	
2	72	↓	↓	↓	↓	
3	↓ 74	↓	↓	↓	↓	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

B01871

Completed 7/20/92

Samples are from site known to have Rad-Contamination: YES X NO ___

Samples have detectable amounts of Radioactive Material: YES ___ NO X

SUBCONTRACT: YES/NO, TO: ___ DATE: ___

REVIEWED ___

* EPA/CLP required Rev 1.6 PAGE:

Westinghouse Hanford Company	S&S	CHAIN OF CUSTODY	002698

Custody Form Initiator CE ZERBY

Company Contact K.POOL/C.E.Heiden Telephone (509)3762640

Project Designation/Sampling Locations Soduim Dichromate Barrel-ERA Collection Date 7-15-92

Site SAF 92-226

Ice Chest No. 80-JEm Field Logbook No. WHC-N-205 15

Bill of Lading/Airbill No. 2 5098 6 9 1 5 3 Offsite Property No.

Method of Shipment Emery Air Express

Shipped to TMA/Norcal

Possible Sample Hazards/Remarks None Detected

See S.A.R. for individual bottle sizes and Analysis

Sample Identification

B018Z1 ~~(3)~~ Bottles x 2

B018Z2 ~~(3)~~ Bottles x 2

B018Z4 ~~(3)~~ Bottles x 2

CEZ 7-16-92

CEZ 7-16-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)		
Relinquished by: CE Zerby CE Zerby	Received by: Kermit Blum	Date/Time: 7-17-92 1130
Relinquished by: 7-17-92 Kermit Blum	Received by: [illegible]	Date/Time: 7/18/92 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

9513354 1340

9513354.1341

AUG 1992
RECEIVED
OSM DMO

WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

METALS & HEXACHROMIUM
Case No. N2-07-077
(TMA/Skinner & Sherman Work Order S2-07-150 & S2-07-151)

August 14, 1992

TMA Master Work Order N2-07-077

9513354.1342

TMA
Thermo Analytical Inc.

Skinner & Sherman Laboratories Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521

(617) 890-7200 • FAX (617) 890-3883

AUG 1992
RECEIVED
OSM DMO

July 28, 1992

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Steurmer

Quality Control Narrative

Scope
Three (3) soil samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on July 18, 1992 from Westinghouse/Hanford Company. The samples were analyzed for chromium only on a priority turnaround basis. The analysis was performed under Skinner and Sherman work order S207150.

Methodology
The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788).

Discussion
All quality control requirements were met for the samples with no exceptions.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

WESTINGHOUSE/HANFORD

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!!SAS No.: SDG No.: B018Z1

SOW No.: 7/88

SAMPLE NUMBER:	Lab Sample ID.
B018Z1	07150-01S
B018Z1D	07150-01S2
B018Z1S	07150-01DS
B018Z2	07150-02S
B018Z4	07150-03S

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: David N. Peterson

Date: 7/27/92 Title: Asst. Laboratory Manager

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B018Z1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Matrix (soil/water): SOIL Lab Sample ID: 07150-01S

Level (low/med): LOW Date Received: 07/18/92

% Solids: 98.3

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic				NR
7440-47-3	Chromium	11.60			P
7439-92-1	Lead				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B018Z2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Matrix (soil/water): SOIL Lab Sample ID: 07150-02S

Level (low/med): LOW Date Received: 07/18/92

% Solids: 98.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic				NR
7440-47-3	Chromium	15.50			P
7439-92-1	Lead				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B018Z4

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Matrix (soil/water): SOIL Lab Sample ID: 07150-03S

Level (low/med): LOW Date Received: 07/18/92

% Solids: 99.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic				NR
7440-47-3	Chromium	0.92	U		P
7439-92-1	Lead				NR

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Rev.6/89

WESTINGHOUSE/HANFORD

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Arsenic									NR
Chromium	514.0	486.55	94.7	2500.0	2439.20	97.6	2434.80	97.4	P
Lead									NR

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

WESTINGHOUSE/HANFORD

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Arsenic									NR
Chromium				2500.0	2479.90	99.2			P
Lead									NR

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

WESTINGHOUSE/HANFORD

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

AA CRDL Standard Source:

ICP CRDL Standard Source: SKINER

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Arsenic								
Chromium				20.0	17.68	88.4	18.32	91.6
Lead								

WESTINGHOUSE/HANFORD

3

BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Arsenic											NR
Chromium	4.9	U	4.9	U	4.9	U	4.9	U	0.980	U	P
Lead											NR

OFFICE OF SAMPLE MANAGEMENT
SAMPLING AUTHORIZATION FORM
SAF # 92-226

REV. 0 DATE: 7-2-92

PROJECT NUMBER 92-226 PROJECT TITLE Sodium Dichromate Barrel - ERA Site

OSM PROJECT COORDINATOR K.POOL OPERABLE UNIT/TSD 100-IU-4

CUSTOMER NAME C. E. Heiden PHONE # 376-2640 MSIN H4-55

ORGANIZATION/CODE 81225 CHARGE CODE P3C1J

SAMPLING DATE AFTER 7-4-92 NUMBER OF SAMPLES 12 SAMPLING LOCATION 100-IU-4

SAMPLE PRIORITY: 1. X EXPEDITED RESPONSE ACTION
2. TPA RANKING _____
3. NON-TPA RANKING _____

ANALYTICAL PROTOCOLS: X CERCLA RCRA OTHER (specify) _____

DATA TURNAROUND REQUIREMENTS: PRIORITY X REGULAR RADCHEM

SAMPLE MATRIX: X SOIL/SEDIMENT WATER VEGETATION OILS
SLUDGE CONCRETE OTHER _____

LABORATORY SERVICES ON-SITE X OFF-SITE

LABORATORY

TMA (MAIN)

WESTON (SPLIT)

COMMENTS:

Cr^{+6} is being requested to provide information only. The Holding time for Cr^{+6} of 24 hours is expected to be missed but the analysis is still to be run.

PAGE 1 OF 1

WESTINGHOUSE/HANFORD

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

ICP ID Number: P1 ICS Source: ICF-0590

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Arsenic								
Chromium	21	529	17	468.1	88.5	20	469.4	88.7
Lead								

WESTINGHOUSE/HANFORD

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER: B018Z1S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!SAS No.: SDG No.: B018Z1

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 98.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic									NR
Chromium	75-125	50.8886		11.6419		39.89	98.4		P
Lead									NR

Comments:

WESTINGHOUSE/HANFORD

6
DUPLICATES

SAMPLE NUMBER:

B018Z1D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!SAS No.: SDG No.: B018Z1

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 98.3 % Solids for Duplicate: 98.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic								NR
Chromium		11.6419		14.0286		18.6		P
Lead								NR

WESTINGHOUSE/HANFORD

7

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Solid LCS Source: QAL-0287

Aqueous LCS Source:

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits	Limits	%R
Arsenic									
Chromium				99.6	96.5		79.2	120.0	96.9
Lead									

FORM VII - IN Rev.6/89

WESTINGHOUSE/HANFORD

8

STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN Rev.6/89

WESTINGHOUSE/HANFORD

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

B018Z1L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Differ-ence	Q	M
Arsenic							NR
Chromium	62.37		47.75	B	23.4		P
Lead							NR

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

ICP ID Number: P1 Date: 07/15/92

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Arsenic			10		NR
Chromium	267.70		10	4.9	P
Lead			3		NR

Comments:
P1: THERMO JARRELL-ASH ICAP61 (#10782)

ICP Interelement Correction Factors (Annually)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

ICP ID Number: P1 Date: 07/01/92

Analyte	Wave-length (nm)	Al	Ca	Fe	Mg	Cr
Arsenic Chromium Lead	267.70	0.0000000	0.0000000	-0.0000300	0.0000000	0.0000000

Comments:
P1: THERMO JARRELL-ASH ICAP61 (#10782)

ICP Interelement Correction Factors (Annually)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

ICP ID Number: P1 Date: 07/01/92

Analyte	Wave-length (nm)	Cu	Mn	Ni	V	—
Arsenic Chromium Lead	267.70	0.0000000	0.0000000	0.0000000	0.0015200	

Comments:
P1: THERMO JARRELL-ASH ICAP61 (#10782)

WESTINGHOUSE/HANFORD

12
ICP Linear Ranges (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

ICP ID Number: P1 Date: 07/15/92

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Arsenic Chromium Lead	5.00	200000.0	

Comments:
P1: THERMO JARRELL-ASH ICAP61 (#10782)

WESTINGHOUSE/HANFORD

13
PREPARATION LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Method: P

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B018Z1	07/22/92	1.09	200
B018Z1D	07/22/92	1.01	200
B018Z1S	07/22/92	1.02	200
B018Z2	07/22/92	1.00	200
B018Z4	07/22/92	1.07	200
LCSS	07/22/92	1.00	200
PBS	07/22/92	1.00	200

FORM XIII - IN Rev.6/89

WESTINGHOUSE/HANFORD

14

ANALYSIS RUN LOG

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: RUSH!!!!!$AS No.: SDG No.: B018Z1

Instrument ID Number: P1 Method: P

Start date: 07/23/92 End date: 07/23/92

EPA Sample No.	D/F	Time	% R	nalyt AS	CR	PB
S0	1.00	1349			X	
S	1.00	1351				
S	1.00	1353			X	
S	1.00	1355				
ICV	1.00	1359			X	
ICV	1.00	1401				
ICV	1.00	1404				
ICB	1.00	1406			X	
ICSA	1.00	1409			X	
ICSAB	1.00	1411			X	
CRI	1.00	1414			X	
CCV	1.00	1417			X	
CCB	1.00	1419			X	
PBS	1.00	1422			X	
LCSS	1.00	1424			X	
ZZZZZZ	1.00	1427				
B018Z1	1.00	1431			X	
B018Z1D	1.00	1433			X	
B018Z1S	1.00	1436			X	
B018Z1L	5.00	1438			X	
B018Z2	1.00	1441			X	
B018Z4	1.00	1444			X	
B018Z1A	1.00	1446				
CCV	1.00	1449			X	
CCB	1.00	1451			X	
ICSA	1.00	1454			X	
ICSAB	1.00	1457			X	
CRI	1.00	1459			X	
CCV	1.00	1502			X	
CCB	1.00	1504			X	

2513394.1561

C L P M E T A L S 3.01

HANFORD NOR

Run id: P1 9220502
THERMO JARRELL-ASH ICAP61 (#10782)
Analytical method: P
Element: Multi-Element

Acquired: 07/23/92 by LYN
Crunched: 07/24/92 by SRP
Time: 1418
Processing protocol: 7/88

Cr

Pos	Sample	Code	Preparation Meth	Batch	Date	Client ID	Date	Time
1	ICV1	ICV	P			ICV	07/23/92	13:59
2	ICV2	ICV	P			ICV	07/23/92	14:01
3	ICV3	ICV	P			ICV	07/23/92	14:04
4	STDB	ICB	P			ICB	07/23/92	14:06
5	ICSAA	ICSA0	P			ICSA	07/23/92	14:09
6	ICSABB	ICSAB0	P			ICSAB	07/23/92	14:11
7	2XCRDL192Q3	CRI0	P		07/15/92	CRI	07/23/92	14:14
8	HALFSTD	CCV	P			CCV	07/23/92	14:17
9	STDB	CCB	P			CCB	07/23/92	14:19
10	PB	PBS	P	2165	07/22/92	PBS	07/23/92	14:22
11	LCSPS	LCSS	P	2165	07/22/92	LCSS	07/23/92	14:24
12	X	X	P			ZZZZZ	07/23/92	14:27
13	S207150-01	S	P	2165	07/22/92	B018Z1	07/23/92	14:31
14	S207150-01	S2	P	2165	07/22/92	B018Z1D	07/23/92	14:33
15	S207150-01	DS	P	2165	07/22/92	B018Z1S	07/23/92	14:36
16	S207150-01	ISD	P	2165		B018Z1L	07/23/92	14:38
17	S207150-02	S	P	2165	07/22/92	B018Z2	07/23/92	14:41
18	S207150-03	S	P	2165	07/22/92	B018Z4	07/23/92	14:44
19	S207150-01	PS	P	2165		B018Z1A	07/23/92	14:46
20	HALFSTD	CCV	P			CCV	07/23/92	14:49
21	STDB	CCB	P			CCB	07/23/92	14:51
22	ICSAA	ICSA1	P			ICSA	07/23/92	14:54
23	ICSABB	ICSAB1	P			ICSAB	07/23/92	14:57
24	2XCRDL192Q3	CRI1	P		07/15/92	CRI	07/23/92	14:59
25	HALFSTD	CCV	P			CCV	07/23/92	15:02
26	STDB	CCB	P			CCB	07/23/92	15:04
27	STDB	WS0	P			S0	07/23/92	13:49
28	STD3	WS1	P			S	07/23/92	13:51
29	STD1	WS2	P			S	07/23/92	13:53
30	STD2	WS3	P			S	07/23/92	13:55

9513554.1565

Method: CLPØLDP1 Standard: STDB

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	.00767	-.00000	-.00027	.00000	.00000	.00087	.01781
SDev	.00190	.00111	.00064	.00000	.00000	.00129	.00062
%RSD	24.794	23e9	241.09	.00000	.00000	148.36	3.4870
#1	.00760	-.00120	.00020	.00000	.00000	.00180	.01830
#2	.00580	.00100	-.00100	.00000	.00000	.00140	.01801
#3	.00960	.00020	.00000	.00000	.00000	-.00060	.01711

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	.00053	.00013	.00093	.00280	.00060	.00013	.00160
SDev	.00012	.00012	.00012	.00035	.00144	.00012	.00000
%RSD	21.651	86.603	12.372	12.372	240.37	86.603	.00000
#1	.00060	.00020	.00100	.00320	.00020	.00020	.00160
#2	.00060	.00020	.00100	.00260	.00220	.00000	.00160
#3	.00040	.00000	.00080	.00260	-.00060	.00020	.00160

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	.00073	-.00107	.00173	.13207	-.00007	.00367
SDev	.00050	.00081	.00023	.00081	.00031	.00012
%RSD	68.635	75.777	13.323	.61203	458.26	3.1492
#1	.00080	-.00200	.00160	.13120	.00000	.00360
#2	.00120	-.00060	.00160	.13220	-.00040	.00380
#3	.00020	-.00060	.00200	.13280	.00020	.00360

9913994.1500

Method: CLP0LDP1 Standard: STD3

Elem	Al3082	Ca3179	Fe2599	Mg2790	K_7664	Na5889
Avge	5.7246	9.2244	3.3647	.36727	.73520	5.4109
SDev	.0465	.0530	.0232	.00232	.00347	.0484
%RSD	.81213	.57509	.68999	.63116	.47196	.89390
#1	5.6718	9.1667	3.3390	.36460	.73120	5.3564
#2	5.7426	9.2356	3.3708	.36840	.73700	5.4274
#3	5.7594	9.2710	3.3842	.36880	.73740	5.4488

9513554.1567

Method: CLP0LDP1 Standard: STD1

Elem	Sb2068	As1936	Ba4934	Be3130	Cd2265	Cr2677	Co2286
Avge	.57400	.33627	.24527	.17227	14.225	.52387	.67960
SDev	.00423	.00219	.00081	.00061	.069	.00186	.00265
%RSD	.73749	.65244	.32956	.35469	.48714	.35473	.38931
#1	.57560	.33800	.24540	.17240	14.253	.52440	.68060
#2	.57720	.33700	.24600	.17280	14.276	.52540	.68160
#3	.56920	.33380	.24440	.17160	14.146	.52180	.67660

Elem	Cu3247	Pb2203	Mn2576	Ni2316	V_2924	Zn2138
Avge	.44513	1.5321	1.4010	1.0261	.58600	1.1843
SDev	.00201	.0072	.0049	.0050	.00220	.0056
%RSD	.45229	.46891	.35171	.48739	.37542	.47176
#1	.44540	1.5382	1.4016	1.0284	.58600	1.1854
#2	.44700	1.5340	1.4056	1.0296	.58820	1.1892
#3	.44300	1.5242	1.3958	1.0204	.58380	1.1782

9515554.1568

Method: CLP0LDP1 Standard: STD2

Elem	Ag3280
Avge	.14700
SDev	.00072
%RSD	.49055
#1	.14680
#2	.14780
#3	.14640

9513554.1369

Method: CLP0LDP1 Sample Name: ICV1;ICV Operator: LP
Run Time: 07/23/92 13:59:01
Comment: ICV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.9180	.00174	-.01024	2.0114	.49506	.49409	50.371
SDev	.0243	.01121	.00449	.0085	.00134	.00208	.067
%RSD	1.2675	643.92	43.881	.42196	.27054	.42078	.13294
#1	1.9460	-.00638	-.00534	2.0141	.49583	.49362	50.348
#2	1.9022	.01454	-.01119	2.0182	.49583	.49229	50.318
#3	1.9057	-.00293	-.01418	2.0019	.49351	.49637	50.446
Errors	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value	1.9580			2.0780	.50800	.51600	51.382
Range	10.000			10.000	10.000	10.000	10.000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.48656	.49109	.49630	2.0023	4.9245	25.350	.49665
SDev	.00221	.00225	.00000	.0018	.0104	.063	.00000
%RSD	.45331	.45779	.00003	.09082	.21212	.24813	.00012
#1	.48529	.48912	.49630	2.0019	4.9245	25.314	.49665
#2	.48528	.49354	.49630	2.0043	4.9141	25.314	.49665
#3	.48911	.49060	.49630	2.0007	4.9350	25.423	.49665
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.51400	.49900	.52500	1.9810	5.2030	25.587	.50900
Range	10.000	10.000	10.000	10.000	10.000	10.000	10.000

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.49834	50.955	.49584	50.799	.50105	2.9739
SDev	.00113	.113	.00421	.194	.00099	.0017
%RSD	.22597	.22195	.84829	.38238	.19796	.05682
#1	.49769	51.046	.50043	50.918	.49991	2.9722
#2	.49964	50.991	.49492	50.905	.50162	2.9756
#3	.49769	50.829	.49217	50.575	.50163	2.9739
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.50400	50.563	.51700	52.348	.51700	3.0520
Range	10.000	10.000	10.000	10.000	10.000	10.000

Analysis Report QC Standard Thu 07-23-92 02:04:07 PM page 1

Method: CLP0LDP1 Sample Name: ICV2;ICV Operator: LP
Run Time: 07/23/92 14:01:37
Comment: ICV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.01693	.00192	.18716	.00000	.00078	.00110	-.04879
SDev	.00562	.01481	.00906	.00000	.00067	.00128	.00610
%RSD	33.177	769.51	4.8406	.00000	86.389	116.13	12.512
#1	-.01286	.01875	.19704	.00000	.00117	.00213	-.04557
#2	-.01459	-.00909	.18518	.00000	.00000	-.00033	-.04497
#3	-.02334	-.00389	Q.17925	.00000	.00116	.00150	-.05583
Errors	NOCHECK	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value			.20200				
Range			10.000				

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.03440	.00000	.00002	.16262	.00393	.03636	.00524
SDev	.00110	.00085	.00130	.00137	.00345	.02724	.00041
%RSD	3.2052	161340.	5837.5	.84451	87.852	74.916	7.8727
#1	.03503	.00049	.00077	.16183	.00654	.03636	.00572
#2	.03312	-.00098	.00077	.16421	.00523	.06360	.00500
#3	.03504	.00049	-.00148	.16183	.00002	.00912	.00500
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value							
Range							

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01755	.05886	.00185	.05746	.00135	-.01024
SDev	.00394	.11117	.00138	.03183	.00099	.00047
%RSD	22.453	188.89	74.341	55.394	73.333	4.5986
#1	.01398	.18109	.00048	.09219	.00249	-.01051
#2	.02178	-.03622	.00185	.02968	.00077	-.00970
#3	.01690	.03169	.00323	.05052	.00078	-.01052
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

Analysis Report QC Standard Thu 07-23-92 02:06:42 PM page 1

Method: CLP0LDP1 Sample Name: ICV3;ICV Operator: LP
Run Time: 07/23/92 14:04:12
Comment: ICV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00760	1.0174	-.01584	.00000	.00000	.00035	-.08117
SDev	.00352	.0166	.00748	.00000	.00001	.00145	.00062
%RSD	46.286	1.6305	47.217	.00000	173.09	413.54	.75846
#1	-.00761	.99828	-.00792	.00000	.00001	-.00066	-.08154
#2	-.00407	1.0261	-.01682	.00000	-.00000	.00201	-.08046
#3	-.01111	1.0278	-.02278	.00000	.00001	-.00031	-.08150
Errors	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value		.97800					
Range		10.000					

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00127	-.00049	-.00675	.00318	-.00217	.02724	.00381
SDev	.00441	.00170	.00260	.00137	.00951	.01572	.00041
%RSD	346.74	346.41	38.500	43.255	438.07	57.728	10.829
#1	-.00128	-.00245	-.00825	.00239	-.00979	.03632	.00357
#2	-.00127	.00049	-.00825	.00239	.00849	.03632	.00357
#3	.00637	.00049	-.00375	.00477	-.00522	.00908	.00429
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value							
Range							

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00033	.39841	-.00138	.03347	.00114	-.01015
SDev	.00149	.11604	.00079	.01480	.00198	.00049
%RSD	458.26	29.127	57.738	44.209	173.09	4.8537
#1	-.00163	.38482	-.00092	.02589	.00227	-.01042
#2	-.00065	.52064	-.00092	.05052	-.00114	-.00958
#3	.00130	.28975	-.00229	.02400	.00231	-.01045
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

9313591.1372

Method: CLP0LDP1 Sample Name: STDB;ICB Operator: LP
Run Time: 07/23/92 14:06:47
Comment: ICB#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01281	.02559	.01086	.00000	.00000	-.00044	-.02485
SDev	.02673	.01157	.01519	.00000	.00000	.00061	.00172
%RSD	208.70	45.221	139.90	.00000	57.930	138.18	6.9152
#1	.03614	.03834	H.02764	.00000	.00000	-.00016	-.02342
#2	.01863	.02269	.00688	.00000	.00001	-.00002	-.02676
#3	-.01635	.01575	-.00195	.00000	.00001	-.00115	-.02438
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01500	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01500	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00319	-.00000	-.00150	-.01070	.00543	.01816	.00333
SDev	.00191	.00170	.00225	.00119	.00628	.01573	.00041
%RSD	59.985	1934400.	149.85	11.141	115.63	86.607	12.387
#1	-.00128	.00196	-.00150	-.01071	-.00133	.03632	.00286
#2	-.00319	-.00098	-.00375	-.01189	.01109	.00908	.00357
#3	-.00510	-.00098	.00075	-.00951	.00654	.00908	.00357
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02500	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02500	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00293	.16751	.00229	.02273	.00169	-.01043
SDev	.00149	.03594	.00210	.02523	.00098	.00001
%RSD	50.918	21.452	91.699	110.97	57.930	.10268
#1	-.00260	.18109	.00183	.03536	.00056	-.01043
#2	-.00455	.19468	.00046	.03915	.00226	-.01042
#3	-.00163	.12677	.00459	-.00631	.00225	-.01044
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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Method: CLP0LDP1 Sample Name: ICSAA;ICSA Operator: LP
Run Time: 07/23/92 14:09:23
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	544.93	.01214	-.06454	.01223	.00002	-.00129	498.10
SDev	2.62	.01560	.01764	.00000	.00000	.00051	1.29
%RSD	.48090	128.49	27.330	.00000	15.845	39.601	.25829
#1	543.61	.01332	-.04534	.01223	.00001	-.00174	497.94
#2	543.23	-.00402	-.08002	.01223	.00002	-.00074	496.90
#3	547.94	.02711	-.06825	.01223	.00001	-.00140	499.46
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	648.07						592.85
Low	432.04						395.23

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01661	.00147	-.00009	193.11	.02146	524.52	.02864
SDev	.00291	.00085	.00127	.62	.01979	1.48	.00044
%RSD	17.497	57.721	1451.4	.31918	92.252	.28274	1.5289
#1	.01979	.00049	.00138	192.83	.04103	524.31	.02915
#2	.01596	.00196	-.00089	192.69	.00145	523.16	.02844
#3	.01409	.00196	-.00075	193.82	.02189	526.10	.02834
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				247.48		637.63	
Low				164.99		425.09	

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00910	-.03622	.00187	1.6948	.00610	.22333
SDev	.00195	.20008	.00242	.0174	.00097	.00001
%RSD	21.429	552.41	129.37	1.0244	15.845	.00491
#1	.01105	-.21279	.00322	1.6759	.00555	.22332
#2	.00910	.18109	-.00092	1.7100	.00722	.22333
#3	.00715	-.07696	.00332	1.6986	.00554	.22334
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

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Method: CLP0LDP1 Sample Name: ICSABB;ICSAB Operator: LP
Run Time: 07/23/92 14:11:58
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	544.94	-.00370	-.10807	.49878	.48261	.87808	495.81
SDev	2.21	.02174	.04032	.00235	.00243	.00339	1.67
%RSD	.40523	586.93	37.309	.47195	.50241	.38602	.33629
#1	543.55	-.02621	-.13226	.49742	.48185	.87445	494.56
#2	547.48	-.00208	-.13044	.50149	.48533	.88116	497.70
#3	543.78	.01718	-.06153	.49742	.48066	.87862	495.16
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	643.77			.60240	.57600	1.0884	614.67
Low	429.18			.40160	.38400	.72560	409.78

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.46813	.48423	.49449	193.27	4.5690	523.11	.49532
SDev	.00192	.00340	.00455	.60	.0265	1.71	.00161
%RSD	.41090	.70193	.92079	.31256	.58097	.32624	.32431
#1	.46620	.48619	.49443	192.77	4.5607	521.47	.49439
#2	.46815	.48619	.49907	193.95	4.5986	524.88	.49717
#3	.47004	.48031	.48997	193.10	4.5475	522.97	.49439
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.63480	.57240	.65160	239.81	5.6690	633.04	.59520
Low	.42320	.38160	.43440	159.88	3.7790	422.02	.39680

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.89786	-.00905	.96058	1.6841	.47825	1.1758
SDev	.00343	.14180	.00161	.0257	.00546	.0063
%RSD	.38145	1566.0	.16716	1.5272	1.1416	.53891
#1	.89754	-.07696	.96145	1.7138	.48217	1.1721
#2	.90144	.15393	.96157	1.6683	.48055	1.1831
#3	.89461	-.10413	.95873	1.6702	.47201	1.1721
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1.1280		1.1520		.61080	1.4496
Low	.75200		.76800		.40720	.96640

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Method: CLP0LDP1 Sample Name: 2XCRDL192Q3;CRI Operator: LP
Run Time: 07/23/92 14:14:33
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.29170	.10664	.01441	.00000	.00953	.01004	.29483
SDev	.11401	.01216	.01000	.00000	.00000	.00119	.09994
%RSD	39.086	11.403	69.361	.00000	.04486	11.860	33.899
#1	.38499	.11531	.02011	.00000	.00953	.01092	.38781
#2	.32550	.11187	.02026	.00000	.00954	.01051	.30754
#3	.16461	.09274	.00287	.00000	.00953	.00868	.18914

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01769	.09665	.05029	.11107	.05205	.29058	.02859
SDev	.00382	.00170	.00225	.03869	.01301	.08322	.00000
%RSD	21.604	1.7585	4.4816	34.837	24.991	28.640	.00761
#1	.02151	.09763	.05030	.14873	.05198	.36322	.02859
#2	.01769	.09763	.05254	.11304	.06508	.30874	.02859
#3	.01387	.09468	.04804	.07142	.03907	.19977	.02859

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.07574	.11771	.01974	.00947	.09793	.03627
SDev	.00440	.26971	.00364	.02773	.00172	.00211
%RSD	5.8059	229.13	18.453	292.80	1.7535	5.8160
#1	.08029	.41199	.01837	.00505	.09795	.03822
#2	.07542	-.11771	.02388	.03915	.09963	.03655
#3	.07152	.05886	.01699	-.01579	.09620	.03403

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Method: CLP0LDP1 Sample Name: HALFSTD;CCV Operator: LP
Run Time: 07/23/92 14:17:07
Comment: CCV#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24.484	2.4484	2.4227	2.4599	.50147	2.4182	24.455
SDev	.139	.0147	.0338	.0193	.00379	.0154	.117
%RSD	.56750	.60191	1.3953	.78328	.75530	.63525	.47738
#1	24.333	2.4329	2.3846	2.4382	.49715	2.4038	24.343
#2	24.608	2.4623	2.4341	2.4749	.50423	2.4343	24.576
#3	24.510	2.4501	2.4493	2.4667	.50304	2.4163	24.447
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	27.500	2.7500	2.7500	2.7500	.55000	2.7500	27.500
Low	22.500	2.2500	2.2500	2.2500	.45000	2.2500	22.500

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4392	2.4103	2.4312	9.8719	2.4270	24.391	2.4379
SDev	.0220	.0141	.0184	.0627	.0175	.082	.0119
%RSD	.90211	.58675	.75831	.63495	.72267	.33511	.48957
#1	2.4144	2.3951	2.4109	9.8064	2.4471	24.309	2.4251
#2	2.4564	2.4231	2.4470	9.9314	2.4149	24.472	2.4487
#3	2.4469	2.4127	2.4357	9.8778	2.4189	24.391	2.4401
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	2.7500	2.7500	11.000	2.7500	27.500	2.7500
Low	2.2500	2.2500	2.2500	9.0000	2.2500	22.500	2.2500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4036	24.525	.47185	24.557	2.4569	2.4041
SDev	.0127	.128	.00398	.149	.0224	.0145
%RSD	.52953	.52344	.84341	.60869	.91125	.60401
#1	2.3935	24.425	.46954	24.391	2.4317	2.3884
#2	2.4179	24.670	.47644	24.681	2.4746	2.4170
#3	2.3994	24.479	.46955	24.600	2.4643	2.4070
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	27.500	.55000	27.500	2.7500	2.7500
Low	2.2500	22.500	.45000	22.500	2.2500	2.2500

95135354.1577

Method: CLP0LDP1 Sample Name: STDB;CCB Operator: LP
Run Time: 07/23/92 14:19:42
Comment: CCB#1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.02386	.00002	-.01494	.00000	.00001	.00178	-.01159
SDev	.02519	.00453	.01630	.00000	.00001	.00094	.00739
%RSD	105.58	22384.	109.04	.00000	86.831	52.538	63.822
#1	.03086	-.00173	L-.02586	.00000	.00001	.00286	-.00812
#2	.04482	.00517	.00379	.00000	.00002	.00131	-.00656
#3	-.00409	-.00338	L-.02276	.00000	.00000	.00117	-.02008
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01500	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01500	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00001	.00147	-.00150	.00080	.00630	.04540	.00405
SDev	.00861	.00225	.00390	.00495	.02022	.01573	.00109
%RSD	142880.	152.75	259.90	621.60	321.11	34.641	26.953
#1	.00063	.00196	.00075	.00476	.01043	.03632	.00429
#2	.00827	.00343	.00075	.00238	.02413	.06356	.00500
#3	-.00892	-.00098	-.00600	-.00475	-.01567	.03632	.00286
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02500	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02500	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00130	-.13129	.00184	-.00189	.00398	-.00989
SDev	.00258	.11117	.00496	.04737	.00346	.00047
%RSD	198.43	84.676	270.43	2500.8	86.831	4.7608
#1	.00228	-.10413	.00321	-.00063	.00398	-.00961
#2	.00325	-.03622	.00597	.04483	.00743	-.00962
#3	-.00163	-.25353	-.00367	-.04989	.00052	-.01043
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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Method: CLP0LDP1 Sample Name: PB;PBS Operator: LP
Run Time: 07/23/92 14:22:17
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00407	.00175	.00493	.00136	.00000	.00007	-.03226
SDev	.01529	.00521	.01633	.00235	.00000	.00035	.00314
%RSD	376.09	297.38	330.95	173.21	85.773	513.34	9.7200
#1	.01690	.00171	H.02174	.00408	.00000	.00040	-.03045
#2	.00815	.00699	.00394	.00000	.00000	-.00031	-.03045
#3	-.01285	-.00344	-.01087	.00000	.00001	.00012	-.03588
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01500	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01500	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00064	.00049	.00600	.00913	.00936	.01816	.00333
SDev	.00292	.00000	.00344	.00068	.00532	.01573	.00041
%RSD	457.39	.01241	57.277	7.5029	56.876	86.585	12.375
#1	.00255	.00049	.00976	.00952	.01174	.00908	.00357
#2	-.00127	.00049	.00525	.00952	.00326	.03632	.00286
#3	-.00319	.00049	.00300	.00834	.01307	.00908	.00357
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02500	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02500	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00033	-.04527	.00092	.02589	.00114	-.00933
SDev	.00203	.10194	.00080	.02049	.00097	.00049
%RSD	624.50	225.17	86.520	79.146	85.773	5.2800
#1	-.00260	-.04980	.00046	.04862	.00058	-.00876
#2	.00033	.05886	.00184	.00884	.00056	-.00961
#3	.00130	-.14488	.00046	.02021	.00226	-.00961
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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Method: CLP0LDP1 Sample Name: LCSPS;LCSS Operator: LP
Run Time: 07/23/92 14:24:52
Comment: LCS
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.3974	1.1078	4.8541	.02854	.09725	.19563	919.06
SDev	.0167	.0088	.0229	.00000	.00202	.00171	6.04
%RSD	1.1926	.79847	.47125	.00000	2.0758	.87375	.65730
#1	1.3992	1.1080	4.8355	.02854	.09608	.19444	913.25
#2	1.3799	1.1165	4.8473	.02854	.09609	.19487	918.61
#3	1.4131	1.0988	4.8797	.02854	.09958	.19759	925.31
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.1200	1.4700	5.9950	.20000	.11150	.27550	1128.0
Low	1.1250	.63500	3.1750	.00000	.08250	.17850	834.00

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.48234	.71086	33.433	108.71	1.0797	594.56	1.0369
SDev	.00223	.00557	.346	.97	.0063	4.95	.0114
%RSD	.46190	.78382	1.0351	.89109	.58344	.83230	1.1027
#1	.48104	.70694	33.125	107.79	1.0725	589.88	1.0254
#2	.48106	.70841	33.366	108.62	1.0843	594.07	1.0369
#3	.48491	.71724	33.807	109.72	1.0823	599.74	1.0483
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.60000	.81000	39.100	135.40	1.4250	649.50	1.1950
Low	.39600	.62500	30.030	88.850	.94000	502.00	.88500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.28184	.32597	.10036	.13829	.35745	.86295
SDev	.00149	.26971	.00159	.01110	.00362	.00709
%RSD	.52856	82.741	1.5793	8.0267	1.0114	.82172
#1	.28314	.43915	.09935	.15092	.35385	.85642
#2	.28217	.52064	.10219	.13008	.35743	.86193
#3	.28022	.01811	.09954	.13387	.36108	.87049
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.36300	5.0000	.14500	5.0000	.39950	1.1800
Low	.24600	.00000	.07750	.00000	.25850	.69000

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Method: CLP0LDP1 Sample Name: S207150-01;S Operator: LP
Run Time: 07/23/92 14:31:14
Comment: B018Z1
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	31.699	.00232	.00969	.33705	.00164	-.00530	17.886
SDev	.111	.01133	.00465	.00235	.00000	.00151	.074
%RSD	.35048	488.92	47.947	.69841	.14469	28.520	.41636
#1	31.827	.01262	.00828	.33841	.00164	-.00384	17.972
#2	31.633	.00415	.01488	.33433	.00164	-.00686	17.841
#3	31.637	-.00982	.00591	.33841	.00165	-.00520	17.846

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.06237	.04170	.05726	114.39	.04273	20.130	1.5281
SDev	.00222	.00294	.00230	.51	.00993	.083	.0057
%RSD	3.5624	7.0586	4.0126	.44466	23.238	.41391	.37495
#1	.06494	.04464	.05958	114.97	.03481	20.221	1.5336
#2	.06109	.04170	.05721	114.00	.03951	20.112	1.5222
#3	.06109	.03876	.05498	114.21	.05387	20.057	1.5286

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.04681	7.8414	.00364	.65608	.19370	.18603
SDev	.00056	.1025	.00143	.01261	.00096	.00213
%RSD	1.2028	1.3077	39.180	1.9225	.49299	1.1450
#1	.04616	7.9500	.00507	.66998	.19325	.18829
#2	.04714	7.8278	.00222	.65293	.19305	.18575
#3	.04714	7.7463	.00362	.64535	.19479	.18406

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Method: CLP0LDP1 Sample Name: S207150-01;S2 Operator: LP
Run Time: 07/23/92 14:33:49
Comment: B018Z1D
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	29.251	.00708	.00862	.31394	.00043	-.00288	14.831
SDev	.074	.00361	.00280	.00408	.00000	.00013	.052
%RSD	.25331	50.976	32.430	1.2987	.99094	4.6614	.35256
#1	29.276	.00419	.01150	.30987	.00043	-.00274	14.866
#2	29.309	.00592	.00847	.31394	.00043	-.00288	14.857
#3	29.167	.01112	.00591	.31802	.00043	-.00301	14.771

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.06965	.03630	.04635	79.793	.03279	18.551	1.3169
SDev	.00661	.00225	.00225	.309	.00767	.082	.0048
%RSD	9.4908	6.1927	4.8630	.38786	23.399	.44086	.36119
#1	.06583	.03876	.04863	79.992	.03125	18.632	1.3193
#2	.06583	.03581	.04412	79.950	.02600	18.551	1.3200
#3	.07728	.03434	.04631	79.436	.04111	18.469	1.3114

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.04486	7.2981	.00523	.55316	.17269	.16178
SDev	.00281	.1837	.00208	.02844	.00171	.00048
%RSD	6.2755	2.5176	39.826	5.1408	.99094	.29840
#1	.04811	7.2845	.00570	.56957	.17442	.16204
#2	.04324	7.4882	.00295	.52032	.17100	.16207
#3	.04324	7.1215	.00703	.56957	.17266	.16122

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Method: CLP0LDP1 Sample Name: S207150-01;DS Operator: LP
Run Time: 07/23/92 14:36:23
Comment: B018Z1S
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	35.314	.24576	1.8498	2.2656	.05001	.04321	17.049
SDev	.233	.00519	.0222	.0170	.00066	.00013	.085
%RSD	.66044	2.1100	1.2005	.74924	1.3278	.30190	.50130
#1	35.064	.24062	1.8377	2.2465	.05038	.04308	16.962
#2	35.352	.25099	1.8754	2.2710	.05040	.04320	17.052
#3	35.525	.24565	1.8363	2.2792	.04924	.04334	17.133

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.25512	.50728	.28289	87.217	.49875	19.288	1.8304
SDev	.00111	.00225	.00349	.540	.01203	.109	.0120
%RSD	.43611	.44318	1.2322	.61907	2.4119	.56556	.65809
#1	.25448	.50531	.27907	86.651	.50740	19.179	1.8166
#2	.25448	.50679	.28589	87.272	.48501	19.288	1.8359
#3	.25641	.50973	.28370	87.727	.50383	19.397	1.8387

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.51752	7.6693	.04773	.96802	.65663	.62506
SDev	.00203	.1155	.00279	.01719	.00502	.00296
%RSD	.39227	1.5062	5.8348	1.7757	.76421	.47404
#1	.51525	7.5561	.04492	.95224	.65083	.62197
#2	.51915	7.6648	.05049	.98634	.65948	.62533
#3	.51817	7.7870	.04778	.96550	.65957	.62788

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Method: CLP0LDP1 Sample Name: S207150-01;ISD/5 Operator: LP
Run Time: 07/23/92 14:38:59
Comment: B018Z1L
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	6.4246	.00331	-.00232	.06931	.00049	-.00116	3.6237
SDev	.0219	.00530	.00177	.00000	.00067	.00084	.0096
%RSD	.34021	160.13	76.425	.00000	136.39	72.858	.26573
#1	6.4251	.00910	-.00134	.06931	.00011	-.00064	3.6179
#2	6.4461	.00214	-.00437	.06931	.00010	-.00213	3.6348
#3	6.4024	-.00130	-.00125	.06931	.00126	-.00071	3.6184

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00956	.00785	.00731	23.349	.01846	3.6375	.30834
SDev	.00292	.00147	.00468	.077	.00789	.0000	.00419
%RSD	30.511	18.750	64.103	.32979	42.730	.00054	1.3579
#1	.01274	.00932	.01255	23.294	.02455	3.6375	.31001
#2	.00892	.00785	.00581	23.437	.02127	3.6375	.31144
#3	.00701	.00638	.00355	23.315	.00955	3.6375	.30358

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00878	1.6208	.00004	.15471	.04086	.14705
SDev	.00149	.0706	.00239	.00189	.00172	.00001
%RSD	16.972	4.3543	5935.2	1.2245	4.2053	.00905
#1	.01008	1.6615	.00141	.15281	.04257	.14703
#2	.00715	1.5393	.00143	.15660	.04088	.14706
#3	.00910	1.6615	-.00272	.15471	.03914	.14705

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Method: CLP0LDP1 Sample Name: S207150-02;S Operator: LP
Run Time: 07/23/92 14:41:34
Comment: B018Z2
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	30.670	.01445	.00547	.31938	.00083	-.00279	14.783
SDev	.203	.00796	.01192	.00471	.00067	.00050	.087
%RSD	.66160	55.042	217.83	1.4741	80.922	17.947	.59005
#1	30.852	.00681	-.00202	.32210	.00045	-.00337	14.875
#2	30.708	.01387	.01923	.32210	.00161	-.00245	14.773
#3	30.451	.02268	-.00078	.31394	.00044	-.00255	14.701

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.07611	.03679	.04375	83.120	.03643	18.415	1.3402
SDev	.00109	.00225	.00129	.615	.00417	.109	.0085
%RSD	1.4321	6.1099	2.9506	.74044	11.445	.59245	.63584
#1	.07548	.03434	.04457	83.675	.03871	18.524	1.3471
#2	.07547	.03876	.04226	83.226	.03162	18.415	1.3428
#3	.07737	.03729	.04442	82.458	.03897	18.306	1.3307

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.04454	7.3117	.00326	.66492	.17788	.16545
SDev	.00394	.0592	.00136	.00477	.00272	.00085
%RSD	8.8499	.80970	41.532	.71698	1.5268	.51488
#1	.04519	7.2438	.00194	.66998	.18026	.16630
#2	.04811	7.3388	.00465	.66050	.17847	.16459
#3	.04031	7.3524	.00320	.66429	.17492	.16547

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Method: CLP0LDP1 Sample Name: S207150-03;S Operator: LP
Run Time: 07/23/92 14:44:08
Comment: B018Z4
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.75735	-.00143	-.00806	.01631	.00000	-.00039	.12481
SDev	.00828	.01409	.00170	.00000	.00000	.00020	.00220
%RSD	1.0927	986.43	21.134	.00000	72.653	51.912	1.7596
#1	.76377	.01367	-.00709	.01631	.00000	-.00016	.12700
#2	.74801	-.01423	-.01003	.01631	.00001	-.00050	.12483
#3	.76027	-.00373	-.00707	.01631	.00000	-.00050	.12261

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00124	-.00049	-.00359	1.3353	.00168	.16376	.02857
SDev	.00191	.00085	.00000	.0125	.00435	.01573	.00000
%RSD	154.52	173.16	.04394	.93592	258.32	9.6030	.00092
#1	-.00123	-.00098	-.00359	1.3480	.00277	.17284	.02857
#2	.00067	-.00098	-.00359	1.3349	.00539	.14560	.02857
#3	-.00315	.00049	-.00359	1.3230	-.00311	.17284	.02857

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00325	.12677	-.00216	.07577	.00137	-.01014
SDev	.00313	.09507	.00000	.01158	.00099	.00047
%RSD	96.437	75.000	.05783	15.275	72.653	4.6812
#1	.00033	.16751	-.00216	.07325	.00080	-.00959
#2	-.00553	.01811	-.00216	.06567	.00252	-.01042
#3	-.00455	.19468	-.00216	.08840	.00079	-.01042

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Method: CLP0LDP1 Sample Name: S207150-01;PS Operator: LP
Run Time: 07/23/92 14:46:44
Comment: B018Z1A
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	31.079	.00031	-.00530	.33433	.00125	-.00386	17.563
SDev	.095	.01490	.02484	.00000	.00068	.00013	.073
%RSD	.30708	4751.0	468.68	.00000	53.969	3.4378	.41363
#1	31.189	-.01491	-.01358	.33433	.00164	-.00399	17.646
#2	31.023	.01487	.02262	.33433	.00047	-.00388	17.520
#3	31.024	.00097	-.02494	.33433	.00165	-.00372	17.521

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.06614	.04121	.04579	112.62	.05271	19.739	1.5024
SDev	.00111	.00085	.00005	.44	.00501	.057	.0054
%RSD	1.6707	2.0621	.11550	.39106	9.4963	.28768	.36000
#1	.06680	.04023	.04585	113.12	.04698	19.784	1.5086
#2	.06487	.04170	.04576	112.43	.05623	19.757	1.5000
#3	.06677	.04170	.04575	112.30	.05492	19.675	1.4986

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.04714	7.4882	.00575	.63146	.19168	.18125
SDev	.00352	.0719	.00285	.03412	.00258	.00099
%RSD	7.4598	.95976	49.489	5.4028	1.3477	.54602
#1	.04421	7.4611	.00489	.59231	.19121	.18239
#2	.04616	7.5697	.00344	.64724	.18936	.18069
#3	.05104	7.4339	.00894	.65482	.19447	.18067

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Method: CLPØLDP1 Sample Name: HALFSTD;CCV Operator: LP
Run Time: 07/23/92 14:49:19
Comment: CCV#3
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24.502	2.4427	2.4207	2.4585	.49914	2.4114	24.405
SDev	.169	.0130	.0163	.0212	.00445	.0120	.165
%RSD	.69164	.53238	.67383	.86172	.89091	.49572	.67530
#1	24.695	2.4501	2.4190	2.4830	.50423	2.4246	24.581
#2	24.379	2.4502	2.4053	2.4463	.49601	2.4012	24.255
#3	24.431	2.4276	2.4378	2.4463	.49719	2.4083	24.378
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	27.500	2.7500	2.7500	2.7500	.55000	2.7500	27.500
Low	22.500	2.2500	2.2500	2.2500	.45000	2.2500	22.500

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4348	2.4083	2.4305	9.9048	2.4259	24.409	2.4337
SDev	.0171	.0164	.0204	.0757	.0194	.110	.0126
%RSD	.70223	.68052	.84089	.76442	.80048	.45108	.51610
#1	2.4545	2.4260	2.4537	9.9920	2.4410	24.527	2.4479
#2	2.4240	2.3936	2.4155	9.8564	2.4040	24.309	2.4244
#3	2.4259	2.4054	2.4222	9.8659	2.4326	24.391	2.4287
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	2.7500	2.7500	11.000	2.7500	27.500	2.7500
Low	2.2500	2.2500	2.2500	9.0000	2.2500	22.500	2.2500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4020	24.362	.47231	24.620	2.4529	2.4118
SDev	.0180	.360	.00239	.183	.0207	.0122
%RSD	.75121	1.4775	.50561	.74288	.84535	.50700
#1	2.4199	24.765	.47369	24.831	2.4763	2.4255
#2	2.3838	24.072	.47368	24.524	2.4369	2.4020
#3	2.4023	24.248	.46955	24.505	2.4454	2.4078
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	27.500	.55000	27.500	2.7500	2.7500
Low	2.2500	22.500	.45000	22.500	2.2500	2.2500

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Method: CLP0LDP1 Sample Name: STDB;CCB Operator: LP
Run Time: 07/23/92 14:51:54
Comment: CCB#3
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.03727	.00870	.00087	.00000	.00001	.00162	-.01424
SDev	.00506	.01711	.01487	.00000	.00001	.00089	.00586
%RSD	13.588	196.70	1717.4	.00000	74.759	54.757	41.181
#1	.03437	-.00520	.00089	.00000	.00001	.00068	-.00792
#2	.04312	.00349	H.01573	.00000	.00001	.00173	-.01529
#3	.03432	.02781	-.01402	.00000	.00002	.00244	-.01951
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01500	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01500	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00190	-.00000	-.00150	.00793	.00651	.02724	.00453
SDev	.00551	.00170	.00390	.00182	.01261	.03145	.00041
%RSD	289.32	3475400.	260.03	22.917	193.89	115.46	9.1244
#1	-.00128	-.00098	-.00375	.00952	.00390	.00908	.00429
#2	-.00128	.00196	-.00375	.00595	-.00460	.00908	.00429
#3	.00827	-.00098	.00300	.00833	.02022	.06356	.00500
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02500	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02500	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00163	.11771	.00046	.03536	.00399	-.00987
SDev	.00447	.01568	.00496	.02632	.00298	.00051
%RSD	274.95	13.323	1079.8	74.424	74.759	5.1814
#1	-.00065	.09960	-.00367	.00505	.00227	-.00959
#2	-.00650	.12677	-.00092	.04862	.00227	-.00956
#3	.00228	.12677	.00597	.05241	.00744	-.01046
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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Method: CLP0LDP1 Sample Name: ICSAA;ICSA Operator: LP
Run Time: 07/23/92 14:54:30
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	541.40	-.01851	-.13381	.01223	.00002	-.00117	490.88
SDev	1.24	.01426	.04265	.00000	.00000	.00128	.85
%RSD	.22956	77.052	31.871	.00000	15.036	109.12	.17258
#1	542.52	-.02488	-.18219	.01223	.00002	-.00251	490.60
#2	541.61	-.02848	-.11757	.01223	.00002	.00004	491.84
#3	540.06	-.00217	-.10167	.01223	.00001	-.00105	490.22
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	648.07						592.85
Low	432.04						395.23

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01977	.00098	-.00243	192.33	.02984	520.37	.02848
SDev	.00192	.00085	.00260	.35	.01895	1.24	.00070
%RSD	9.6884	86.587	106.79	.18386	63.493	.23877	2.4563
#1	.01786	.00049	-.00543	192.35	.01170	520.47	.02845
#2	.02169	.00049	-.00089	192.67	.04951	521.56	.02919
#3	.01976	.00196	-.00098	191.97	.02832	519.08	.02779
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				247.48		637.63	
Low				164.99		425.09	

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00845	.12224	.00225	1.7315	.00667	.20780
SDev	.00245	.04770	.00159	.0186	.00100	.00686
%RSD	29.038	39.021	70.518	1.0739	15.036	3.2999
#1	.00618	.07244	.00042	1.7422	.00719	.20383
#2	.00813	.16751	.00321	1.7422	.00731	.21571
#3	.01105	.12677	.00313	1.7100	.00552	.20384
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

Analysis Report Thu 07-23-92 02:59:35 PM page 1

Method: CLP0LDP1 Sample Name: ICSABB;ICSAB Operator: LP
Run Time: 07/23/92 14:57:04
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	543.07	.00715	-.06881	.49742	.48183	.87947	494.31
SDev	5.65	.00529	.01286	.00408	.00506	.00123	2.21
%RSD	1.0403	73.995	18.695	.81967	1.0503	.14047	.44722
#1	549.53	.01319	-.08230	.50149	.48764	.88086	496.74
#2	540.64	.00495	-.05668	.49742	.47951	.87849	493.75
#3	539.05	.00332	-.06746	.49334	.47835	.87907	492.43
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	643.77			.60240	.57600	1.0884	614.67
Low	429.18			.40160	.38400	.72560	409.78

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.46943	.48766	.48482	193.96	4.6020	523.96	.49488
SDev	.00225	.00147	.00666	1.35	.0189	2.59	.00259
%RSD	.47849	.30180	1.3733	.69788	.41097	.49480	.52385
#1	.47202	.48914	.49251	195.50	4.6195	526.81	.49785
#2	.46814	.48766	.48101	193.47	4.6044	523.33	.49374
#3	.46812	.48619	.48094	192.92	4.5819	521.75	.49305
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.63480	.57240	.65160	239.81	5.6690	633.04	.59520
Low	.42320	.38160	.43440	159.88	3.7790	422.02	.39680

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.89559	.12677	.96249	1.7100	.47562	1.1589
SDev	.00169	.28748	.00772	.0263	.00006	.0063
%RSD	.18861	226.78	.80180	1.5391	.01214	.54713
#1	.89656	-.09055	.97136	1.6967	.47568	1.1653
#2	.89656	.01811	.95877	1.6929	.47561	1.1586
#3	.89363	.45273	.95734	1.7403	.47557	1.1527
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1.1280		1.1520		.61080	1.4496
Low	.75200		.76800		.40720	.96640

Analysis Report Thu 07-23-92 03:02:10 PM page 1

Method: CLP0LDP1 Sample Name: 2XCRDL192Q3;CRI Operator: LP
Run Time: 07/23/92 14:59:40
Comment:
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.35291	.11477	.02811	.00136	.00992	.01010	.35755
SDev	.12615	.01130	.00884	.00235	.00067	.00018	.12620
%RSD	35.746	9.8436	31.456	173.21	6.7306	1.7882	35.295
#1	.48294	.10321	.02284	.00000	.01069	.00993	.48771
#2	.34474	.11531	.02317	.00000	.00954	.01029	.34922
#3	.23104	.12578	.03832	.00408	.00954	.01009	.23573

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01832	.09861	.04654	.13446	.05527	.36322	.03073
SDev	.00551	.00170	.00130	.05131	.00520	.10897	.00000
%RSD	30.086	1.7233	2.7920	38.160	9.4140	30.000	.00855
#1	.01196	.10057	.04580	.18798	.05127	.47218	.03073
#2	.02151	.09763	.04804	.12970	.06115	.36322	.03073
#3	.02151	.09763	.04579	.08569	.05339	.25426	.03073

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.07802	-.05886	.01975	.03662	.09907	.03909
SDev	.00245	.23381	.00275	.02078	.00101	.00148
%RSD	3.1458	397.25	13.918	56.739	1.0180	3.7826
#1	.07542	-.32144	.01700	.02021	.09791	.04080
#2	.07834	.01811	.01975	.02968	.09966	.03824
#3	.08029	.12677	.02250	.05999	.09965	.03823

Analysis Report Thu 07-23-92 03:04:45 PM page 1

Method: CLP0LDP1 Sample Name: HALFSTD;CCV Operator: LP
Run Time: 07/23/92 15:02:15
Comment: CCV#4
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24.724	2.4929	2.4494	2.4776	.50816	2.4722	24.857
SDev	.177	.0071	.0115	.0246	.00487	.0094	.163
%RSD	.71754	.28544	.46746	.99194	.95920	.38223	.65620
#1	24.679	2.4970	2.4426	2.4749	.50660	2.4686	24.805
#2	24.920	2.4847	2.4626	2.5034	.51362	2.4829	25.040
#3	24.574	2.4970	2.4430	2.4545	.50425	2.4650	24.727
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	27.500	2.7500	2.7500	2.7500	.55000	2.7500	27.500
Low	22.500	2.2500	2.2500	2.2500	.45000	2.2500	22.500

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4799	2.4648	2.4470	10.059	2.4710	24.835	2.4758
SDev	.0148	.0149	.0203	.069	.0081	.157	.0168
%RSD	.59757	.60406	.82839	.69021	.32933	.63329	.68050
#1	2.4755	2.4554	2.4470	10.050	2.4743	24.745	2.4715
#2	2.4965	2.4819	2.4673	10.132	2.4617	25.017	2.4944
#3	2.4679	2.4569	2.4267	9.9944	2.4770	24.745	2.4615
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	2.7500	2.7500	11.000	2.7500	27.500	2.7500
Low	2.2500	2.2500	2.2500	9.0000	2.2500	22.500	2.2500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4501	24.574	.47599	24.823	2.4998	2.4578
SDev	.0205	.157	.00080	.186	.0165	.0167
%RSD	.83872	.63739	.16817	.75048	.65917	.67913
#1	2.4482	24.588	.47645	24.787	2.4969	2.4542
#2	2.4716	24.724	.47646	25.024	2.5175	2.4760
#3	2.4306	24.411	.47507	24.656	2.4849	2.4433
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.7500	27.500	.55000	27.500	2.7500	2.7500
Low	2.2500	22.500	.45000	22.500	2.2500	2.2500

Analysis Report Thu 07-23-92 03:07:20 PM page 1

Method: CLPØLDP1 Sample Name: STDB;CCB Operator: LP
Run Time: 07/23/92 15:04:50
Comment: CCB#4
Mode: CONC Corr. Factor: 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01748	-.00055	-.00500	.00000	.00078	.00199	-.01632
SDev	.01291	.01404	.01030	.00000	.00067	.00041	.01179
%RSD	73.830	2550.1	206.19	.00000	86.453	20.402	72.236
#1	.02215	-.00866	.00094	.00000	.00000	.00152	-.00273
#2	.02741	-.00866	L-.01689	.00000	.00116	.00223	-.02237
#3	.00289	.01567	.00096	.00000	.00117	.00223	-.02386
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01500	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01500	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00255	-.00000	-.00525	-.00040	-.00197	.01816	.00143
SDev	.00441	.00085	.00130	.00364	.00511	.03145	.00071
%RSD	173.06	2176300.	24.748	915.27	259.26	173.20	49.991
#1	-.00510	.00049	-.00600	.00357	-.00458	.03632	.00214
#2	-.00509	.00049	-.00600	-.00357	-.00524	-.01816	.00143
#3	.00254	-.00098	-.00375	-.00119	.00392	.03632	.00071
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02500	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02500	-5.0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00130	-.10413	-.00138	-.08209	.00055	-.00704
SDev	.00440	.10608	.00397	.01326	.00173	.00084
%RSD	338.19	101.87	288.66	16.154	311.14	11.902
#1	-.00553	-.04980	-.00367	-.07262	.00054	-.00787
#2	-.00163	-.22637	-.00367	-.09724	-.00117	-.00619
#3	.00325	-.03622	.00321	-.07641	.00229	-.00707
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.04000	5.0000	.01000	5.0000	.05000	.02000
Low	-.04000	-5.0000	-.01000	-5.0000	-.05000	-.02000

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SAMPLE PREPARATION REPORT: SOIL, SEDIMENT, SLUDGE

Prep batch: 2165

Date: 07/24/92

Printed by SRP

Approved: SRP

MOISTURE/ASH DETERMINATION

Sample ID	Lab code	Cont wt	Cont + wet smpl	Cont + dry smpl	Wet wt, g	Dry wt, g	% solids	% water
S207150-01	S	1.330	10.830	10.670	9.500	9.340	98.3	1.7
S207150-01	S2	1.330	10.830	10.650	9.500	9.320	98.1	1.9
S207150-02	S	1.330	10.700	10.530	9.370	9.200	98.2	1.8
S207150-03	S	1.330	10.290	10.280	8.960	8.950	99.9	0.1

Prep code P (ICP)

Client ID	Sample ID	Lab Code	Sample wt, g	Final vol,ml	Date Prep.	Ana-lyst	Overall Dilution
	LCSPS	LCSS	1.00 W	200	07/22/92 0800	SRP	200.0
	PB	PBS	1.00 W	200	07/22/92 0800	SRP	200.0
B018Z1S	S207150-01	DS	1.02 W	200	07/22/92 0800	SRP	199.4
B018Z1	S207150-01	S	1.09 W	200	07/22/92 0800	SRP	186.6
B018Z1D	S207150-01	S2	1.01 W	200	07/22/92 0800	SRP	201.3
B018Z2	S207150-02	S	1.00 W	200	07/22/92 0800	SRP	203.7
B018Z4	S207150-03	S	1.07 W	200	07/22/92 0800	SRP	187.1

DATE 7/22/92 ANALYST MT FOR GFAA/ICP

SOIL PREP LOG

DATE _____ ANALYST _____ FOR MERCURY

PREP BATCH # 165

REVIEWED BY 7/23/92

CLIENT	SAM WORK #	GFAA (HNO3) INITIAL WT. (g)	GFAA (HNO3) FINAL VOL mL	ICP (HNO3/HCL) INITIAL WT (g)	ICP (HNO3/HCL) FINAL VOL mL	MERCURY DIG. INITIAL WT (g)	MERCURY DIG. FINAL VOL mL	SOLIDS ANALYSIS DISH WT G	SOLIDS ANALYSIS + SMPL WT (g)	SOLIDS ANALYSIS + DRY (g) SMPL WT.	SAMPLE DESCRIPTION
8/18/92	S207150-01			1.09	200			1.33	10.83	10.67	Brown, fine, roots
	01SC			1.01				1.33	10.83	10.65	
	01DS			1.02				—	—	—	
	02	NR		1.00				1.33	10.70	10.53	
	03			1.07				1.33	10.29	10.28	coarse
	LCSS			1.00				1.33	5.00	5.00	
	MB										

Page:

Thermo Analytical/SKINNER AND SHERMAN LABORATORIES

051

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Westinghouse Hanford Company	S&S	CHAIN OF CUSTODY	002698

Custody Form Initiator CE ZERBY

Company Contact K.POOL/C.E.Heiden Telephone (509)3762640

Project Designation/Sampling Locations Soduim Dichromate Barrel-ERA Collection Date 7-15-92

Site SAF 92-226

Ice Chest No. 80-JEm Field Logbook No. WHC-N-205 15

Bill of Lading/Airbill No. 2 5098 69153 Offsite Property No.

Method of Shipment Emery Air Express

Shipped to TMA/Norcal

Possible Sample Hazards/Remarks None Detected

See S.A.R. for individual bottle sizes and Analysis

Sample Identification

B018Z1 ~~(3)~~ Bottles x 2

B018Z2 ~~(3)~~ Bottles x 2

B018Z4 ~~(3)~~ Bottles x 2

CEZ 7-16-92

CEZ 7-16-92 7-15-92 16

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)		
Relinquished by: C.E. Zerby C.E. Zerby	Received by: Kermit Blum	Date/Time: 7-17-92 1130
Relinquished by: Kermit Blum 7-17-92	Received by: [illegible]	Date/Time: 7/18/92 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

062

A-6000-407 (12/90)

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(1)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD B

DATE PREPARED: 7/17/92
PREPARED BY: LP

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
=======	======	====	==========	======	==========

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(2)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD 1

DATE PREPARED: 7/17/92
PREPARED BY: LP

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Sb	MVSb-3		1000 ppm	5 ml	5 ppm
As	HPAs-1		1000 ppm	5 ml	5 ppm
Ba	MVBa-4		1000 ppm	5 ml	5 ppm
Be	MVBe-3		1000 ppm	1 ml	1 ppm
Cd	MVCd-3		1000 ppm	5 ml	5 ppm
Cr	MVCr-3		1000 ppm	5 ml	5 ppm
Co	MVCo-3		1000 ppm	5 ml	5 ppm
Cu	MVCu-3		1000 ppm	5 ml	5 ppm
Pb	MVPb-3		1000 ppm	5 ml	5 ppm
Mn	MVMn-3		1000 ppm	5 ml	5 ppm
Ni	MVNi-3		1000 ppm	5 ml	5 ppm
Se	MVSe-4		1000 ppm	5 ml	5 ppm
Tl	MVTl-4		1000 ppm	5 ml	5 ppm
V	MVV-3		1000 ppm	5 ml	5 ppm
Zn	MVZn-3		1000 ppm	5 ml	5 ppm
Ti	MVTi-2		1000 ppm	5 ml	5 ppm

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

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SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(3)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD 2

DATE PREPARED: 7/17/92
PREPARED BY: LP

FINAL VOLUME: 1000 ml

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 20 HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Ag	HP-1		1000 ppm	1 ml	1.0 ppm

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

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SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(4)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: STANDARD 3

DATE PREPARED: 7/17/92
PREPARED BY: LP

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
AL	HPAL-1		10,000 ppm	5 ml	50 ppm
Ca	HPCa-1		10,000 ppm	5 ml	50 ppm
Fe	HPFe-1		10,000 ppm	2 ml	20 ppm
Mg	HPMg-1		10,000 ppm	5 ml	50 ppm
K	HPK-1		10000 ppm	5.0 ml	50 ppm
Na	MVNa-4		10000 ppm	5.0 ml	50 ppm

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

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SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(5)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: Initial Calibration Verification Solutions

DATE PREPARED: 7/17/92
PREPARED BY: LP

FINAL VOLUME:

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 4/2 HNO3 ← ICV 2
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
a) ICV-1	QCICV1	-149		20 ml → 200 ml	
b) ICV-2	QCICV2	-119		20 ml → 100 ml	
c) ICV-3	QCICV3	-133		20 ml → 200 ml	

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(6)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: Interference Check Sample Solutions

DATE PREPARED: 7/22/92
PREPARED BY: LP

FINAL VOLUME: 200 ml

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 4 HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
a) ICSAA	QCICSA	-73		20 ml →	200 ml
b) ICSABR	QCICSA	-73		20 ml →	200 ml
	QCICSB	-42		20 ml →	

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

7B

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

STANDARD PREPARATION LOG
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STANDARD IDENTITY: 2X CONTRACT REQUIRED DETECTION LIMIT SOLUTION P1

DATE PREPARED: 7/10/92
PREPARED BY: SRP

FINAL VOLUME: 1000 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: 10 HNO3
50 HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Sb	MVSb-3		1000 ppm	120 µl	120 ppb
As	HPAs-1		1000 ppm	30 µl	30 ppb
Be	MVBe-3		1000 ppm	10 µl	10 ppb
Cd	MVCd-3		1000 ppm	10 µl	10 ppb
Cr	MVCr-3		1000 ppm	20 µl	20 ppb
Co	MVCo-3		1000 ppm	100 µl	100 ppb
Cu	MVCu-3		1000 ppm	50 µl	50 ppb
Pb	MVPb-3		1000 ppm	50 µl	50 ppb
Mn	MVMn-3		1000 ppm	30 µl	30 ppb
Ni	MVNi-3		1000 ppm	80 µl	80 ppb
Se	MVSe-4		1000 ppm	100 µl	100 ppb
V	MVV-3		1000 ppm	100 µl	100 ppb
Tl	MVTl-4		1000 ppm	500 µl	500 ppb
Ag	HPAg-1		1000 ppm	20 µl	20 ppb
Zn	MVZn-3		1000 ppm	40 µl	40 ppb
Ti	MVTi-2		1000 ppm	100 µl	100 ppb
Sr	MVSr-3		1000 ppm	400 µl	400 ppb
Mo	MVMo-3		1000 ppm	400 µl	400 ppb
Sn	MVSn-~~3~~2		1000 ppm	400 µl	400 ppb
Li	MVLi 3		1000 ppm	200 µl	200 ppb

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

DOCUMENT# _____
(BOOK# - PAGE#)

SKINNER AND SHERMAN LABORATORIES, INC
SUBSIDIARY OF THERMO ANALYTICAL, INC.

(8)

STANDARD PREPARATION LOG
++++++++++++++++++++++++

STANDARD IDENTITY: Continuing Calibration Verification Solution (HalfSTD)

DATE PREPARED: LP ~~7/16/92~~ 7/17/92

PREPARED BY: LP

FINAL VOLUME: 500 ml

MATRIX: 1 %HNO3
5 %HCl
___ Other

MLS ADDED: ___ HNO3
___ HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
STD1	In House			250 ml	500 ml
STD3	In House			250 ml	
Ag	-HPAg1		1000 ppm	250 ul	

SOURCES: S=Spex F=Fisher B=Baker R=Ricca O=Other (identify)

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 2521035090

2521035090

Date 7.17.92

RECIPIENT'S COPY

1 From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very Important): (617) 890-2033

Company: T M A

Department/Floor No.

Street Address: 2 [illegible] HUNT AVE

City: [illegible] CA

State

ZIP Required

2 To (Recipient's Name) Please Print: SAMPLE CONTROL

Recipient's Phone Number (Very Important): (617) 890-7200

Company: T M A / SKINNER & SHERMAN

Department/Floor No

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 300 SECOND AVNUE

City: WALTHAM

State: MA

ZIP Required: 02254

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320-6406

H IF HOLD FOR PICK-UP, Print FEDEX Address Here

Street Address

City

State

ZIP Required

3 PAYMENT 1 [✓] Bill Sender 2 [ ] Bill Recipient's FedEx Acct No 3 [ ] Bill 3rd Party FedEx Acct No 4 [ ] Bill Credit Card 5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)

11 [ ] YOUR PACKAGING
16 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon)

51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER *
52 [ ] FEDEX PAK *
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day)

30 [ ] ECONOMY

Government Overnight (Reserved for authorized users only)

46 [ ] GOV'T LETTER
41 [ ] GOV'T PACKAGE

Freight Service (for Extra charge if any pieces weigh 150 lbs.)

70 [ ] OVERNIGHT FREIGHT ** (Extra charge applies)
80 [ ] TWO DAY FREIGHT **

† Delivery commitment may be later in some areas

*Declared Value Limit $100
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [ ] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations) [✓]
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE lbs
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ]
12 [ ] HOLIDAY DELIVERY (Extra charge)

6 PACKAGES | WEIGHT in Pounds Only | YOUR DECLARED VALUE

Total | Total | Total

DIM SHIPMENT (Chargeable Weight)

[ ] lbs

[ ] x [ ] x [ ] = [ ]

Received At

1 [✓] Regular Stop 3 [ ] Drop Box 4 [ ] BSC 2 [ ] On Call Stop 5 [ ] Station

Emp. No. | Date

[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg To Del [ ] Chg To Hold

Street Address

City | State | Zip

Received By: X [signature]

Date/Time Received: 7/17/92 | FedEx Employee Number: 11:00

7 Release Signature:

FedEx Emp No | Date/Time

Federal Express Use

Base Charges

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 6/91
PART #13/204 FXEM 4/92
FORMAT #099

099

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060

9/93/21 1405

9513354.1406

TMA/Skinner & Sherman Labs SAMPLE LOG-IN
WORKORDER 92-07-150 CLIENT HANFORD-NOR . No. SAMPLES:
PROTCL CLP TURNARND 10 day RUSH! 3 (Soil) (Water) (Specify Other)
COOLER TEMP: 4 oC, or NA
CUSTODIAN Benney, A. SDG/BATCH N/A
CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N2-07-077
SHIPER & # Fedex # 252035090 PO/CONTRACT# ↓
TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT Dolores Sanchez
CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: NONE

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO
SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)
CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES/NO (COMMENT)

SHIPMENT DATES 7/17/92
LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME UP
1	B01871	Soil	7/18/92	N/A	Cr-I-ICPDJS ~~ICP-MS~~ D,S	
2	↓ Z2	↓	↓	↓	A-B. ↓ 7/21/92	
3	↓ Z4					
4						
5						
6						
7						
8						
9						
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22						
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24						
25						
26						
27						

RUSH

COMPLETE 7-20-92 AB

Samples are from site known to have Rad-Contamination: YES X NO ___
Samples have detectable amounts of Radioactive Material: YES ___ NO X

SUBCONTRACT: YES/NO TO: _____ DATE: _____

REVIEWED _____

061

* EPA/CLP required Rev 1.6 PAGE:

9513554.1407

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST C.O.C. 002699

Collector CE ZERBY Date 7-15-92

Company Contact K Pool/CE Heiden Telephone (509-) 3762640

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
B018Z1	S	7-15-92	1155	(1) 250ml aG Cr 6+ SW846-7196
B018Z1	S	7-15-92	1155	(1) 250ml aG ICP Metals for(totat Chromium) CIP
~~B018Z1~~	~~S~~	~~7-15-92~~	~~1155~~	~~(1) 1Liter CIG GammaSpec PRO 042-5~~
B018Z2	S	7-15-92	1155	(1) 250ml Cr 6+ SW846-7196
B018Z2	S	7-15-92	1155	(1) 250ml ICP Metals(total chromium) CIP
~~B018Z2~~	~~S~~	~~7-15-92~~	~~1155~~	~~(1) 1Liter CIG Gamma Spec PRO 042-5~~
B018Z4	S	7-15-92	1415	(1) 250ml Cr 6+ SW846-7196
B018Z4	S	7-15-92	1415	(1) 250ml ICP Metals (total chromium) CIP
~~B018Z4~~	~~S~~	~~7-15-92~~	~~1415~~	~~(1) 1Liter CIG Gamma Spec PRO-042-5~~

*Type of Sample A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF 92-226 Soduim Dichromate Barral- ERA site 100 D area

Priority Turn Around. Run Analysis even though hold times are missed.

Special Handling and/or Storage Samples maintained to 4°c

063

Possible Sample Hazards None detected with field instustments

A-6000-406 (06/91)

TASK ORDER

TO: OFFICE OF SAMPLE MANAGEMENT (OSM)
FROM: ENVIRONMENTAL RESTORATION ENGINEERING (ERE)

1. Task Title: Sodium Dichromate Barrel - ERA Site Rev.0

2. Operable Unit: 100-IU-4

3. Task Requester: C.E. Heiden 4. Request Date: June 18, 1992

4. Services Requested:	6. Date Services/Products due to ERE (List all items due)
a) Arrange disposal of used samples.	a) Arrange lab services by 07/01/92.
b) Arrange lab services for the following samples:	b) Provide cost by 07/01/92.
7 soil samples: To be analyzed for Total Chrome (CLP), Chrome VI (CLP), and Gamma Spec (Lab SOP). Chrome VI analysis will be for informational purposes only.	c) Comply with TPA response times for analysis and validation.
	d) Forward a copy of unvalidated data upon receipt from lab.
CLP duplicate - 1 soil CLP split - 1 soil Equipment Blank - silica sand	e) Provide a new schedule of task should any scheduled milestone completion dates be missed.

7. Checklist Requirements:
(Requestor must provide attachments which supply the following as applicable)

8. Level of Data Validation

NA

a) Analytes of Interest: Total Chrome, Chrome VI and Gamma Spec.

General Method:

a) CLP and Lab SOP

Analytical Level:

a) IV & V

8. Approval/Acceptance:

Requestor (ERE) 6/17/92 Accepter (OSM) 7/2/92 EQA 6-17-92

9. Copies: Requestor
Environmental Quality Assurance
ERE Manager
OSM Manager
R. A. Bechtold
P. J. Valcich

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

FACSIMILE COVER-SHEET

TO:
NAME: Antonia
DATE: 7-20-92
COMPANY: SIS
FAX NO:
ADDRESS:
TELE. NO:

FROM:
NAME: Dolores
COMPANY: TMA/NORCAL
FAX NO: (510) 235-0438
VERIFICATION NO: (510) 235-2633

NO. OF PAGES: 4 (INCLUDING COVER SHEET)

COMMENTS:
Here's info.

OFFICE OF SAMPLE MANAGEMENT
FIELD SAMPLING REQUIREMENTS

Requirements are for TMA

SOIL

92-226
SAF Number

REV 0 7/2/92

PARAMETER/ ANALYSIS	ANALYTICAL METHODS	CONTAINER[1]/ VOLUME	PRESERVATION	HOLDING TIME
1. Cr^{+6}	SW-846 7197	G 250ml	None	24 HOURS **
2.ICP METALS for (TOTAL CHROMIUM)	CLP	G 250ml	None	6 MONTHS
3.GAMMA SPEC	RC-30	G/P 1000ml	None	6 MONTHS
4.TOTAL ACTIVITY	LA-548-111, LA-508-121	G or P small vial (at least 1g)	None	ASAP

** Cr+6 is being requested to provided information only

[1] Container Types:

P = Plastic (Polyethelene) T = Fluorocarbon Resins
G = Glass PP = Polypropylene

[2] 7 DAYS FOR EXTRACTION, 40 DAYS AFTER

OFFICE OF SAMPLE MANAGEMENT
FIELD SAMPLING REQUIREMENTS

Requirements are for TMA

SOIL

92-226
SAF Number

REV 0 7/2/92

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