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The Administrative Record Staff

FINAL

INTERIM REMEDIAL ACTION BENCH SCALE TREATABILITY STUDY REPORT VOLUME IV LABORATORY REPORTS METALS ANALYSIS

903 Pad, Mound, and
East Trenches Areas
(South Walnut Creek)

Operable Unit No 2

Environmental Restoration Program

May 22, 1992

U S DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

REVIEWED FOR CLASSIFICATION/UCNI
By
Date June 30, 1992
5/19/92

22558/R7 TS 05-18-92/RPT/2

ADMIN RECORD

A-OU02-000371

FINAL

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22558/R7 TS 05-18-92/RPT/2

ADMIN RECORD

Federal Express #9286408272

December 27, 1990

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804

Attention: Dan Stuermer

QUALITY CONTROL NARRATIVE

Scope

Two (2) water samples were submitted to TMA/Skinner and Sherman Laboratories, Inc. from TMA/Norcal. The samples were taken by Woodward-Clyde Consultants on November 14, 1990 and November 20, 1990. The samples were analyzed for the USEPA CLP Target Analyte List metals These sample were submitted under Project Number 22558, Task 500 and analyzed under Skinner and Sherman work order 9011176.

Methodology

The samples were prepared and analyzed in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88, Exhibit D. The data is reported in accordance with CLP SOW 7/88 Exhibit B. Quality control requirements are specified in Exhibit E of the CLP SOW 7/88

Discussion

All quality control requirements were met for the samples with the following exceptions.

The mercury and thallium digestion spikes were outside of the control limits. This may be attributed to an interference from the high levels of calcium in the samples. The "W" flags and the dilutions required for the furnace elements also indicate a possible signal suppression.

Please feel free to call David Peterson or myself if there are any questions concerning this data package.

Respectfully submitted,

TMA/SKINNER AND SHERMAN LABORATORIES, INC.

Richard Purdy
CLP Program Manager

enclosure

TMA
Thermo Analytical Inc.

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.

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

TMA/SKINNER AND SHERMAN LABORATORIES, INC.
RAS INORGANIC COMPLETENESS CHECKLIST

CASE NUMBER: 22558 SDG NUMBER: 01CWC WORK ORDER NUMBER: 9C11176

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Approved by: [signature] Date: 12/28

NOODWARD - LYDE CONSULTANT
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-003

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

SOW No 7/88

SAMPLE NUMBER	Lab Sample ID
01CWC	11176-01S
01CWCD	11176-01S2
01CWCS	11176-01DS
02CWC	11176-02S
02CWCS	11176-02DS

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
FULL SAMPLE IDENTIFICATION LOCATED IN COMMENTS FIELD

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 [signature] Name Richard P Purdy

Date 12/19/90 Title CLP Program Manager

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

01CWC

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Matrix (soil/water) WATER Lab Sample ID 11176-01

Level (low/med) LOW Date Received 11/15/90

% Solids 0.0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	91.90	B		P
7440-36-0	Antimony	24.00	U		P
7440-38-2	Arsenic	2.50	B	W	F
7440-39-3	Barium	190.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	3.00	U		P
7440-70-2	Calcium	109000.00			P
7440-47-3	Chromium	6.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	82.20	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	30700.00			P
7439-96-5	Manganese	32.80			P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	12.40	B		P
7440-09-7	Potassium	792.00	B		P
7782-49-2	Selenium	2.50	B		F
7440-22-4	Silver	5.00	U		P
7440-23-5	Sodium	45300.00			P
7440-28-0	Thallium	10.00	U	NW	F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	304.00			P
	Cyanide				NR

Color Before COLORLESS Clarity Before. CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

Comments

01CWC1100

000002

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

D2CWC

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22553 SAS No SDG No D1CWC

Matrix (soil/water) WATER Lab Sample ID 11176-09

Level (low/med) LOW Date Received ~~11/15/90~~ 11/21/90

% Solids 0.0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	41.60	B		P
7440-36-0	Antimony	24.00	U		P
7440-38-2	Arsenic	2.30	B		F
7440-39-3	Barium	245.00			P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	3.00	U		P
7440-70-2	Calcium	121000.00			P
7440-47-3	Chromium	6.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	98.80	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	33200.00			P
7439-96-5	Manganese	18.30			P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	2390.00	B		P
7782-49-2	Selenium	2.00	U	W	F
7440-22-4	Silver	5.00	U		P
7440-23-5	Sodium	58000.00			P
7440-28-0	Thallium	10.00	U	NW	F
7440-62-2	Vanadium	3.10	B		P
7440-66-6	Zinc	368.00			P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

Comments

D2CWC1007

ORX 03

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract EX-D9-0082

Lab Code SKINER Case No 22558 SAS No SDG No 01CW0

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
Aluminum	2172.0	2133.80	98.2	25000.0	24223.00	96.9	24359.00	97.4	P
Antimony	1010.0	1010.60	100.1	2500.0	2408.70	96.3	2487.40	99.5	P
Arsenic	47.4	50.11	105.7	50.0	50.72	101.4	51.82	103.6	F
Barium	2041.0	2032.70	99.6	2500.0	2421.80	96.9	2413.70	96.5	P
Beryllium	510.0	495.26	97.1	500.0	485.08	97.0	495.16	99.0	P
Cadmium	498.0	505.50	101.5	2500.0	2329.40	93.2	2303.00	92.1	P
Calcium	51519.0	52360.00	101.6	25000.0	24029.00	96.1	24838.00	99.4	P
Chromium	510.0	487.25	95.5	2500.0	2368.40	94.7	2421.60	96.9	P
Cobalt	520.0	507.30	97.6	2500.0	2333.00	93.3	2391.40	95.7	P
Copper	515.0	520.18	101.0	2500.0	2391.70	95.7	2390.30	95.6	P
Iron	2044.0	2079.50	101.7	10000.0	9773.30	97.7	9941.40	99.4	P
Lead	97.5	103.28	105.9	50.0	49.92	99.8	50.92	101.8	F
Magnesium	25745.0	25864.00	100.5	25000.0	24461.00	97.8	24647.00	98.6	P
Manganese	516.0	504.94	97.9	2500.0	2378.00	95.1	2440.20	97.6	P
Mercury	5.0	4.88	97.6	2.0	1.90	95.0	1.97	98.5	CV
Nickel	497.0	491.92	99.0	2500.0	2334.60	93.4	2398.10	95.9	P
Potassium	52068.0	52316.00	100.5	25000.0	24329.00	97.3	24198.00	96.8	P
Selenium	52.6	50.98	96.9	50.0	47.45	94.9	50.65	101.3	F
Silver	498.0	494.42	99.3	500.0	467.78	93.6	468.74	93.7	P
Sodium	51368.0	51837.00	100.9	25000.0	24391.00	97.6	24128.00	96.5	P
Thallium	97.0	98.44	101.5	50.0	48.74	97.5	49.92	99.8	F
Vanadium	507.0	503.74	99.4	2500.0	2394.90	95.8	2432.10	97.3	P
Zinc	3316.0	3393.10	102.3	2500.0	2397.50	95.9	2507.60	100.3	P
Cyanide									NR

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

000004

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0089

Lab Code SKINER Case No 22553 SAS No SDG No 01CWC

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
Aluminum				25000.0	24540.00	98.2			P
Antimony				2500.0	2532.70	101.3			P
Arsenic				50.0	50.12	100.2			F
Barium				2500.0	2432.80	97.3			P
Beryllium				500.0	501.20	100.2			P
Cadmium				2500.0	2381.30	95.3			P
Calcium				25000.0	25200.00	100.8			P
Chromium				2500.0	2460.70	98.4			P
Cobalt				2500.0	2447.60	97.9			P
Copper				2500.0	2402.30	96.1			P
Iron				10000.0	10087.00	100.9			P
Lead				50.0	49.96	99.9			F
Magnesium				25000.0	24774.00	99.1			P
Manganese				2500.0	2475.30	99.0			P
Mercury				2.0	1.97	98.5	1.77	88.5	CV
Nickel				2500.0	2439.50	97.6			P
Potassium				25000.0	24170.00	96.7			P
Selenium				50.0	52.10	104.2	52.49	105.0	F
Silver				500.0	472.32	94.5			P
Sodium				25000.0	24280.00	97.1			P
Thallium				50.0	48.50	97.0			F
Vanadium				2500.0	2463.00	98.5			P
Zinc				2500.0	2529.40	101.2			P
Cyanide									NR

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

000065

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-008

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

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
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury				2.0	1.90	95.0	1.63	81.5	CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

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

000006

2R
CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0085

Lab Code SKINER Case No 22556 SAS No SDG No 01CWC

AA CRDL Standard Source SKINER

ICP CRDL Standard Source SKINER

Concentration Units ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony				120.0	109.77	91.5	126.22	105.2
Arsenic	10.0	11.64	116.4					
Barium								
Beryllium				10.0	9.37	93.7	9.57	95.7
Cadmium				10.0	9.39	93.9	9.61	96.1
Calcium								
Chromium				20.0	14.38	71.9	15.95	79.8
Cobalt				100.0	91.63	91.6	97.89	97.9
Copper				50.0	47.14	94.3	48.61	97.2
Iron								
Lead	3.0	3.72	124.0					
Magnesium								
Manganese				30.0	28.46	94.9	30.35	101.2
Mercury								
Nickel				80.0	70.68	88.4	77.58	97.0
Potassium								
Selenium	5.0	5.18	103.6					
Silver				20.0	17.67	88.4	19.05	95.2
Sodium								
Thallium	10.0	9.24	92.4					
Vanadium				100.0	94.99	95.0	96.95	97.0
Zinc				40.0	39.88	99.7	44.73	111.8

000503

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	26 0	U	26.0	U	26 0	U	30.0	B	30 0	B	P
Antimony	24.0	U	24 0	U	24.0	U	24.0	U	24.0	U	P
Arsenic	1 0	U	1 0	U	1 0	U	1 0	U	1 0	U	F
Barium	2 0	U	2.0	U	2 0	U	2.0	U	2.0	U	P
Beryllium	1 0	U	.1 0	U	1 0	U	1.0	U	1 0	U	P
Cadmium	3 0	U	3 0	U	3 0	U	3.0	U	3.0	U	P
Calcium	10 0	U	24 9	B	30 8	B	29.3	B	129.6	B	P
Chromium	6.0	U	6.0	U	6 0	U	6 0	U	6.0	U	P
Cobalt	4 0	U	4 0	U	4 0	U	4 0	U	4 0	U	P
Copper	3 0	U	3 0	U	3 0	U	3.0	U	3.0	U	P
Iron	20 0	U	20 0	U	20 0	U	20 0	U	20.0	U	P
Lead	2 0	U	2 0	U	2.0	U	2.0	U	2.0	U	F
Magnesium	30 0	U	30 0	U	30 0	U	36 6	B	30 0	U	P
Manganese	2 0	U	2 0	U	2.0	U	2 0	U	2 0	U	P
Mercury	0 2	U	0 2	U	0.2	U	0.2	U	0 2	U	CV
Nickel	6 0	U	6.0	U	6.0	U	6 0	U	6 0	U	P
Potassium	72 0	U	72 0	U	72 0	U	72 0	U	72 0	U	P
Selenium	2 0	U	2 0	U	2 0	U	2 0	U	2.0	U	F
Silver	5 0	U	5 0	U	5 0	U	5 0	U	5 0	U	P
Sodium	50 0	U	50 0	U	50 0	U	50 0	U	50 0	U	P
Thallium			2 0	U	2 0	U	2 0	U	2 0	U	F
Vanadium	3 0	U	3 0	U	3 0	U	3 0	U	3.0	U	P
Zinc	5 0	U	5 0	U	5 0	U	5 0	U	14 6	B	P
Cyanide											NR

000108

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 65-D--0086

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Preparation Blank Matrix (soil/water)

Preparation Blank Concentration Units (ug/L or 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
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			0.2	U	0 2	U	0.2	U			CV
Nickel											NR
Potassium											NR
Selenium			2 0	U							F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0092

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

ICP ID Number P2 ICS Source ICF-1089

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
Aluminum	481000	469700	535810	530700.0	113.0	542140	533220.0	113.5
Antimony	0	0	-3	-21.6		-7	-8.0	
Arsenic								
Barium	0	456	12	471.8	103.5	12	469.1	102.9
Beryllium	0	472	0	435.4	92.2	0	451.4	95.6
Cadmium	0	958	6	815.1	85.1	4	829.6	86.6
Calcium	448250	445800	477550	469030.0	105.2	502260	492820.0	110.5
Chromium	25	525	20	455.1	86.7	20	477.2	90.9
Cobalt	0	494	-2	405.4	82.1	-1	423.0	85.6
Copper	0	523	18	498.7	95.4	20	495.8	94.8
Iron	182650	178650	182240	180170.0	100.9	189220	186570.0	104.4
Lead								
Magnesium	450900	445200	494850	490040.0	110.1	507340	498420.0	112.0
Manganese	16	530	24	440.7	83.2	26	460.0	86.8
Mercury								
Nickel	0	940	7	779.3	82.9	7	820.1	87.2
Potassium	0	0	23	-2.1		4	23.2	
Selenium								
Silver	0	990	-7	855.7	86.4	-9	873.8	88.3
Sodium	0	0	1671	1664.9		1693	1669.1	
Thallium								
Vanadium	0	471	-3	439.5	93.3	-1	454.7	96.5
Zinc	0	1026	195	1117.2	108.9	211	1181.0	115.1

5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088 01CWCS

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Matrix WATER Level (low/med) LOW

% Solids for Sample 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	75-125	1.3600		0.2000	U	1.00	136.0	N	CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments

CORR 11

5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088 | 00CWCS

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Matrix WATER Level (low/med) LOW

% Solids for Sample 0 0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2058 5000		41 5600	B	2000 00	100 8		P
Antimony	75-125	488 8400		24 0000	U	500.00	97.8		P
Arsenic	75-125	48 6350		2.3200	B	40 00	115.8		F
Barium	75-125	2189 3000		244 5800		2000 00	97.2		P
Beryllium	75-125	50.2000		1.0000	U	50.00	100.4		P
Cadmium	75-125	46.0000		3.0000	U	50.00	92.0		P
Calcium									NR
Chromium	75-125	188 5200		6 0000	U	200.00	94 3		P
Cobalt	75-125	458 2600		4.0000	U	500.00	91 7		P
Copper	75-125	236 5200		3 0000	U	250.00	94 6		P
Iron	75-125	1033 0000		98 7800	B	1000 00	93 4		P
Lead	75-125	20 4100		2 0000	U	20.00	102 0		F
Magnesium									NR
Manganese	75-125	495 1100		18 2800		500.00	95 4		P
Mercury									NR
Nickel	75-125	460 6000		6 0000	U	500 00	92 1		P
Potassium									NR
Selenium	75-125	9 4500		2 0000	U	10 00	94 5		F
Silver	75-125	45 7100		5.0000	U	50.00	91 4		P
Sodium									NR
Thallium	75-125	16 9800		10 0000	U	50.00	34 0	N	F
Vanadium	75-125	475 1500		3 0700	B	500 00	94 4		P
Zinc	75-125	820 2700		368 2300		500.00	90 4		P
Cyanide									NR

Comments

000012

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DUPLICATES

SAMPLE NUMBER
01CWC0

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0045

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Matrix (soil/water) WATER Level (low/med) LOW

% Solids for Sample 0.0 % Solids for Duplicate 0.0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		91.8600	B	58.4200	B	44.5		P
Antimony		24.0000	U	24.0000	U			P
Arsenic		2.5200	B	2.0750	B	19.4		F
Barium		190.1800	B	188.8300	B	0.7		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		3.0000	U	3.0000	U			P
Calcium		109110.0000		109050.0000		0.1		P
Chromium		6.0000	U	6.0000	U			P
Cobalt		4.0000	U	4.0000	U			P
Copper		3.0000	U	3.0000	U			P
Iron		82.2300	B	62.5500	B	27.2		P
Lead		2.0000	U	2.0000	U			F
Magnesium		30660.0000		30385.0000		0.9		P
Manganese	15.0	32.7700		30.8800		5.9		P
Mercury		0.2000	U	0.2000	U			CV
Nickel		12.3500	B	6.0000	U	200.0		P
Potassium		791.7400	B	787.5100	B	0.5		P
Selenium		2.5200	B	2.0000	U	200.0		F
Silver		5.0000	U	5.0000	U			P
Sodium		45254.0000		44726.0000		1.2		P
Thallium		10.0000	U	10.0000	U			F
Vanadium		3.0000	U	3.0000	U			P
Zinc		304.1800		299.9500		1.4		P
Cyanide								NR

[illegible]

LABORATORY CONTROL SAMPLE

Lab Name SKINNER & SHERMAN LABS Contract 6[illegible]-D9-00[illegible]

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Solid LCS Source

Aqueous LCS Source EPA-LV 0489

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172.0	1911 40	88 0						
Antimony	978 0	930 18	95 1						
Arsenic	47.4	49 72	104.9						
Barium	2041 0	1831 60	89.7						
Beryllium	510 0	452.01	88 6						
Cadmium	498 0	425 90	85 5						
Calcium	51519 0	45691 00	88.7						
Chromium	510 0	434 05	85 1						
Cobalt	520 0	441 00	84 8						
Copper	519 0	466 14	89 8						
Iron	2044 0	1833 70	89.7						
Lead	48 8	48 56	99 5						
Magnesium	25745.0	22767 00	88.4						
Manganese	516 0	452 49	87 7						
Mercury									
Nickel	497 0	423 53	85 2						
Potassium	52068 0	46390 00	89 1						
Selenium	52 6	47.46	90.2						
Silver	498 0	436 36	87 6						
Sodium	51368 0	45938 00	89 4						
Thallium	48 5	47 04	97 0						
Vanadium	507 0	442 48	87 3						
Zinc	3316 0	2713 00	81 8						
Cyanide									

000014

FORM VII - IN

STANDARD ADDITION RESULT

Lab Name SKINNER & SHEFMAN LABS Contract 68-D9-0083

Lab Code SKINER Case No 22558 SAS No SDG No D1CW0

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 7/88

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ICP SERIAL DILUTIONS

SAMPLE NUMBER

02CWC1

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-00[illegible]

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Matrix (soil/water) WATER Level (low/med) LOW

Concentration Units ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	41 56	B	277.70	B	568 2		P
Antimony	24 00	U	120 00	U			P
Arsenic							NR
Barium	244 58		245 75	B	0 5		P
Beryllium	1.00	U	5.00	U			P
Cadmium	3 00	U	15.00	U			P
Calcium	121140 00		119540 00		1 3		P
Chromium	6.00	U	30.00	U			P
Cobalt	4 00	U	20 00	U			P
Copper	3.00	U	15.00	U			P
Iron	98 78	B	100.00	U	100 0		P
Lead							NR
Magnesium	33244.00		32718 50		1.6		P
Manganese	18.28		18.95	B	3 7		P
Mercury							NR
Nickel	6 00	U	30 00	U			P
Potassium	2394 20	B	2174.60	B	9 2		P
Selenium							NR
Silver	5 00	U	25 00	U			P
Sodium	57999 00		56420 00		2.7		P
Thallium							NR
Vanadium	3 07	B	15 00	U	100.0		P
Zinc	368 23		362 75		1 5		P

000016

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-008

Lab Code SKINER Case No 22556 SAS No SDG No 01CWC

ICP ID Number P2 Date 10/15/90

Flame AA ID Number

Furnace AA ID Number

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308 20		200	26 0	P
Antimony	206 80		60	24 0	P
Arsenic			10		
Barium	493 40		200	2 0	P
Beryllium	313 00		5	1 0	P
Cadmium	226 50		5	3 0	P
Calcium	317 90		5000	10 0	P
Chromium	267 70		10	6 0	P
Cobalt	228 60		50	4.0	P
Copper	324 70		25	3.0	P
Iron	259 90		100	20 0	P
Lead			3		
Magnesium	279 00		5000	30.0	P
Manganese	257 60		15	2.0	P
Mercury			0 2		
Nickel	231 60		40	6 0	P
Potassium	766 40		5000	72 0	P
Selenium			5		
Silver	328 00		10	5 0	P
Sodium	588.90		5000	50.0	P
Thallium			10		
Vanadium	292 40		50	3.0	P
Zinc	213 80		20	5 0	P

Comments

P2 THERMO JARRELL-ASH ICAP61 (#22982)

000017

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Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0089

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

ICP ID Number Date 10/15/90

Flame AA ID Number

Furnace AA ID Number F1

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.30	BS	3	2 0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium	276 80	BS	10	2 0	F
Vanadium			50		
Zinc			20		

Comments

F1 THERMO JARRELL-ASH VIDEO 22E (#2486)

000018

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Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0085

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

ICP ID Number Date 10/15/90

Flame AA ID Number M1

Furnace AA ID Number

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury	253 60		0 2	0.2	CV
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments
M1 TECHNICON MERCURY ANALYZER (#SS4199A-D)

000019

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINFR Case No 22558 SAS No SDG No 01CWC

ICP ID Number Date 10/15/90

Flame AA ID Number

Furnace AA ID Number Fb

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic	197.20	BS	10	1 0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury			0 2		
Nickel			40		
Potassium			5000		
Selenium	196 00	BS	5	2.0	F
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments

F6 THERMO TARRELL-ASH VIDEO 21

000020

1JA
ICP Interelement Correction Factors (Annually)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

ICP ID Number P2 Date 07/15/90

Analyte	Wave-length (nm)	Interelement Correction Factors for Al	Ca	Fe	Mg	Cr
Aluminum	308 20	0 0041800	0 0000000	0 0000000	0 0000000	0 0000000
Antimony	206 80	0 0000000	0 0000000	0 0002000	0.0000000	0 0118000
Arsenic						
Barium	493 40	0.0000000	0.0000000	0 0000000	0 0000000	0.0000000
Beryllium	313 00	0 0000000	0 0000000	0 0000000	0.0000000	0 0000000
Cadmium	226 50	0.0000000	0 0000000	0 0001800	0 0000000	0 0000000
Calcium	317 90	0.0000000	0.0000000	-0 0002200	0 0000000	0 0000000
Chromium	267 70	0.0000000	0.0000000	-0.0000300	0 0000000	0.0000000
Cobalt	228 60	0.0000000	0 0000000	0.0000200	0 0000000	0 0003500
Copper	324 70	0 0000000	0.0000000	-0.0002100	0.0000000	0.0000000
Iron	259 90	0.0001300	0.0000000	0.0000000	0.0000000	0 0000000
Lead						
Magnesium	279 00	0 0000000	0 0000000	0.0000000	0.0000000	0 0000000
Manganese	257 60	0 0000000	0 0000000	0.0000000	0 0000000	0 0000000
Mercury						
Nickel	231 60	0 0000000	0 0000000	0 0000000	0.0000000	0.0000000
Potassium	766 40	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Selenium						
Silver	328 00	0.0000000	0 0000000	-0.0002100	0.0000000	0 0000000
Sodium	588 90	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Thallium						
Vanadium	292 40	0 0000000	0 0000000	-0 0001000	0 0000000	-0 0039400
Zinc	213 80	0 0000000	0 0000000	0 0001200	0 0000000	0 0000000

Comments

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ICP Interelement Correction Factors (Annually)

Lab Name SKINNER & SHERMAN LABS Contract 68-09-0028

Lab Code SKINER Case No 22553 SAS No SDG No 01CW0

ICP ID Number P2 Date 07/15/90

Analyte	Wave-length (nm)	Interelement Correction Factors for Cu	Mn	Mo	Ni
Aluminum	308 20	0 0000000	0.0009600	0 0006000	0.0000000
Antimony	206 80	0 0000000	0 0000000	0 0000000	-0 0014600
Arsenic					
Barium	493 40	0 0000000	0.0000000	0 0000000	0 0000000
Beryllium	313 00	0 0000000	0 0000000	0.0000000	0.0000000
Cadmium	226 50	0.0000000	0.0000000	0.0000000	-0.0002900
Calcium	317 90	0 0000000	-0.0003200	0.0000000	0 0000000
Chromium	267 70	0 0000000	0 0006400	0.0000700	0.0000000
Cobalt	228 60	0.0000000	0.0000000	0 0000000	-0 0049500
Copper	324 70	0 0000000	0 0000000	0.0000000	0.0000000
Iron	259 90	0.0000000	-0.0011600	0.0002000	0.0000000
Lead					
Magnesium	279 00	0 0000000	-0 0029700	0.0002000	0 0000000
Manganese	257 60	0 0000000	0.0000000	0 0000000	0.0000000
Mercury					
Nickel	231 60	0 0000000	0 0001900	-0 0002300	0 0000000
Potassium	766 40	0 0000000	0 0000000	0.0000000	0 0000000
Selenium					
Silver	328 00	0 0000000	0 0000800	0.0000000	0 0000000
Sodium	588 90	0 0000000	0 0000000	0 0000000	0 0000000
Thallium					
Vanadium	292 40	-0 0000800	-0 0001300	0 0000000	0 0000000
Zinc	213 80	0 0017500	0 0000000	0 0000000	0 0036600

Comments

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ICP Linear Ranges (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-09-0088

Lab Code SKINER Case No 22558 SAS No SDG No D1CWC

ICP ID Number P2 Date 10/15/90

Analyte	Integ Time (Sec)	Concentration (ug/L)	M
Aluminum	5 00	1000000 0	
Antimony	5 00	25000.0	
Arsenic			NR
Barium	5 00	100000 0	
Beryllium	5 00	25000 0	
Cadmium	5 00	25000 0	
Calcium	5.00	800000 0	
Chromium	5 00	200000.0	
Cobalt	5 00	100000.0	
Copper	5 00	250000.0	
Iron	5.00	500000.0	
Lead			NR
Magnesium	5.00	1000000 0	
Manganese	5.00	100000.0	
Mercury			NR
Nickel	5 00	250000 0	
Potassium	5.00	1000000 0	
Selenium			NR
Silver	5.00	50000.0	
Sodium	5 00	1000000.0	
Thallium			NR
Vanadium	5.00	25000.0	
Zinc	5 00	150000 0	

Comments

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-09-0068

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Method CV

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
01CWC	12/11/90		100
01CWCD	12/11/90		100
01CWCS	12/11/90		100
02CWC	12/11/90		100
PBW	12/11/90		100

FORM XIII - IN 7/88

WOODWARD-CLYDE CONSULTANTS

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Method F

EPA Sample No	Preparation Date	Weight (gram)	Volume (ml)
01CWC	12/14/90		100
01CWCD	12/14/90		100
02CWC	12/14/90		100
LCSW	12/14/90		100
02CWCS	12/14/90		100
PBW	12/14/90		100

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Method P

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
01CWC	12/14/90		100
01CWCD	12/14/90		100
02CWC	12/14/90		100
LCSW	12/14/90		100
02CWCS	12/14/90		100
PBW	12/14/90		100

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0068

Lab Code SKINER Case No 02558 SAS No SDG No 01CW0

Instrument ID Number M1 Method CV

Start date 12/11/90 End date 12/11/90

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1000																X									
S0.5	1.00	1003																X									
S1.0	1.00	1006																X									
S2.0	1.00	1009																X									
S5.0	1.00	1012																X									
ICV	2.00	1018																X									
ICB	1.00	1021																X									
CCV	1.00	1024																X									
CCB	1.00	1027																X									
ZZZZZ	1.00	1030																									
ZZZZZ	1.00	1033																									
ZZZZZ	1.00	1036																									
ZZZZZ	1.00	1039																									
ZZZZZ	1.00	1042																									
ZZZZZ	1.00	1045																									
ZZZZZ	1.00	1048																									
ZZZZZ	1.00	1051																									
ZZZZZ	1.00	1054																									
ZZZZZ	1.00	1057																									
CCV	1.00	1100																X									
CCB	1.00	1103																X									
ZZZZZ	1.00	1106																									
ZZZZZ	1.00	1109																									
ZZZZZ	1.00	1112																									
ZZZZZ	1.00	1115																									
ZZZZZ	1.00	1118																									
ZZZZZ	1.00	1121																									
ZZZZZ	1.00	1124																									
ZZZZZ	1.00	1127																									
ZZZZZ	1.00	1130																									
ZZZZZ	1.00	1133																									
CCV	1.00	1136																X									

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Instrument ID Number M1 Method CV

Start date 12/11/90 End date 12/11/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	1139																X									
ZZZZZ	1.00	1142																									
ZZZZZ	1.00	1145																									
ZZZZZ	1.00	1148																									
ZZZZZ	1.00	1151																									
CCV	1.00	1154																X									
CCB	1.00	1157																X									
ZZZZZ	1.00	1200																									
ZZZZZ	1.00	1203																									
ZZZZZ	1.00	1206																									
ZZZZZ	1.00	1209																									
ZZZZZ	1.00	1212																									
ZZZZZ	1.00	1215																									
ZZZZZ	1.00	1218																									
ZZZZZ	1.00	1221																									
ZZZZZ	1.00	1224																									
CCV	1.00	1227																X									
CCB	1.00	1230																X									
PBW	1.00	1233																X									
01CWC	1.00	1236																X									
01CWCD	1.00	1239																X									
01CWCS	1.00	1242																X									
02CWC	1.00	1245																X									
ZZZZZ	1.00	1248																									
ZZZZZ	1.00	1251																									
ZZZZZ	1.00	1254																									
CCV	1.00	1257																X									
CCB	1.00	1300																X									

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-09-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Instrument ID Number F1 Method F

Start date 12/17/90 End date 12/17/90

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1419													X												
S3	1 00	1423													X												
S50	1 00	1427													X												
S100	1 00	1431													X												
ICV	2.00	1445													X												
ICB	1.00	1450													X												
CRA	1.00	1455													X												
CCV	1 00	1500													X												
CCB	1 00	1505													X												
PBW	1 00	1510													X												
PBWA	1.00	1515	91 8												X												
LCSW	1 00	1520													X												
LCSWA	1.00	1525	100 0												X												
01CWC	1 00	1530													X												
01CWCA	1 00	1535	101 5												X												
01CWCD	1 00	1540													X												
01CWCDA	1 00	1545	104 8												X												
02CWC	1.00	1550													X												
02CWCA	1 00	1555	103 8												X												
CCV	1 00	1600													X												
CCB	1 00	1605													X												
02CWCS	1 00	1610													X												
ZZZZZ	1 00	1615																									
ZZZZZ	5 00	1624																									
ZZZZZ	5 00	1629																									
ZZZZZ	5 00	1634																									
ZZZZZ	5 00	1639																									
ZZZZZ	5 00	1644																									
ZZZZZ	5 00	1649																									
CCV	1 00	1654													X												
CCB	1 00	1659													X												

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-09-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Instrument ID Number Fr Method F

Start date 12/17/90 End date 12/17/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1115				X																					
S10	1 00	1119				X																					
S50	1 00	1123				X																					
S100	1 00	1127				X																					
ICV	1.00	1140				X																					
ICB	1 00	1144				X																					
CRA	1 00	1148				X																					
CCV	1 00	1152				X																					
CCB	1 00	1156				X																					
PBW	1.00	1200				X																					
PBWA	1.00	1204	94 8			X																					
LCSW	1.00	1208				X																					
LCSWA	1 00	1212	79 2			X																					
01CWC	1 00	1216				X																					
01CWCA	1 00	1220	116 9			X																					
01CWCD	1 00	1224				X																					
01CWCDA	1 00	1228	128 9			X																					
02CWC	1 00	1232				X																					
02CWCA	1 00	1236	111 5			X																					
CCV	1 00	1240				X																					
CCB	1.00	1244				X																					
02CWCS	1 00	1248				X																					
ZZZZZ	1 00	1252																									
CCV	1 00	1256				X																					
CCB	1 00	1300				X																					

14
ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 63-09-0088

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Instrument ID Number F1 Method F

Start date 12/17/90 End date 12/17/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1419																						X			
S10	1 00	1423																						X			
S50	1 00	1427																						X			
S100	1 00	1431																						X			
ICV	2 00	1445																						X			
ICB	1 00	1450																									
CRA	1 00	1455																						X			
CCV	1 00	1500																						X			
CCB	1 00	1505																						X			
PBW	1 00	1510																						X			
PBWA	1 00	1515	86 8																					X			
LCSW	1.00	1520																						X			
LCSWA	1 00	1525	96 5																					X			
01CWC	1 00	1530																									
01CWCA	1 00	1535	30 7																								
01CWCD	1 00	1540																									
01CWCDA	1 00	1545	34 7																								
02CWC	1 00	1550																									
02CWCA	1 00	1555	28.4																								
CCV	1 00	1600																						X			
CCB	1 00	1605																						X			
02CWCS	1 00	1610																						X			
ZZZZZ	1 00	1615																									
01CWC	5 00	1624																						X			
01CWCA	5 00	1629	57 8																					X			
01CWCD	5 00	1634																						X			
01CWCDA	5 00	1639	53 9																					X			
02CWC	5 00	1644																						X			
02CWCA	5 00	1649	47 8																					X			
CCV	1 00	1654																						X			
CCB	1 00	1659																						X			

000031

14

ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 63-09-0[illegible]

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Instrument ID Number F6 Method F

Start date 12/17/90 End date 12/17/90

FPA Sample No	D/F	Time	% R	Analytes																						
				ALSB	ASSA	BABE	BCDA	CACR	CCOU	CFEB	PBMG	MMNG	HGNI	NIK	SE	AGAL	NTL	VZN	CN							
S0	1 00	1115													X											
S5	1 00	1119													X											
S50	1 00	1123													X											
S100	1 00	1127													X											
ICV	1 00	1140													X											
ICB	1 00	1144													X											
CRA	1 00	1148													X											
CCV	1 00	1152													X											
CCB	1 00	1156													X											
PBW	1 00	1200																								
PBWA	1 00	1204	80 0																							
LCSW	1 00	1208													X											
LCSWA	1 00	1212	80.0												X											
01CWC	1 00	1216													X											
01CWCA	1 00	1220	86 8												X											
01CWCD	1 00	1224													X											
01CWCDA	1 00	1228	104 3												X											
02CWC	1 00	1232													X											
02CWCA	1 00	1236	82.6												X											
CCV	1 00	1240													X											
CCB	1 00	1244													X											
02CWCS	1 00	1248													X											
ZZZZZ	1 00	1252																								
CCV	1 00	1256													X											
CCB	1 00	1300													X											
PBW	1 00	1304																								
PBWA	1 00	1308	27 9																							
PBW	1.00	1312													X											
PBWA	1 00	1316	92 5												X											
CCV	1 00	1320													X											
CCB	1 00	1324													X											

000032

ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D4-0022

Lab Code SKINER Case No 22558 SAS No SDG No 01CWC

Instrument ID Number F2 Method P

Start date 12/15/90 End date 12/15/90

EPA Sample No	D/F	Time	% P	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1.00	1121		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
S	1.00	1124		X						X				X		X				X			X				
S	1.00	1126			X		X	X	X		X	X	X				X		X						X	X	
S	1.00	1128																				X					
ICV	1.00	1131		X			X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICV	1.00	1134																									
ICV	1.00	1137			X																						
ICB	1.00	1139		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSA	1.00	1142		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSAB	1.00	1144		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CRI	1.00	1147			X			X	X		X	X	X				X		X			X			X	X	
CCV	1.00	1150		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1152		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PBW	1.00	1155		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ZZZZZ	1.00	1157																									
01CWC	1.00	1200		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
01CWCD	1.00	1203		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
02CWC	1.00	1208		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
02CWCS	1.00	1211		X	X		X	X	X		X	X	X	X			X		X			X			X	X	
02CWCL	5.00	1214		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
02CWCA	1.00	1216																									
LCSW	1.00	1219		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCV	1.00	1222		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1225		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSA	1.00	1227		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSAB	1.00	1230		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CRI	1.00	1232			X			X	X		X	X	X				X		X			X			X	X	
CCV	1.00	1235		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1238		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	

C L P M E T A L S 2 C1b

WOODWARD NORCAL

Run id P2 9034901
THERMO JARRELL-ASH ICAP61 (#22982)

Acquired 12/15/90 by SRP
Crunched 12/19/90 by SRP
Time 1141
Processing protocol 7/88

Element Multi-Element
Al Sb Ba Be Cd Ca Cr Co Cu
Fe Mg Mn Ni K Ag Na V Zn

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV1	ICV		ICV	12/15/90	11 31
2	ICV2	ICV		ICV	12/15/90	11 34
3	ICV3	ICV		ICV	12/15/90	11 37
4	STDB	ICB		ICB	12/15/90	11 39
5	ICSAA	ICSAØ		ICSA	12/15/90	11 42
6	ICSABB	ICSABØ		ICSAB	12/15/90	11 44
7	2XCRDL	CRIØ		CRI	12/15/90	11 47
8	HALFSTD	CCV		CCV	12/15/90	11 5Ø
9	STDB	CCB		CCB	12/15/90	11 52
1Ø	PB	PBW	ICP	PBW	12/15/90	11 55
11	X	X		ZZZZZ	12/15/90	11 57
12	9Ø11176-Ø1	S	ICP	Ø1CWC	12/15/90	12 ØØ
13	9Ø11176-Ø1	S2	ICP	Ø1CWCD	12/15/90	12 Ø3
14	9Ø11176-Ø2	S	ICP	Ø2CWC	12/15/90	12 Ø8
15	9Ø11176-Ø2	DS	ICP	O2CWCS	12/15/90	12 11
16	9Ø11176-Ø2	ISD	ICP	Ø2CWCL	12/15/90	12 14
17	9Ø11176-Ø2	PS	ICP	Ø2CWCA	12/15/90	12 16
18	LCSPW	LCSW	ICP	LCSW	12/15/90	12 19
19	HALFSTD	CCV		CCV	12/15/90	12 22
2Ø	STDB	CCB		CCB	12/15/90	12 25
21	ICSAA	ICSA1		ICSA	12/15/90	12 27
22	ICSABB	ICSAB1		ICSAB	12/15/90	12 3Ø
23	2XCRDL	CRI1		CRI	12/15/90	12 32
24	HALFSTD	CCV		CCV	12/15/90	12 35
25	STDB	CCB		CCB	12/15/90	12 38
26	STDB	WSØ		SØ	12/15/90	11 21
27	STD3	WS1		S	12/15/90	11 24
28	STD1	WS2		S	12/15/90	11 26
29	STD2	WS3		S	12/15/90	11 28

Method CLP01A Standard STDB

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	01787	- 00027	- 00067	00013	00067	00020	01532
SDev	00031	00110	00092	00023	00012	00020	00116
%RSD	1 7099	-413 07	-138 56	173 21	17 321	100 00	7 5629
#1	01820	- 00020	- 00120	00000	00080	00000	01522
#2	01780	00080	- 00120	00000	00060	00040	01653
#3	01760	- 00140	00040	00040	00060	.00020	01421

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	00080	00007	00047	00920	00080	00173	00040
SDev	00020	00023	00031	00216	00080	00076	00020
%RSD	25 000	346 41	65 465	23 514	100 00	43 684	50 000
#1	00100	00020	00020	01160	00080	.00120	00020
#2	00060	00020	00080	00860	00160	00260	00060
#3	00080	- 00020	00040	00740	00000	.00140	.00040

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	.00107	.00053	.02940	03640	-.00007	.00080
SDev	00023	00099	.00622	00035	.00046	00000
%RSD	21 651	184 98	21 154	95168	-692.82	00000
#1	00120	00100	03080	03660	00020	.00080
#2	00120	- 00060	.03480	03660	00020	.00080
#3	00080	00120	.02260	03600	-.00060	.00080

Method CLP01A Standard STD3

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	11 480	00327	02680	00067	00060	00120	21 940
SDev	036	00133	00151	00012	00020	00020	018
%RSD	31604	40 765	5 6342	17 321	33 333	16 667	08309
#1	11 450	00440	02700	00060	00040	00140	21 957
#2	11 469	00180	02820	00080	00060	00100	21 943
#3	11 520	00360	02520	00060	00080	00120	21 921

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	00180	00013	01133	11 933	00513	5 3731	00167
SDev	00020	00023	00012	015	00042	0136	00012
%RSD	11 111	173 21	1 0189	12800	8 1104	25246	6 9282
#1	00200	00040	.01140	11 927	.00500	5 3604	00180
#2	00180	00000	01120	11 922	00560	5 3716	00160
#3	00160	00000	01140	11 951	00480	5 3874	00160

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	00107	1 5793	00187	6 3852	.00027	00227
SDev	00031	0065	00607	0285	00012	00023
%RSD	28 641	40845	325 39	44702	43 301	10 189
#1	00100	1 5734	00020	6 3604	00020	00240
#2	00140	1 5784	.00860	6 3788	00040	.00240
#3	00080	1 5862	- 00320	6 4164	00020	00200

1ethod CLP01A Standard STD1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	- 01207	75647	66540	2 2243	66200	1 4901	04692
SDev	00150	00325	00243	0060	00140	0020	00409
%RSD	-12 440	42985	36443	26860	21148	13512	8 7204
#1	- 01120	75360	66400	2 2222	66100	1 4882	05061
#2	- 01120	76000	66820	2 2196	66140	1 4922	04764
#3	- 01380	75580	66400	2 2310	66360	1 4898	04252

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	1 0661	79960	1 3586	02513	66887	.00160	1 9325
SDev	0031	00223	0037	00260	00510	00053	0045
%RSD	29084	27852	26864	10 355	.76195	33.072	23265
#1	1 0638	79720	1 3562	02780	.66300	.00180	1 9314
#2	1 0648	80000	1 3568	02500	67140	00200	1 9286
#3	1 0696	80160	1 3628	02260	67220	00100	1 9374

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	1 1611	00107	02480	04147	1.1859	55047
SDev	0026	00042	00329	00117	0033	00151
%RSD	22480	39 031	13 276	2 8261	.27472	27511
#1	1.1584	00120	02100	04280	1 1844	54980
#2	1 1614	00140	02680	04100	1 1836	.54940
#3	1 1636	00060	02660	04060	1 1896	55220

Method CLP01A Standard STD2

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	02107	- 00020	- 00173	00233	00100	00147	01212
SDev	00160	00144	00196	00031	00000	00012	00058
%RSD	7 6147	-721 11	-113 25	13 093	00000	7 8730	4 8032
#1	01940	00020	- 00400	00260	00100	00160	01264
#2	02120	- 00180	- 00060	00240	00100	00140	01149
#3	02260	00100	- 00060	00200	00100	00140	01223

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	00140	00060	00347	01020	00093	00327	00220
SDev	00020	00020	00012	00080	00142	00061	00020
%RSD	14 286	33 333	3 3309	7 8431	152 03	18 704	9 0909
#1	.00160	00060	.00360	01100	.00120	.00340	00220
#2	00120	00040	00340	01020	- 00060	00260	00240
#3	00140	00080	00340	00940	00220	00380	00200

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	00160	00147	3 7874	04500	00107	00127
SDev	00000	00083	0175	00020	00012	00023
%RSD	00000	56 773	.46250	44445	10 825	18 232
#1	00160	00080	3.7966	04520	00100	00140
#2	00160	00240	3.7984	04500	00120	.00100
#3	00160	00120	3 7672	04480	.00100	00140

Method CLP01A Sample Name ICV1.ICV Operator SRP
Run Time 12/15/90 11 31 48
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	2 1338	00226	00129	2 0327	49526	50551	52 360
SDev	0188	01077	00086	0103	00258	00254	259
%RSD	88286	476 34	66 848	50553	52172	50257	49410
#1	2 1141	- 00929	00089	2 0275	49254	50372	52 068
#2	2 1359	01203	00229	2 0261	49556	50841	52 448
#3	2 1516	00405	00070	2 0445	49768	50438	52 562
Errors	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value	2 1720			2 0410	51000	49800	51 519
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	48725	50731	52018	2 0795	5 1570	25 864	.50494
SDev	00249	00216	00186	0123	.0300	125	00182
%RSD	50991	42494	35662	59311	.58161	.48418	.35990
#1	48444	50606	51846	2 0681	5 1227	25 751	.50305
#2	48913	50980	51994	2 0778	5.1705	25.842	.50512
#3	48819	50606	52215	2 0926	5 1779	25.998	.50667
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.51000	.52000	.51900	2.0440	5.1400	25.745	.51600
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	49193	52 316	49443	51 837	50375	3 3931
SDev	00000	258	00349	272	00223	0399
%RSD	00000	49303	70513	52416	44305	1 1764
#1	49193	52 137	49154	51.778	50122	3.3498
#2	49193	52 200	49345	51 599	.50544	3 4010
#3	49193	52 612	49830	52 133	50459	3 4285
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	49700	52 068	49800	51 368	50700	3 3160
Range	10 000	10 000	10 000	10 000	10 000	10 000

Analysis Report QC Standard Sat 12-15-90 11 36 56 AM page 1

Method CLP01A Sample Name ICV2 ICV Operator SRP
Run Time 12/15/90 11 34 26
Comment ICV#1
M CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01454	- 00043	18396	00135	00030	00022	01883
SDev	00453	00427	00688	00052	00018	00078	00639
%RSD	31 176	-1002 6	3 7382	38 490	57 735	350 48	33 914
#1	01977	- 00222	18995	00195	00050	00067	02479
#2	01192	00445	18547	00105	00020	00067	01961
#3	01192	- 00351	17645	00105	00020	- 00067	01209
Errors	NOCHECK	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value			19000				
Range			10 000				

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00188	- 00084	04614	01398	.00199	01924	00103
SDev	.00163	00190	00074	00019	.00913	00671	.00052
%RSD	-86 591	-227 15	1 5957	1 3873	457 93	34.887	50 006
#1	- 00094	00082	04688	01409	01196	.01738	.00155
#2	- 00094	- 00042	.04614	.01376	.00000	01365	.00052
#3	- 00376	- 00291	.04541	.01409	-.00598	.02669	.00103
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	- 00115	06334	00375	21106	.00112	00358
SDev	00086	00968	00012	00473	00085	00000
%RSD	-75 000	15 275	3 2790	2 2388	75 552	05214
#1	- 00201	06545	00389	21579	00112	.00358
#2	- 00115	07178	00368	21106	00196	.00358
#3	- 00029	05278	00368	.20634	00027	00358
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

Analysis Report QC Standard Sat 12-15-90 11 39 29 AM page 1

Method CLP01A Sample Name ICV3,ICV Operator SRP
Run Time 12/15/90 11 37 03
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	00960	1 0106	00348	- 00015	00000	- 00022	- 02049
SDev	00306	0073	01954	00026	00018	00039	00157
%RSD	31 929	72716	562 02	-173 21	400e6	-173 91	-7 6767
#1	00931	1 0155	01401	- 00030	00020	00000	- 01867
#2	00669	1 0021	- 01907	00015	- 00010	00000	- 02131
#3	01280	1 0141	01550	- 00030	- 00010	- 00067	- 02148
Errors	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value		1 0100					
Range		10 000					

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00188	- 00001	00294	- 00817	- 00250	00000	00017
SDev	00094	00073	00043	00102	.00622	0065	00030
%RSD	-49 989	-5273 7	14 446	-12 549	-249 17	-11e6	173.43
#1	-.00282	00082	00343	- 00705	00448	00062	.00000
#2	- 00188	- 00043	00270	- 00906	- 00449	-.00683	.00052
#3	-.00094	- 00044	00270	-.00839	-.00748	.00620	.00000
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	- 00287	33992	.00065	00210	.00055	- 00304
SDev	00172	01594	00072	00455	00175	00211
%RSD	-60 000	4 6893	110 45	216 51	316 28	-69 412
#1	- 00115	32514	00074	.00473	00195	- 00183
#2	- 00287	33781	00133	00473	- 00141	- 00548
#3	- 00460	35681	- 00011	- 00315	00112	- 00182
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

Method CLP01A Sample Name STDB ICB Operator SRP
Run Time 12/15/90 11 39 38
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	- 00378	00313	- 00298	00000	- 00010	- 00089	- 00216
SDev	00885	00481	00624	0007	.00000	00039	00171
%RSD	-234 19	153 59	-209 36	-2832e6	00000	-43 385	-79 062
#1	- 00553	00848	00204	- 00075	- 00010	- 00067	- 00095
#2	00582	- 00086	- 00102	00015	- 00010	- 00067	- 00141
#3	- 01163	00179	- 00997	00060	- 00010	- 00134	- 00411
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00188	- 00167	- 00147	- 00995	- 00050	- 00124	00017
SDev	00094	00216	00043	00085	00996	00186	00030
%RSD	-49 990	-129 21	-28 843	-8 4884	-2003 7	-149 98	173.03
#1	-.00282	- 00043	- 00172	- 01074	00449	-.00310	00000
#2	- 00188	- 00042	- 00172	- 01007	- 01196	- 00124	00052
#3	- 00094	- 00416	- 00098	- 00906	00599	.00062	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	.02500	10000	02800	5 0000	01500
Low	- 01000	- 05000	- 02500	- 10000	-.02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00230	- 04011	- 00162	- 01785	00027	00123
SDev	00179	01319	.00040	00396	00000	.00106
%RSD	-78 062	-32 868	-24 933	-22 205	1.2735	85 667
#1	- 00374	- 03589	- 00144	- 01418	00027	.00185
#2	- 00029	- 02956	- 00208	- 01733	00027	00183
#3	- 00287	- 05489	- 00133	- 02205	.00028	00001
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 CLP01A Sample Name ICSAA ICSA Operator SRP
Run Time 12/15/90 11 42 15
Comment
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	535 81	- 00335	- 12545	01169	00010	00638	477 55
SDev	2 62	02547	05336	00026	00018	00168	92
%RSD	48960	-759 92	-42 536	2 2206	173 21	26 307	19251
#1	538 54	01563	- 15379	01184	00020	00787	477 94
#2	535 58	- 03230	- 15866	01184	00020	00456	478 21
#3	533 31	00662	- 06390	01139	- 00010	00670	476 50
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	577 20						537 90
Low	384 80						358 60

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01954	- 00246	01773	182 24	.01668	494.85	.02448
SDev	.00002	00144	00046	53	00510	1 71	00057
%RSD	08244	-58 495	2 5713	28822	30 548	34559	2 3281
#1	01955	- 00162	01755	182 67	01085	496 50	02391
#2	01955	- 00412	01824	182.39	.02029	494 97	.02448
#3	01952	- 00164	01738	181 65	.01890	493 09	.02505
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				219 18		541 08	
Low				146.12		360.72	

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00747	02322	- 00659	1 6712	-.00286	19452
SDev	00172	01463	00051	0057	00085	.00914
%RSD	23 077	62 984	-7 7419	33983	-29 776	4 6975
#1	00919	01478	- 00627	1 6775	- 00292	20300
#2	00747	04011	- 00631	1 6696	- 00367	19572
#3	00575	01478	- 00717	1 6665	- 00198	18484
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

Method CLP01A Sample Name ICSABB,ICSAB Operator SRP
Run Time 12/15/90 11 44 50
Comment
Method CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	530 70	- 02166	- 12365	47179	43538	81507	469 03
SDev	2 73	02882	02389	00196	00269	00687	2 55
%RSD	51436	-133 07	-19 317	41540	61738	84320	54412
#1	528 01	- 05294	- 14989	46955	.43327	81051	466 77
#2	533 47	00382	- 11790	47314	43841	82297	471 80
#3	530 61	- 01585	- 10317	47269	43448	81172	468 51
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	563 64			54720	.56640	1 1496	534 96
Low	375 76			36480	37760	76640	356 64

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	45506	40542	49867	180 17	4 2111	490 04	44072
SDev	00251	00127	00383	86	.0208	2.37	00181
%RSD	55041	31379	76745	47549	.49351	.48326	.41152
#1	45410	40415	49485	179 34	4.1950	487.69	43870
#2	.45791	.40669	50250	181 05	4.2345	492.43	.44221
#3	45318	40541	49867	180 13	4 2036	490 02	.44124
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	63000	59280	62760	214.38	5.6400	534.24	.63600
Low	42000	39520	41840	142 92	3.7600	356 16	.42400

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	77927	- 00211	85571	1 6649	43953	1 1172
SDev	00587	00968	00517	0088	00338	.0100
%RSD	75297	-458 26	60433	52675	.76900	89074
#1	77467	00845	.85052	1 6570	43646	1.1107
#2	78587	- 01056	86086	1 6743	44315	1 1287
#3	77725	- 00422	85576	1 6633	43896	1.1124
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1 1280		1 1880		56520	1 2312
Low	75200		79200		37680	82080

Method CLP01A Sample Name 2XCRDL CRI Operator SRP
Run Time 12/15/90 11 47 26
Comment
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	30766	10977	04164	00000	00938	00939	32635
SDev	05657	00400	00344	0003	00063	00067	05479
%RSD	18 387	3 6472	8 2676	-892e6	6 7151	7 1652	16 789
#1	35826	10577	03940	00015	00988	00872	37584
#2	31813	11378	04560	00015	00958	01006	33573
#3	24659	10978	03992	- 00030	00867	00940	26747

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01439	09163	04714	10894	04666	27438	02846
SDev	00054	00072	00043	02578	00601	.06155	.00052
%RSD	3 7663	78581	90935	23 662	12 881	22 433	1 8161
#1	01408	09205	04764	13321	04762	.32837	.02846
#2	01407	09205	04690	11174	05213	28741	02898
#3	01501	09080	04689	.08188	.04023	.20735	02794

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.07069	- 04434	01767	- 03780	.09499	.03989
SDev	00050	06832	00114	00473	.00194	00317
%RSD	70408	-154 08	6 4535	-12 500	2 0409	7 9473
#1	07040	- 09290	01743	- 03780	09611	04171
#2	07126	- 07390	01892	- 03308	09611	.03623
#3	07040	03378	01667	- 04253	09275	04172

Method CLP01A Sample Name HALFSTD CCV Operator SRP
Run Time 12/15/90 11 50 00
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	24 223	2 4087	2 4075	2 4218	48508	2 3294	24 029
SDev	045	0020	0239	0055	00155	0044	070
%RSD	18444	08503	99117	22586	31992	18886	29260
#1	24 239	2 4105	2 4339	2 4254	48679	2 3287	24 075
#2	24 172	2 4092	2 3876	2 4155	48377	2 3254	23 948
#3	24 257	2 4065	2 4008	2 4245	48468	2 3341	24 063
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 3684	2 3330	2 3917	9 7733	2 3731	24.461	2.3780
SDev	0063	0083	0066	0195	0176	.040	0060
%RSD	.26397	35636	.27607	19928	.74173	16265	.25035
#1	2 3715	2 3384	2 3951	9 7841	2 3686	24 484	2 3778
#2	2 3612	2 3235	2 3841	9 7508	2.3582	24.415	2 3721
#3	2 3725	2 3372	2 3959	9 7851	2.3926	24.484	2 3840
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 3346	24 329	46778	24 391	2 3949	2 3975
SDev	0069	016	00186	065	0059	0084
%RSD	29615	06552	39711	26706	24651	35093
#1	2 3341	24 343	.46837	24.433	2 3975	2.4024
#2	2 3280	24 312	46570	24.316	2.3882	2 3878
#3	2 3418	24 331	46927	24 425	2 3991	2 4023
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

Method CLP01A Sample Name STDB CCB Operator SRP
Run Time 12/15/90 11 52 34
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	02268	- 00220	- 01715	00150	00010	00000	02488
SDev	00554	00481	00909	00045	00018	0000	00288
%RSD	24 431	-218 58	-52 992	30 000	173 21	-124 95	11 578
#1	01628	- 00754	- 00860	00195	00020	00000	02788
#2	02588	00179	L- 02669	00105	- 00010	00000	02462
#3	02588	- 00086	- 01615	00150	00020	00000	02214
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00219	00082	00123	00112	00198	02235	.00190
SDev	00054	00126	00147	00218	00228	00430	00079
%RSD	-24 737	152 23	120 01	195 41	115 38	19 250	41 674
#1	- 00188	00208	00270	00336	- 00001	02483	.00259
#2	- 00188	- 00043	.00123	00100	00446	01738	00103
#3	- 00282	00083	-.00025	-.00101	.00148	02483	.00207
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	.02500	.10000	02800	5 0000	01500
Low	- 01000	- 05000	- 02500	- 10000	- 02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00115	- 01056	00046	00053	00223	- 00061
SDev	00228	01676	00017	00896	00048	00106
%RSD	-198 43	-158 75	37 077	1705 9	21 628	-175 06
#1	00057	- 01689	00053	- 00945	.00195	- 00184
#2	- 00374	00845	00027	00315	00195	00001
#3	- 00029	- 02322	00058	00788	00279	00000
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 CLP01A Sample Name PB PBW Operator SRP
Run Time 12/15/90 11 55 10
Comment
M CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	02995	00403	- 00715	00075	00010	- 00045	12961
SDev	00481	01774	01287	00052	00018	00039	00071
%RSD	16 043	440 13	-179 98	69 282	173 21	-86 119	54452
#1	02675	- 01551	00640	00015	- 00010	00000	13023
#2	03548	01913	- 01921	00105	00020	- 00067	12884
#3	02763	00848	- 00865	00105	00020	- 00067	12977
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	.20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00251	00123	00098	00939	00047	.02234	00086
SDev	00144	00190	00085	00089	.00173	01122	.00030
%RSD	-57 284	154 96	86 472	9 4457	364 20	50 220	34 676
#1	- 00376	00081	00049	00973	00147	01179	.00103
#2	- 00094	00330	00197	.01006	- 00152	03413	.00052
#3	- 00282	- 00043	00049	00839	.00147	02110	00103
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	02500	10000	.02800	5 0000	.01500
Low	- 01000	- 05000	- 02500	- 10000	-.02800	-5 0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00374	02322	- 00085	00683	00027	01464
SDev	00000	04217	00081	00506	00085	00183
%RSD	00000	181 59	-94 795	74 182	311.31	12.500
#1	- 00374	- 02322	- 00175	00315	- 00057	.01647
#2	- 00374	05912	- 00058	01260	00112	01281
#3	- 00374	03378	- 00021	00473	.00027	01464
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

Method CLP01A Sample Name 9011176-01 S Operator SRP
Run Time 12/15/90 12 00 31
Comment CWC1001
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	09187	- 00864	- 00297	19019	- 00010	- 00091	109 11
SDev	00363	00483	02089	00104	00030	00039	96
%RSD	3 9543	-55 859	-703 59	54596	-300 00	-42 752	87826
#1	09303	- 00996	01057	19079	- 00040	- 00068	109 73
#2	09478	- 00329	00755	18899	00020	- 00068	108 01
#3	08780	- 01267	- 02703	19079	-.00010	- 00135	109 59

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00252	00006	00001	08224	00242	30 660	03278
SDev	00217	00071	00113	00168	00311	173	00060
%RSD	-85 961	1154 1	8046 1	2 0415	128 49	56363	1 8235
#1	-.00378	00088	- 00097	.08224	.00590	30 720	.03312
#2	- 00378	- 00036	- 00023	08056	00142	30 465	03209
#3	- 00002	- 00034	00124	08392	-.00007	30.794	.03312

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01236	79174	- 00280	45 254	00224	.30419
SDev	00179	.02398	00152	198	.00097	00423
%RSD	14 523	3 0288	-54 350	43807	43 469	1.3907
#1	01092	77485	- 00424	45 341	00112	30907
#2	01178	81919	- 00296	45 027	00280	.30175
#3	01437	78118	- 00121	45 394	00281	30174

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Method CLP01A Sample Name 9011176-01 S2 Operator: SRP
Run Time 12/15/90 12 03 03
Comment CWC1001D
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	05842	- 00287	- 00381	18884	00010	- 00068	109 05
SDev	00133	00557	01744	00069	00018	00000	59
%RSD	2 2809	-193 99	-458 08	36370	173 21	- 07875	54059
#1	05726	- 00468	01224	18809	00020	- 00068	108 37
#2	05813	00338	- 00130	18899	- 00010	- 00068	109 42
#3	05988	- 00730	- 02236	18944	00020	- 00068	109 37

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00284	00044	00075	06256	00294	30 385	03088
SDev	00249	00143	00043	00140	00832	178	00030
%RSD	-87 630	329.28	56 904	2 2328	283.08	58514	96765
#1	- 00002	-.00039	00050	06144	.00444	30 182	03105
#2	- 00471	00209	00050	06412	- 00603	30 513	03054
#3	- 00378	- 00040	.00124	06211	.01041	30.459	.03105

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00402	78752	- 00238	44.726	.00056	.29995
SDev	.00149	00633	00164	236	.00098	.00484
%RSD	37 115	80429	-68 821	.52769	174 73	1.6150
#1	00575	78118	- 00116	44 467	.00113	.29446
#2	00316	78752	- 00424	44 928	- 00057	.30179
#3	00316	79385	- 00174	44 783	00112	30361

Method CLP01A Sample Name 9011176-02 S Operator SRP
Run Time 12/15/90 12 08 53
Comment CWC1003
Method CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	04157	00385	00527	24459	- 00020	00021	121 14
SDev	00911	00470	00375	00069	00035	00078	2 37
%RSD	21 911	122 07	71 185	28079	-173 21	372 39	1 9540
#1	03721	00875	00178	24519	- 00040	00066	123 36
#2	05204	00341	00924	24474	- 00040	00066	121 41
#3	03546	- 00061	00479	24384	00020	- 00069	118 65

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00345	00085	00198	09878	00643	33 244	01829
SDev	00054	00216	00074	00078	00311	293	00060
%RSD	-15 717	252 22	37 188	78534	48 287	88211	3 2676
#1	- 00377	- 00039	00272	09968	.00743	33 535	01863
#2	- 00377	00334	00124	09834	.00892	33 250	.01863
#3	- 00283	- 00039	00198	09834	00295	32.948	01760

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00488	2 3942	- 00324	57 999	00308	36823
SDev	00086	0097	.00155	094	.00128	01190
%RSD	17 647	40410	-47 949	16286	41 636	3.2326
#1	00402	2 3963	- 00242	58 105	00448	.38043
#2	00488	2 4027	- 00226	57 924	00280	36762
#3	00575	2 3837	- 00503	57 968	00196	.35664

Method CLP01A Sample Name 9011176-02.DS Operator SRP
Run Time 12/15/90 12 11 24
Comment CWC1003S
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2 0585	48885	1 9469	2 1893	05020	04601	121 59
SDev	0207	00665	0092	0126	00035	00039	44
%RSD	1 0068	1 3606	47237	57613	69561	84105	36132
#1	2 0687	48220	1 9368	2 2015	05040	04623	121 17
#2	2 0722	49550	1 9548	2 1902	05040	04623	122 05
#3	2 0347	48884	1 9490	2 1763	04980	04556	121 56

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	18852	45826	23653	1 0330	47316	33 550	49511
SDev	00188	00505	00112	.0052	00524	070	00196
%RSD	99604	1 1012	47538	50359	1 1070	20944	39572
#1	18664	.45369	.23776	1 0328	47265	33.583	.49425
#2	19040	46367	23555	1 0382	47863	33.598	49735
#3	.18852	45742	.23628	1 0278	.46819	33.469	.49373

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.46061	2.3224	.04571	58.461	.47515	.82027
SDev	00326	0349	00076	301	.00175	.00422
%RSD	70853	1 5021	1 6528	51415	.36837	51431
#1	45831	2 2887	04545	58 751	47571	.82272
#2	46434	2 3583	.04656	58 482	47656	82270
#3	45917	2 3203	04512	58 151	47319	81540

Method· CLP01A Sample Name 9011176-02:ISD/5 Operator· SRP
Run Time 12/15/90 12 14 00
Comment CWC1003L
M[illegible] CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	05554	- 00348	- 01278	04916	00000	- 00134	23 908
SDev	00349	00462	00828	00045	00018	00067	195
%RSD	6 2831	-132 87	-64 786	91463	400e6	-49 918	81766
#1	05903	- 00082	- 00729	04961	- 00010	- 00135	23 817
#2	05554	- 00080	- 02231	04916	- 00010	- 00202	23 774
#3	05205	- 00881	- 00876	04871	00020	- 00067	24 132

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00282	- 00042	00123	01308	- 00154	6 5437	00379
SDev	00094	00124	00074	00134	.01167	.0378	.00030
%RSD	-33 316	-294 37	59 910	10 255	-760 18	.57768	7 8753
#1	- 00188	.00082	.00197	.01443	.01191	6.5257	00362
#2	- 00376	- 00167	.00123	01308	- 00751	6.5183	00414
#3	- 00282	- 00042	.00049	01174	-.00901	6.5872	00362

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00172	43493	-.00156	11 284	.00027	.07256
S[illegible]	.00050	02036	00041	021	.00000	.00211
[illegible]	-28 868	4 6814	-26 085	18253	1.1910	2 9104
#1	- 00201	42015	- 00165	11 270	.00027	.075
#2	- 00201	42648	-.00112	11 275	00027	07134
#3	- 00115	45815	- 00191	11 308	.00027	.07134

Method CLP01A Sample Name 9011176-02 PS Operator SRP
Run Time 12/15/90 12 16 33
Comment CWC1003A
M[illegible] CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24340	00695	- 00163	24279	- 00010	- 00001	121 80
SDev	00762	00602	01741	00137	00000	00067	21
%RSD	3 1317	86 581	-1066 5	56575	00000	-4808 4	17294
#1	24136	00737	00991	24159	- 00010	.00066	121 82
#2	25183	01274	00685	24429	- 00010	- 00001	122 00
#3	23700	00073	- 02166	24249	- 00010	- 00069	121 58

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00220	00211	00468	09026	- 00316	33 278	.01794
SDev	00108	00126	00043	00116	.00776	.105	00030
%RSD	-49 298	59 855	9 0883	1 2871	-245 56	.31701	1 6657
#1	- 00095	00085	.00419	08959	-.00764	33 183	.01759
#2	- 00283	00337	00492	09160	.00580	33 391	01811
#3	- 00283	.00210	.00492	.08959	-.00764	33.259	.01811

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00603	2 2971	- 00301	57 349	.00195	.36517
[illegible]v	.00348	.0222	00077	303	.00084	.00560
[illegible]D	57 735	96835	-25.472	.52832	42 969	1.5329
#1	00402	2 2950	- 00280	57 031	.00196	.36396
#2	01006	2 3203	- 00238	57 635	.00279	.36028
#3	00402	2 2760	- 00387	57 382	.00111	.37128

Method CLP01A Sample Name· LCSPW LCSW Operator SRP
Run Time 12/15/90 12 19 27
Comment LCS
M CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1 9114	93019	00656	1 8316	45202	42590	45 691
SDev	0079	02295	00517	0081	00080	00293	236
%RSD	41416	2 4669	78 840	44072	17701	68671	51680
#1	1 9056	91375	00358	1 8377	45292	42456	45 586
#2	1 9082	92041	00357	1 8346	45141	42389	45 525
#3	1 9204	95640	01253	1 8224	45171	42926	45 961
Errors	LC Pass	LC Pass	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	2 6060	1 1740		2 4490	61200	59580	61.820
Low	1 7380	78200		1 6330	40800	40020	41 215

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.43405	44101	.46615	1 8337	4.3525	22.767	.45250
SDev	00144	00216	00074	0039	.0399	017	00060
%RSD	33053	48996	.15782	21051	.91641	.07330	13207
#1	43374	43977	46615	1 8338	4 3156	22 778	45284
#2	.43280	43975	.46688	1.8298	4.3470	22 748	.45181
#3	43562	44350	46541	1.8375	4 3948	22 776	.45284
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.61200	.62400	.62280	2 4530	6.1680	30.890	61920
Low	40800	41600	.41520	1 6350	4 1120	20 600	41280

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	42354	46 390	.43636	45 938	.44249	2 7131
SDev	00277	174	00200	237	00097	0074
%RSD	.65425	37451	45855	51650	22014	.27213
#1	42555	46 493	43581	46 114	44305	2 7173
#2	42038	46 487	43469	46 032	44136	2 7045
#3	42469	46 189	43858	45 668	44306	2 7173
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	59640	62 480	.59760	61 640	.60840	3 9800
Low	39760	41 650	39840	41 090	40560	2 6530

Method CLP01A Sample Name HALFSTD,CCV Operator SRP
Run Time 12/15/90 12 22 33
Comment CCV#2
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24 359	2 4874	2 4808	2 4137	49516	2 3030	24 838
SDev	127	0201	0263	0137	00309	0134	123
%RSD	51946	80861	1 0609	56838	62384	58348	49585
#1	24 473	2 4806	2 5034	2 4249	49647	2 3039	24 847
#2	24 380	2 5100	2 4872	2 4177	49738	2 3160	24 957
#3	24 223	2 4715	2 4519	2 3984	49163	2 2892	24 711
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 4216	2 3914	2 3903	9 9414	2.4403	24.647	2 4402
SDev	0125	0154	0080	0516	.0104	114	.0105
%RSD	.51488	64530	33260	51915	42578	.46394	.42956
#1	2 4288	2 3872	2 3959	9 9583	2 4477	24.703	2.4435
#2	2.4288	2.4085	2 3937	9 9825	2 4448	24.722	2.4487
#3	2 4072	2 3785	2 3812	9 8835	2 4285	24.515	2.4285
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 3981	24 198	46874	24 128	2 4321	2 5076
SDev	0142	076	00178	149	0124	0258
%RSD	59101	31411	38063	61677	51072	1 0300
#1	2 3927	24 274	46846	24 263	2 4388	2 4936
#2	2 4142	24 198	47065	24 153	2 4397	2 5374
#3	2 3875	24 122	46711	23 968	2 4178	2.4918
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 CLP01A Sample Name STDB CCB Operator SRP
Run Time 12/15/90 12 25 08
Comment CCB#2
Mode CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	02152	00890	- 00310	00195	00040	00112	03082
SDev	00400	00406	00568	00078	00018	00103	00303
%RSD	18 580	45 597	-183 27	39 970	43 301	91 578	9 8383
#1	01803	01244	- 00560	00285	00050	00201	03432
#2	02065	00447	- 00711	00150	00050	.00000	02921
#3	02588	00977	00340	00150	00020	00134	02893
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	-.20000	- 00500	- 00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00031	.00166	00172	-.00392	.00646	.02607	.00172
SDev	.00144	00074	00113	00285	.00850	00705	00030
%RSD	-456 54	44.268	65 509	-72.897	131 54	27.037	17.326
#1	00094	00209	00196	- 00101	01344	03413	00155
#2	- 00188	00208	00270	- 00403	00895	.02297	.00207
#3	00000	.00081	.00049	- 00671	- 00301	.02110	.00155
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	02500	10000	02800	5 0000	.01500
Low	- 01000	- 05000	- 02500	- 10000	-.02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00000	04434	00067	03098	.00252	- 00061
SDev	.0033	04121	00138	00241	00212	00104
%RSD	-1682e6	92 949	205.54	7.7671	84 016	-170 20
#1	00230	04645	00218	03150	.00448	- 00001
#2	00144	00211	00037	02835	00279	- 00001
#3	- 00374	08445	-.00053	03308	.00028	- 00182
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

Method CLP01A Sample Name ICSAA,ICSA Operator SRP
Run Time 12/15/90 12 27 42
Comment
1 CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	542 14	- 00661	- 08427	01154	00010	00407	502 26
SDev	1 99	02912	08310	00026	00018	00135	1 05
%RSD	.36711	-440 69	-98 610	2 2494	173 21	33 111	20893
#1	540 19	00690	- 01315	01139	00020	00416	501 21
#2	544 17	- 04003	- 17561	01139	- 00010	00268	502 27
#3	542 06	01330	- 06405	01184	.00020	00537	503 31
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	577 20						537.90
Low	384 80						358 60

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01975	- 00080	.01965	189 22	02191	507 34	.02625
SDev	00162	00190	00105	47	01285	1.18	.00027
%RSD	8 2006	-238.52	5.3392	.24607	58 643	23293	1.0128
#1	02067	- 00039	02079	188 69	01928	506 10	.02594
#2	01788	-.00287	.01872	189 51	.01058	508.44	.02638
#3	02070	00087	01945	189.47	.03587	507.49	.02642
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				219 18		541.08	
Low				146.12		360 72	

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00747	00422	- 00932	1 6927	- 00101	.21075
SDev	00086	02993	00141	0060	00100	00109
%RSD	11 538	708 87	-15.128	35229	-98 495	.51509
#1	00661	02745	- 01095	1 6901	00014	.21143
#2	00747	01478	- 00849	1 6995	- 00163	.21133
#3	00833	- 02956	- 00853	1 6885	-.00154	20950
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

Method CLP01A Sample Name ICSABB ICSAB Operator SRP
Run Time 12/15/90 12 30 17
Comment
[illegible] CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	533 22	- 00796	- 03581	46910	45141	82965	492 82
SDev	82	04551	03254	00090	00379	00979	5 93
%RSD	15426	-571 43	-90 866	19169	83944	1 1803	1 2036
#1	533 85	04459	- 01784	47000	45171	82678	491 67
#2	532 29	- 03370	- 07338	46910	44748	82161	487 54
#3	533 53	- 03478	- 01622	46820	45504	84055	499 24
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	563 64			.54720	.56640	1.1496	534.96
Low	375 76			36480	37760	76640	356 64

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.47716	42304	.49583	186 57	4.4710	498 42	.45999
SDev	.00395	00575	00086	1 55	.0501	2.50	00451
%RSD	.82861	1.3591	.17253	82894	1.1195	.50171	.98100
#1	47590	42427	49678	186 33	4.4801	498 30	45877
#2	.47399	.41678	.49510	185 16	4 4170	495.98	.45621
#3	48159	42808	.49562	188.22	4 5159	500.98	.46499
[illegible]ors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.63000	59280	62760	214.38	5.6400	534.24	.63600
Low	.42000	39520	.41840	142 92	3 7600	356 16	.42400

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	82007	02322	87378	1 6691	45470	1 1810
SDev	01028	04217	00626	0091	00434	.0136
%RSD	1 2541	181.59	.71609	.54484	.95514	1.1505
#1	81691	03378	875	1.6586	.45465	1 1792
#2	81173	- 02322	86700	1 6743	.45039	1.1684
#3	83156	05912	87933	1 6743	.45907	1 1954
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1 1280		1 1880		.56520	1.2312
Low	75200		79200		37680	82080

Method CLP01A Sample Name 2XCRDL,CRI Operator SRP
Run Time 12/15/90 12 32 52
Comment
M[illegible] CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	29282	12622	04571	00015	00958	00962	33892
SDev	07664	00076	00622	00000	00030	00039	07335
%RSD	26 173	60011	13 607	00000	3 1579	4 0290	21 644
#1	36524	12580	04989	00015	00988	00939	41275
#2	30068	12577	04868	00015	00958	01007	33796
#3	21256	12710	03856	00015	.00927	00940	26605

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01595	09789	04861	10883	05215	.27500	.03036
SDev	00248	00072	00043	03238	00302	.06672	00030
%RSD	15 574	73108	87468	29 749	5 7810	24.262	97973
#1	.01314	09707	04837	14093	.04911	33582	.03053
#2	01689	09831	04911	10939	.05514	.28555	03053
#3	.01783	09830	.04836	07618	.05221	.20364	.03002

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	07758	.00000	01906	- 01523	09696	.04474
S[illegible]	00100	0575	00059	.00744	.00084	.00211
[illegible]	1 2830	-9257e6	3 0797	-48 888	.86484	4.7105
#1	.07816	- 06123	01946	- 00945	09695	.04717
#2	07816	.05278	01838	- 02363	09780	04351
#3	07643	00845	01933	- 01260	.09613	.04353

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Method CLP01A Sample Name HALFSTD,CCV Operator SRP
Run Time 12/15/90 12 35 26
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	24 540	2 5327	2 5421	2 4329	50121	2 3813	25 200
SDev	069	0186	0524	0104	00286	0050	096
%RSD	28094	73319	2 0627	42839	57029	21132	38219
#1	24 587	2 5336	2 5855	2 4398	50222	2 3864	25 233
#2	24 461	2 5137	2 4838	2 4209	49798	2 3764	25 092
#3	24 572	2 5509	2 5569	2 4380	.50343	2 3811	25 276
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 4607	2.4476	2 4023	10 087	2 4642	24.774	2.4753
SDev	0114	0104	0109	044	.0212	097	0096
%RSD	46265	42539	45214	43300	85924	39196	.38683
#1	2 4626	2 4559	2 4107	10 110	2 4567	24 802	2.4813
#2	2 4485	2 4360	2 3900	10 037	2 4478	24 666	2.4642
#3	2 4710	2 4510	2 4062	10.115	2.4881	24.854	2.4803
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 4395	24 170	47232	24 280	2 4631	2 5294
SDev	0126	078	00208	076	0114	0082
%RSD	51490	32344	44080	31220	46476	.32349
#1	2 4410	24 236	47307	24 359	2 4692	2 5299
#2	2 4263	24 084	46997	24 208	2 4498	2 5209
#3	2 4513	24 191	47393	24 274	2 4701	2 5372
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

Method CLP01A Sample Name STDB CCB Operator SRP
Run Time 12/15/90 12 38 00
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	02995	00756	00538	00165	00020	00045	02933
SDev	00393	00735	00379	00026	00000	00039	00307
%RSD	13 135	97 265	70 421	15 746	00000	86 615	10 449
#1	03024	00713	00939	00195	00020	00067	03082
#2	03373	01512	00186	00150	00020	00067	03136
#3	02588	00043	00490	00150	00020	00000	02580
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5.0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00031	00041	00172	.00145	.00496	03662	.00190
SDev	00108	00190	00085	00136	.00376	00388	00030
%RSD	-345 08	459 14	49 468	93 335	75 819	10.582	15 751
#1	- 00094	00084	00123	00168	00895	03786	00155
#2	- 00094	00207	.00123	00268	00147	.03228	.00207
#3	.00094	- 00166	00270	.00000	.00447	03972	.00207
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	.02500	10000	.02800	5.0000	.01500
Low	-.01000	- 05000	- 02500	- 10000	- 02800	-5 0000	-.01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00029	- 01689	00057	- 00315	00224	.00061
SDev	00172	07305	00110	01400	.00097	00105
%RSD	-600 00	-432 47	193 55	-444 41	43 420	173 03
#1	00144	00845	00106	00788	00280	.00182
#2	- 00201	04011	- 00069	00158	00112	00000
#3	- 00029	- 09923	00133	- 01890	00280	00000
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

C L P M E T A L S 2 .1b

Run id F6 9035102
HERMO TARRELL-ASH VIDEO 21

Element As

Acquired 12/17/90 by RPP
Crunched 12/19/90 by RPP
Time 1005
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	12/17/90	11 40
2	CAL BLK	ICB		ICB	12/17/90	11 44
3	CRA	CRA0		CRA	12/17/90	11 48
4	50 PPB	CCV		CCV	12/17/90	11 52
5	CAL BLK	CCB		CCB	12/17/90	11 56
6	PB	PBW	Furnace	PBW	12/17/90	12.00
7	PB	ASPBW	Furnace	PBWA	12/17/90	12 04
8	LCSFW	LCSW	Furnace	LCSW	12/17/90	12 08
9	LCSFW	ASLCSW	Furnace	LCSWA	12/17/90	12.12
10	9011176-01	S	Furnace	01CWC	12/17/90	12 16
11	9011176-01	AS	Furnace	01CWCA	12/17/90	12·20
12	9011176-01	S2	Furnace	01CWCD	12/17/90	12.24
13	9011176-01	ASS2	Furnace	01CWCDA	12/17/90	12 28
14	9011176-02	S	Furnace	02CWC	12/17/90	12:32
15	9011176-02	AS	Furnace	02CWCA	12/17/90	12:36
16	50 PPB	CCV		CCV	12/17/90	12:40
17	CAL BLK	CCB		CCB	12/17/90	12.44
18	9011176-02	DS	Furnace	02CWCS	12/17/90	12·48
19	X	X		ZZZZZ	12/17/90	12:52
20	50 PPB	CCV		CCV	12/17/90	12 56
21	CAL BLK	CCB		CCB	12/17/90	13·00
28	0 PPB	WS0		S0	12/17/90	11 15
29	10 PPB	WS1		S10	12/17/90	11.19
30	50 PPB	WS2		S50	12/17/90	11:23
31	100 PPB	WS3		S100	12/17/90	11.27

C L P M E T A L S 2 21b

Run id F6 9035152
THERMO JARRELL -ASH VIDEO 21

Element Se

Acquired 12/17/90 by RPP
Crunched 12/19/90 by RPP
Time 1007
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	12/17/90	11 40
2	CAL BLK	ICB		ICB	12/17/90	11 44
3	CRA	CRA0		CRA	12/17/90	11 48
4	50 PPB	CCV		CCV	12/17/90	11 52
5	CAL BLK	CCB		CCB	12/17/90	11 56
6	PB	PBW		PBW	12/17/90	12 00
7	PB	ASPBW		PBWA	12/17/90	12 04
8	LCSFW	LCSW	Furnace	LCSW	12/17/90	12:08
9	LCSFW	ASLCSW	Furnace	LCSWA	12/17/90	12 12
10	9011176-01	S	Furnace	01CWC	12/17/90	12·16
11	9011176-01	AS	Furnace	01CWCA	12/17/90	12.20
12	9011176-01	S2	Furnace	01CWCD	12/17/90	12·24
13	9011176-01	ASS2	Furnace	01CWCDA	12/17/90	12:28
14	9011176-02	S	Furnace	02CWC	12/17/90	12:32
15	9011176-02	AS	Furnace	02CWCA	12/17/90	12.36
16	50 PPB	CCV		CCV	12/17/90	12:40
17	CAL BLK	CCB		CCB	12/17/90	12:44
18	9011176-02	DS	Furnace	02CWCS	12/17/90	12·48
19	X	X		ZZZZZ	12/17/90	12.52
20	50 PPB	CCV		CCV	12/17/90	12 56
21	CAL BLK	CCB		CCB	12/17/90	13·00
22	PB	PBW		PBW	12/17/90	13:04
23	PB	ASPBW		PBWA	12/17/90	13 08
24	PB	PBW	Furnace	PBW	12/17/90	13:12
25	PB	ASPBW	Furnace	PBWA	12/17/90	13 16
26	50 PPB	CCV		CCV	12/17/90	13 20
27	CAL BLK	CCB		CCB	12/17/90	13.24
28	0 PPB	WS0		S0	12/17/90	11.15
29	5 PPB	WS1		S5	12/17/90	11:19
30	50 PPB	WS2		S50	12/17/90	11 23
31	100 PPB	WS3		S100	12/17/90	11.27

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 124 Instrument ID F_1, F_2, F_3, F_4, F_5 (F6) Page 1 of 1

Date: 12 17 90 Reviewed by: _____ Instruments Method #: 150

Operator: SP Standards Prepared: 12/17/90

Background. (BS) BD 8.00

Time Calibrated: 11:15 Standards Source:

1. Calibration: 10ppm
2. ICV: ICV-2(5/100)
3. CCV: 50ppb

disc # C'Drive F6

acq X

SKINNER AND SHERMAN

A		B
Run ID: 903502	9011176	Run ID: 903515
Element: (As) Pb		Element: (Se) Tl
Wavelength (nm): 1972		Wavelength (nm): 196
Slitwidth (nm): 2		Slitwidth (nm): 2
Integration Time (sec): 5		Integration Time (sec): 5
STD1: 0 STD2: 10		STD1: 0 STD2: 5
STD3: 50 STD4: 100		STD3: 50 STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CRA		
	4	CCV		
	5	CCB		
	6	✓ PBW		> rerun
	7	PBWA		
	8	✓ LSW		
	9	LSWA ✓		
	10	✓ O1		
	11	O1A ✓		
	12	✓ O1D		
	13	O1DA ✓		
	14	✓ O2		
	15	O2A ✓		
	16	CCV		
	17	CCB		
	18	✓ O2S		
	19	O2SA ✓		
	20	CCV		
	21	CCB		
	22	PBW		> rerun
	23	PBWA		200
So	24	5 ~~CCV~~ PBW		
only	25	12/17 ~~CCB~~ PBWA ✓		
	26	CCV		
	27	CCB		
	28			
	29			
	30			
	31			
	32			
	33			
	34			000165
	35			
	36			
	37			
	38			
	39			

Normal Calibration

RINSE

		As-S	Se-S
Standard C		STD 1 0/0	
Abs	1	[illegible]	[illegible]
Mean		[illegible]	[illegible]
F/H		[illegible]	[illegible]
Abs	2	[illegible]	[illegible]
Mean		[illegible]	[illegible]
F/H		[illegible]	[illegible]

AUTO ZERO
11:15 27
Mon 17 DEC 19[illegible]

		As-S	Se-S
Standard C		STD 2 10/5	
Abs	1	0.056	0.025
Mean		0.056	0.025
F/H		0.109	0.028
Abs	2	0.054	0.018
Mean		0.055	0.021
F/H		0.109	0.018
		As-S	Se-S
Mean		0.055	0.021
SD		0.001	0.005
RSD		02.54	23.80
		As-S	Se-S
Standard 1		STD 3 50/50	
Abs	1	0.187	0.168
Mean		0.187	0.168
F/H		0.305	0.268
Abs	2	0.187	0.171
Mean		0.187	0.169
F/H		0.300	0.279
		As-S	Se-S
Mean		0.187	0.169
SD		0.000	0.002
RSD		00.00	01.30
		As-S	Se-S
Standard 2		STD 4 100/100	
Abs	1	0.283	0.247
Mean		0.283	0.247
F/H		0.345	0.293
Abs	2	0.276	0.254
Mean		0.279	0.250
F/H		0.341	0.294
		As-S	Se-S
Mean		0.279	0.2[illegible]
SD		[illegible]	[illegible]
RSD		01.76	[illegible]

[illegible]

Instrument Code Fe
Run ID 035102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-2	ICV	1	1.00	17 DEC 90	11:40

	As-S	Se-S
Burn 1	50.76	51.91
Burn 2	49.46	50.06
Mean	50.11 =	50.98 =
RSD	01.83	02.56

002	CAL BL	ICB	1	1.00	17 DEC 90 11:44

	As-S	Se-S
Burn 1	00.61	00.43
Burn 2	01.15	00.39
Mean	00.88 =	00.41 =
RSD	43.29	06.82
Check	OK	OK

003	CRA	CRAO		1.00	17 DEC 90 11:48

	As-S	Se-S
Burn 1	11.50	05.39
Burn 2	11.77	04.96
Mean	11.63 =	05.17 =
RSD	01.64	05.88

004	50 PPB	CCV	1	1.00	17 DEC 90 11:52

	As-S	Se-S
Burn 1	50.95	41.96
Burn 2	50.48	52.94
Mean	50.71 =	47.45 =
RSD	00.65	16.36
Check	OK	OK

005	CAL BL	CCB	1	1.00	17 DEC 90 11:56

	As-S	Se-S
Burn 1	00.33	00.44
Burn 2	[illegible].68	-0[illegible].1[illegible]
Mean	[illegible] =	[illegible] =
RSD	[illegible]	DID NOT
Check	[illegible]	[illegible]

Instrument code [illegible]
Run ID 90351[illegible]E

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
[illegible] FB	FBW		1.00	17 DEC 90	12:00

	As-S	Se-S
Burn 1	-00.76	-00.[illegible]
Burn 2	00.37	-00.52
Mean	-00.20 =	-00.51 =
RSD	DIG HI	-04.31

KC 12/17/90
Rerun

007 FB	ASFBW	1.00	17 DEC 90	12:04

	As-S	Se-S
Burn 1	19.43	07.03
Burn 2	18.47	08.98
Mean	18.95 =	08.00 =
RSD	03.57	17.22
Sample value	1.00U	2.00U
Spike added	20.00	10.00
Spike recovery, %	94.8	80.0

008 LCSFW	LCSW	1.00	17 DEC 90	12:08

	As-S	Se-S
Burn 1	50.25	51.25
Burn 2	49.20	43.68
Mean	49.72 =	47.46 =
RSD	01.49	11.27

009 LCSFW	ASLCSW	1.00	17 DEC 90	12:12

	As-S	Se-S
Burn 1	65.56	52.59
Burn 2	65.58	58.34
Mean	65.57 =	55.46 =
RSD	0.02	07.32
Sample value	49.72	47.46
Spike added	20.00	10.00
Spike recovery, %	79.2	80.0

010 [illegible]	S	01 CWC 1[illegible]	1.00	17 DEC 90	12:16

	As-S	Se-S
	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
RSD	[illegible]	[illegible]

Instrument code F-
Run ID 9035102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
01	-01	AS	01 CWC 100	1.00	17 DEC 90	12:20

	As-S	Se-S
Burn 1	25.95	10.66
Burn 2	25.86	11.74
Mean	25.90 =	11.20 =
RSD	00.24	06.81
Sample value	2.52	2.52
Spike added	20.00	10.00
Spike recovery, %	116.9	86.8

012 -01	S2	01 CWC 10	1.00	17 DEC 90	12:24

	As-S	Se-S
Burn 1	02.29	01.34
Burn 2	01.86	-00.52
Mean	02.07 =	00.41 =
RSD	14.68	DIG HI

013 -01	ASS2	01 CWC 100	1.00x	17 DEC 90	12:28

	As-S	Se-S
Burn 1	29.48	11.10
Burn 2	26.24	09.76
Mean	27.86 =	10.43 =
RSD	08.22	09.07
Sample value	2.07	2.00U
Spike added	20.00	10.00
Spike recovery, %	129.0	104.3

014 -02	S	02CWC1003	1.00	17 DEC 90	12:32

	As-S	Se-S
Burn 1	02.45	-00.40
Burn 2	02.19	00.79
Mean	02.32 =	00.19 =
RSD	07.83	DIG HI

015 -02	AS	02CWC1 03A	1.0	17 DEC 90	12:36

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	7.9
[illegible]	[illegible] =	08.05 -
RSD	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		32.[illegible]

000070

Instrument Code F
Run ID 9 351 2

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
015 50 FFB	CC	2	1.00	17 DEC 90	12 40

	As-S	Se-S
Burn 1	52.09	51 56
Burn 2	51.55	49.74
Mean	51 82 =	50 65 =
RSD	00.73	02 53
Check	Ok	Ok

017 CAL BLK	CCB	2	1.00	17 DEC 90	12:44

	As-S	Se-S
Burn 1	-00.07	00.04
Burn 2	-00.46	-00.57
Mean	-00 27 =	-00.27 =
RSD	DIG HI	DIG HI
Check	Ok	Ok

018 -02	DS	02CWC1003S	1.00	17 DEC 90	12:48

	As-S	Se-S
Burn 1	48.17	09.12
Burn 2	49.10	09.78
Mean	48.63 =	09.45 =
RSD	01 35	04.93

019 X	X		1.00	17 DEC 90	12:52

	As-S	Se-S
Burn 1	79 39	17.20
Burn 2	77.66	15.60
Mean	78.52 =	16.40 =
RSD	01.55	06 89

KC 12/17/90

020 50 FFB	CCV	3	1.00	17 DEC 90	12:56

	As S	Se-S
Burn 1	51 20	50 29
Burn 2	49 23	53.9
Mean	50 1[illegible] =	52 09 =
RSD	04 [illegible]	04 99
Check		Ok

000071

Instrument code Fs
Run ID 9[illegible]351 2

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
021 CAL BLK	CCB	3	1.00	17 DEC 90	10:00

	As-S	Se-S
Burn 1	00.68	01.15
Burn 2	-00.04	-00.74
Mean	00.32 =	00.20 =
RSD	DIG HI	12.64
Check	CK	CK

022 FB	FBW		1.00	17 DEC 90	13.04

	As-S	Se-S
Burn 1	00.[illegible]	00.54
Burn 2	00.63	-02.00
Mean	00.34 =	-00.73 =
RSD	DIG HI	DIG HI

Rerun RSD
KC 12/17/90

023 FB	ASFBW		1.00	17 DEC 90	13:08

	As-S	Se-S
Burn 1	21.57	07.42
Burn 2	25.63	10.16
Mean	23.60 =	08.79 =
RSD	12.16	22.03 ***
Sample value	1.00U	2.00U
Spike added	20.00	10.00
Spike recovery, %	118.0	87.9

024 FB	FBW		1.00	17 DEC 90	13:12

	As-S	Se-S
Burn 1	00.41	00.1[illegible]
Burn 2	00.44	01.76
Mean	00.42 =	00.93 =
RSD	05.23	DIG HI

025 FB	ASFBW		1.00	17 DEC 90	13.16

	As-S	Se-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible]	[illegible] =
RSD	[illegible]	[illegible]
Sample value	[illegible]	2.[illegible]U
Spike added	[illegible]	1[illegible]
Spike recovery, %	[illegible]	[illegible]

000072

Instrument Code Fs
Run ID 9 351 2

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
026 50 PPB	CCV	4	1 0	17 DEC 90	13 20

	As-S	Se-S
Burn 1	50 85	53 [illegible]
Burn 2	49 53	51 08
Mean	50 1[illegible] =	52 4[illegible] =
RSD	01.85	03.79
Check	OK	OK

027 CAL BLK	CCB	4	1.00	17 DEC 90	13:24

	As-S	Se-S
Burn 1	00.27	00.79
Burn 2	-00.68	-01.07
Mean	-00.21 =	-00.14 =
RSD	DIG HI	DIG HI
Check	OK	OK

KC 12/17/90 END OF RUN

000073

Run id F1 9035102
FRMO JAPRFIL-ASH VTDFO 22E (#2486)
Element Pb

Acquired 12/17/90 by RPP
Crunched 12/19/90 by RPP
Time 1008
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	12/17/90	14 45
2	CAL BLK	ICB		ICB	12/17/90	14 50
3	CRA	CRA0		CRA	12/17/90	14 55
4	50 PPB	CCV		CCV	12/17/90	15 00
5	CAL BLK	CCB		CCB	12/17/90	15 05
6	PB	PBW	Furnace	PBW	12/17/90	15 10
7	PB	ASPBW	Furnace	PBWA	12/17/90	15 15
8	LCSFW	LCSW	Furnace	LCSW	12/17/90	15 20
9	LCSFW	ASLCSW	Furnace	LCSWA	12/17/90	15 25
10	9011176-01	S	Furnace	01CWC	12/17/90	15.30
11	9011176-01	AS	Furnace	01CWCA	12/17/90	15.35
12	9011176-01	S2	Furnace	01CWCD	12/17/90	15 40
13	9011176-01	ASS2	Furnace	01CWCDA	12/17/90	15·45
14	9011176-02	S	Furnace	02CWC	12/17/90	15.50
15	9011176-02	AS	Furnace	02CWCA	12/17/90	15.55
16	50 PPB	CCV		CCV	12/17/90	16:00
17	CAL BLK	CCB		CCB	12/17/90	16·05
18	9011176-02	DS	Furnace	02CWCS	12/17/90	16:10
19	X	X		ZZZZZ	12/17/90	16 15
20	X	X		ZZZZZ	12/17/90	16 24
21	X	X		ZZZZZ	12/17/90	16 29
22	X	X		ZZZZZ	12/17/90	16·34
23	X	X		ZZZZZ	12/17/90	16.39
24	X	X		ZZZZZ	12/17/90	16.44
25	X	X		ZZZZZ	12/17/90	16:49
26	50 PPB	CCV		CCV	12/17/90	16 54
27	CAL BLK	CCB		CCB	12/17/90	16.59
28	0 PPB	WS0		S0	12/17/90	14 19
29	3 PPB	WS1		S3	12/17/90	14 23
30	50 PPB	WS2		S50	12/17/90	14.27
31	100 PPB	WS3		S100	12/17/90	14 31

Run id F1 9035152
ERMO JARRELL-ASH VIDEO 22E (#2486)
Element Tl

Acquired 12/17/90 by RPP
Crunched 12/19/90 by RPP
Time 1009
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	12/17/90	14 45
2	CAL BLK	ICB		ICB	12/17/90	14 50
3	CRA	CRA0		CRA	12/17/90	14 55
4	50 PPB	CCV		CCV	12/17/90	15 00
5	CAL BLK	CCB		CCB	12/17/90	15 05
6	PB	PBW	Furnace	PBW	12/17/90	15.10
7	PB	ASPBW	Furnace	PBWA	12/17/90	15 15
8	LCSFW	LCSW	Furnace	LCSW	12/17/90	15 20
9	LCSFW	ASLCSW	Furnace	LCSWA	12/17/90	15 25
10	9011176-01	S	Furnace	01CWC	12/17/90	15 30
11	9011176-01	AS	Furnace	01CWCA	12/17/90	15·35
12	9011176-01	S2	Furnace	01CWCD	12/17/90	15 40
13	9011176-01	ASS2	Furnace	01CWCDA	12/17/90	15 45
14	9011176-02	S	Furnace	02CWC	12/17/90	15:50
15	9011176-02	AS	Furnace	02CWCA	12/17/90	15·55
16	50 PPB	CCV		CCV	12/17/90	16:00
17	CAL BLK	CCB		CCB	12/17/90	16.05
18	9011176-02	DS	Furnace	02CWCS	12/17/90	16.10
19	X	X		ZZZZZ	12/17/90	16 15
20	9011176-01	S	Furnace	01CWC	12/17/90	16·24
21	9011176-01	AS	Furnace	01CWCA	12/17/90	16·29
22	9011176-01	S2	Furnace	01CWCD	12/17/90	16:34
23	9011176-01	ASS2	Furnace	01CWCDA	12/17/90	16 39
24	9011176-02	S	Furnace	02CWC	12/17/90	16 44
25	9011176-02	AS	Furnace	02CWCA	12/17/90	16 49
26	50 PPB	CCV		CCV	12/17/90	16·54
27	CAL BLK	CCB		CCB	12/17/90	16·59
28	0 PPB	WS0		S0	12/17/90	14 19
29	10 PPB	WS1		S10	12/17/90	14 23
30	50 PPB	WS2		S50	12/17/90	14 27
31	100 PPB	WS3		S100	12/17/90	14 31

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 1315 Instrument ID: F1, F2, F3, F4, F5, F6 Page 1 of 1

Date: 12/17/90 Reviewed by: Instruments Method #: 160

Operator: KC Standards Prepared: 12/17/90

Background: BS BD 8:00

Time Calibrated: 14:19

Standards Source:

1. Calibration: 10ppm
2. ICV: ICV-4
3. CCV: 50ppB

disc # 20

acq

SKINNER AND SHERMAN

9011176

A		B	
Run ID:	9035102	Run ID:	9035152
Element:	As Pb	Element:	Se Tl
Wavelength (nm):	2833	Wavelength (nm):	2768
Slitwidth (nm):	1.0	Slitwidth (nm):	1.0
Integration Time (sec):	30	Integration Time (sec):	30
STD1: 0 STD2:	10	STD1: 0 STD2:	10
STD3: 50 STD4:	100	STD3: 50 STD4:	100

	COMMENTS	SAMPLE ID	DILUTION	COMMENTS
1		ICV		
2		ICB		
3		CRA		
4		CCV		
5		CCB		
6		PBW		
7		PBWA		
8		LCSW		
9		LCSWA		
10		01		>dil <40%
11		01A		
12		01D		>dil <40%
13		01DA		
14		02		>Dil <40%
15		02A		
16		CCV		
17		CCB		
18		~~OLD~~ 025		
19		~~OLDA~~ 025A		
20		01		
21		01A	>1:4	
22		01D		
23		01DA	>1:4	
24		02		
25		02A	>1:4	
26		CCV		
27		CCB		
28				
29				
30				
31				
32				
33				
34				000076
35				
36				
37				
38				
39				

Tl only

Normal Calibration

RINSE

		Pb-S	Tl-S
Standard Z STD 10/0			
Abs	1	0.003	0.003
Mean		0.003	0.003
P/H		0.003	0 001
Abs	2	0.001	0.001
Mean		0 002	0.002
P/H		0.003	0.000

AUTO ZERO
14 17 08
Mon 17 DEC 1990

		Pb-S	Tl-S
Standard C STD 23/10			
Abs	1	0.023	0.035
Mean		0.023	0.035
P/H		0.030	0.055
Abs	2	0.016	0.032
Mean		0.019	0.033
P/H		0.022	0.052
		Pb-S	Tl-S
Mean		0.019	0.033
SD		0.005	0.002
RSD		26.31	06.66

		Pb-S	Tl-S
Standard 1 STD 3 50/50			
Abs	1	0.243	0.169
Mean		0.243	0.169
P/H		0.365	0.261
Abs	2	0.242	0.166
Mean		0.242	0.167
P/H		0.331	0.247
		Pb-S	Tl-S
Mean		0.242	0.167
SD		0.001	0.002
RSD		00.41	01.31

		Pb-S	Tl-S
Standard 2 STD 4 100/100			
Abs	1	0.428	0.307
Mean		0.428	0.307
P/H		0.585	0.429
Abs	2	0.429	0.303
Mean		0.428	0.305
P/H		0.574	0.408
		Pb-S	Tl-S
Mean		0.428	0. 305
SD		0.001	0.003
RSD		00.23	00 91

CALIBRATE [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	00.00	[illegible]
[illegible]	03 00	0 019
1	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]
STD [illegible] [illegible]

000077

CALIBRATE 3

STD	CONC	MEAN
Z	00.00	0.000
C	10.00	0.033
1	50.00	0.167
2	99 99	0.305

APP CONC

STD Z	00.00
STD C	09 31
STD 1	50.29
STD 2	99.92

Instrument code F1
Run ID 9035102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV 4	ICV		2.00x	17 DEC 90	14 45

	Pb-S	Tl-S
Burn 1	51.72	49.92
Burn 2	51.55	48.52
Mean	51.64 =	49.22 =
RSD	00.24	02.00

002	CAL BLK	ICB		1.00x	17 DEC 90	14 50

	Pb-S	Tl-S
Burn 1	00.20	-00.85
Burn 2	-00.38	-00.41
Mean	-00.09 =	-00.63 =
RSD	DIG HI	-49.36
Check	OK	OK

003	CRA	CRAO		1.00x	17 DEC 90	14 55

	Pb-S	Tl-S
Burn 1	03.34	09.14
Burn 2	04.09	09.34
Mean	03.71 =	09.24 =
RSD	14.28	01.52

004	50 PPB	CCV		1.00x	17 DEC 90	15 00

	Pb-S	Tl-S
Burn 1	49.73	49.48
Burn 2	50.12	48.01
Mean	49.92 =	48.74 =
RSD	00.55	02.13
Check	OK	OK

005	CAL BLK	CCB		1.00x	17 DEC 90	15 05

	Pb-S	Tl-S
Burn 1	-00.34	-00.09
Burn 2	00.47	-00.35
Mean	00.06 =	-00.22 =
RSD	DIG HI	-83.18
Check	OK	OK

Instrument code F1
Run D 90C0102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	PB	PB		1.00x	17 DEC 90	15 10

	Pb-S	Tl-S
Burn 1	00 12	-00 36
Burn 2	-00 31	-00.31
Mean	-00.10 =	-00.59 =
RSD	DIG HI	-65 76

007	PB	ASPBW		1.00x	17 DEC 90 15 15

	Pb-S	Tl-S
Burn 1	19 04	18.43
Burn 2	17.69	16.31
Mean	18.36 =	17.37 =
RSD	05.19	08.62
Sample value	2 00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	91.8	86.8

008	LCSFW	LCSW		1.00x	17 DEC 90 15 20

	Pb-S	Tl-S
Burn 1	47.84	47.14
Burn 2	49.27	46.95
Mean	48.55 =	47.04 =
RSD	02.08	00.28

009	LCSFW	ASLCSW		1.00x	17 DEC 90 15 25

	Pb-S	Tl-S
Burn 1	68.44	67 30
Burn 2	68.69	65.38
Mean	68.56 =	66.34 =
RSD	00.25	02.04
Sample value	48.55	47.04
Spike added	20 00	20.00
Spike recovery, %	100.0	96 5

010	90111[illegible]-01	S	01 CWC 100	1.00x	17 DEC 90 15 30

	Pb-S	Tl-S
Burn 1	01 06	-00.51
Burn 2	01 40	00 [illegible]
[illegible]	01 [illegible]	-0[illegible]
[illegible]	[illegible]	-4[illegible]

Instrument code F1
Run ID 9025102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011	-01	A3	01 CWC 100	1 00x	17 DEC 90	15 35

	Pb-S	Tl-S
Burn 1	20 52	06.15
Burn 2	20 07	06 12
Mean	20.29 =	06 14 =
RSD	01 56	00 45
Sample value	2 00U	2.00U
Spike added	20 00	20.00
Spike recovery, %	101 4	30 7

012	-01	S2	01 CWC 100	1.00x	17 DEC 90	15 40

	Pb-S	Tl-S
Burn 1	01.01	-00.49
Burn 2	00.74	-00.55
Mean	00.87 =	-00 52 =
RSD	21.95	-08.07

013	-01	AS2	01 CWC 100	1.00x	17 DEC 90	15 45

	Pb-S	Tl-S
Burn 1	21.23	07.10
Burn 2	20.70	06.79
Mean	20.96 =	06.94 =
RSD	01 78	03.15
Sample value	2.00U	2.00U
Spike added	20 00	20.00
Spike recovery, %	104.8	34.7

014	-02	S	02CWC1003	1.00x	17 DEC 90	15 50

	Pb-S	Tl-S
Burn 1	01.17	-00.79
Burn 2	00.78	-00.93
Mean	00.97 =	-00.36 =
RSD	28 35	-11 39

015	-02	A3	02CWC1003A	1 00x	17 DEC 90	15 55

	Pb-S	Tl-S
Burn [illegible]	21 07	06.2[illegible]
Burn 2	20 [illegible]6	05 16
Mean	20 7[illegible] =	05 [illegible] =
RSD	[illegible]	[illegible]
Sample value	2 00U	2.00U
Spike added	20 00	20
Spike recovery, %	[illegible]	23 [illegible]

Instrument code F1
Run ID 9005102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
015	50 [illegible]	CCV 2		1.00	17 DEC 90	1[illegible] 0[illegible]

	Pb-S		Tl-S	
Burn 1	50.73		50.93	
Burn 2	51.07		48.90	
Mean	50.92	=	49.91	=
RSD	00.40		02.87	
Check		OK		OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
017	CAL BLK	CCB 2		1.00x	17 DEC 90	16 05

	Pb-S		Tl-S	
Burn 1	00.43		00.15	
Burn 2	00.40		00.09	
Mean	00.41	=	00.12	=
RSD	05.36		35.00	
Check		OK		OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
018	-02	DS	02CWC1003S	1.00x	17 DEC 90	16 10

	Pb-S		Tl-S	
Burn 1	20.52		17.64	
Burn 2	20.30		16.32	
Mean	20.41	=	16.98	=
RSD	00.75		05.49	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
019	X	X		1.00x	17 DEC 90	16 15

	Pb-S		Tl-S	
Burn 1	41.71		22.42	
Burn 2	39.75		23.53	
Mean	40.73	=	22.97	=
RSD	03.40		03.41	

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
020	-01	S	01 CWC 100	5.00x	17 DEC 90	16 24

	Pb-S		Tl-S	
Burn 1	01.61		-00.98	
Burn 2	00.74		-00.69	
Mean	01.17	=	-00.84	=
RSD	52.56		-24.40	

MS
12/17/90

Instrument code F1
Run ID P035102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
021	-01	AS	01 CWC 100	5.00x	17 DEC 90	16 [illegible]

	Pb-S	Tl-S
Burn 1	20.25	11.31
Burn 2	19.84	11.60
Mean	20.05 =	11.55 =
RSD	01.47	02.99
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	100.2	57.9

022	-01	S2	01 CWC 100	5.00x	17 DEC 90	16 34

	Pb-S	Tl-S
Burn 1	01.57	00.06
Burn 2	01.16	-00.30
Mean	01.36 =	-00.12 =
RSD	21.32	DIG HI

023	-01	AS2	01 CWC 100	5.00x	17 DEC 90	16 39

	Pb-S	Tl-S
Burn 1	19.63	11.01
Burn 2	20.08	10.56
Mean	19.85 =	10.78 =
RSD	01.60	02.94
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	99.2	53.9

024	-02	S	02CWC1003	5.00x	17 DEC 90	16 44

MS
12/7/90

	Pb-S	Tl-S
Burn 1	00.32	-00.40
Burn 2	00.21	-00.73
Mean	00.26 =	-00.57 =
RSD	30.00	-40.87

025	-02	A3	02CWC1003A	5.00x	17 DEC 90	16 47

	Pb-S	Tl-S
Burn 1	19.55	10.25
Burn 2	18.[illegible]	08.87
[illegible]	18.[illegible] =	09.[illegible] =
[illegible]	04.59	10.19
Sample value	2.00U	2.00U
Spike added	2[illegible]	20.00
Spike recovery, %	[illegible]	47.[illegible]

Instrument code F1
Run ID 9025102

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
026	50 PPB	CCV 3		1 00x	17 DEC 90	15 5

	Pb-S	Tl-S
Burn 1	50 17	49.74
Burn 2	49.74	47.26
Mean	49 95 =	48.50 =
RSD	00 60	03 61
Check	OK	OK

027	CAL BLK	CCB 3		1.00x	17 DEC 90	16 59

	Pb-S	Tl-S
Burn 1	-00.52	-00.30
Burn 2	00.03	-00.07
Mean	-00.25 =	-00.19 =
RSD	DIG HI	-85.26
Check	OK	OK

End of run
MS
12/7/90

901117b--MERCURY

Run id M1 9034503
TECHNICON MERCURY ANALYZER (#SS4199A-01

Element Hg

Acquired 12/11/90 [illegible]
Crunched 12/12/90 [illegible]
Time 1356
Processing protocol [illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	12/11/90	10 00
2	0 5 PPB	WS1		S0 5	12/11/90	10 03
3	1 0 PPB	WS2		S1 0	12/11/90	10 06
4	2 0 PPB	WS3		S2 0	12/11/90	10 09
5	5 0 PPB	WS4		S5 0	12/11/90	10 12
6	ICV-5	ICV		ICV	12/11/90	10 18
7	CAL BLK	ICB		ICB	12/11/90	10 21
8	2 0 PPB	CCV		CCV	12/11/90	10 24
9	CAL BLK	CCB		CCB	12/11/90	10 27
10	X	X		ZZZZZ	12/11/90	10 30
11	X	X		ZZZZZ	12/11/90	10.33
12	X	X		ZZZZZ	12/11/90	10 36
13	X	X		ZZZZZ	12/11/90	10·39
14	X	X		ZZZZZ	12/11/90	10 42
15	X	X		ZZZZZ	12/11/90	10 45
16	X	X		ZZZZZ	12/11/90	10 48
17	X	X		ZZZZZ	12/11/90	10 51
18	X	X		ZZZZZ	12/11/90	10 54
19	X	X		ZZZZZ	12/11/90	10 57
20	2 0 PPB	CCV		CCV	12/11/90	11.00
21	CAL BLK	CCB		CCB	12/11/90	11.03
22	X	X		ZZZZZ	12/11/90	11 06
23	X	X		ZZZZZ	12/11/90	11 09
24	X	X		ZZZZZ	12/11/90	11 12
25	X	X		ZZZZZ	12/11/90	11 15
26	X	X		ZZZZZ	12/11/90	11 18
27	X	X		ZZZZZ	12/11/90	11 21
28	X	X		ZZZZZ	12/11/90	11 24
29	X	X		ZZZZZ	12/11/90	11.27
30	X	X		ZZZZZ	12/11/90	11 30
31	X	X		ZZZZZ	12/11/90	11 33
32	2 0 PPB	CCV		CCV	12/11/90	11 36
33	CAL BLK	CCB		CCB	12/11/90	11 39
34	X	X		ZZZZZ	12/11/90	11 42
35	X	X		ZZZZZ	12/11/90	11 45
36	X	X		ZZZZZ	12/11/90	11 48
37	X	X		ZZZZZ	12/11/90	11 51
38	2 0 PPB	CCV		CCV	12/11/90	11 54
39	CAL BLK	CCB		CCB	12/11/90	11 57
40	X	X		ZZZZZ	12/11/90	12 00
41	X	X		ZZZZZ	12/11/90	12 03
42	X	X		-----	12/11/90	[illegible]
43	X			-----	[illegible]	[illegible]

Pos	Sample	Code	Preparation Method	Client ID		
44	X	X		ZZZZZ	12/11/90	12 12
45	X	X		ZZZZZ	12/11/90	12 15
46	X	X		ZZZZZ	12/11/90	12 18
47	X	X		ZZZZZ	12/11/90	12 21
48	X	X		ZZZZZ	12/11/90	12 24
49	2 0 PPB	CCV		CCV	12/11/90	12 27
50	CAL BLK	CCB		CCB	12/11/90	12 30
51	PB	PBW	Mercury	PBW	12/11/90	12 33
52	9011176-01	S	Mercury	01CWC	12/11/90	12 36
53	9011176-01	S2	Mercury	01CWCD	12/11/90	12 39
54	9011176-01	DS	Mercury	01CWCS	12/11/90	12 42
55	9011176-02	S	Mercury	02CWC	12/11/90	12 45
56	X	X		ZZZZZ	12/11/90	12 48
57	X	X		ZZZZZ	12/11/90	12 51
58	X	X		ZZZZZ	12/11/90	12 54
59	2 0 PPB	CCV		CCV	12/11/90	12 57
60	CAL BLK	CCB		CCB	12/11/90	13 00

9011176

SEQ NO: 214 SKINER MERCURY BENCH SHEET Pg 1 of 3

RUN IDS:

9034501 02 03 04 05 06

ANALYST 7

INSTR: M1(water) M2(soil)

METHOD: HG

WAVELENGTH 253.7 mm

CALIBRATION TIME 10:00

RUN DATE 12/11/90

STANDARDS PREPPED

DATE: 12/11/90

STANDARD SOURCE

CALIB: 10ppm Spex

ICV : ICV-5 CCV : 2ppb

		PK HT(mm)
01	BLANK	0
02	0.5 PPB	9
03	1.0 PPB	15
04	2.0 PPB	31
05	5.0 PPB	75

r=0.9997

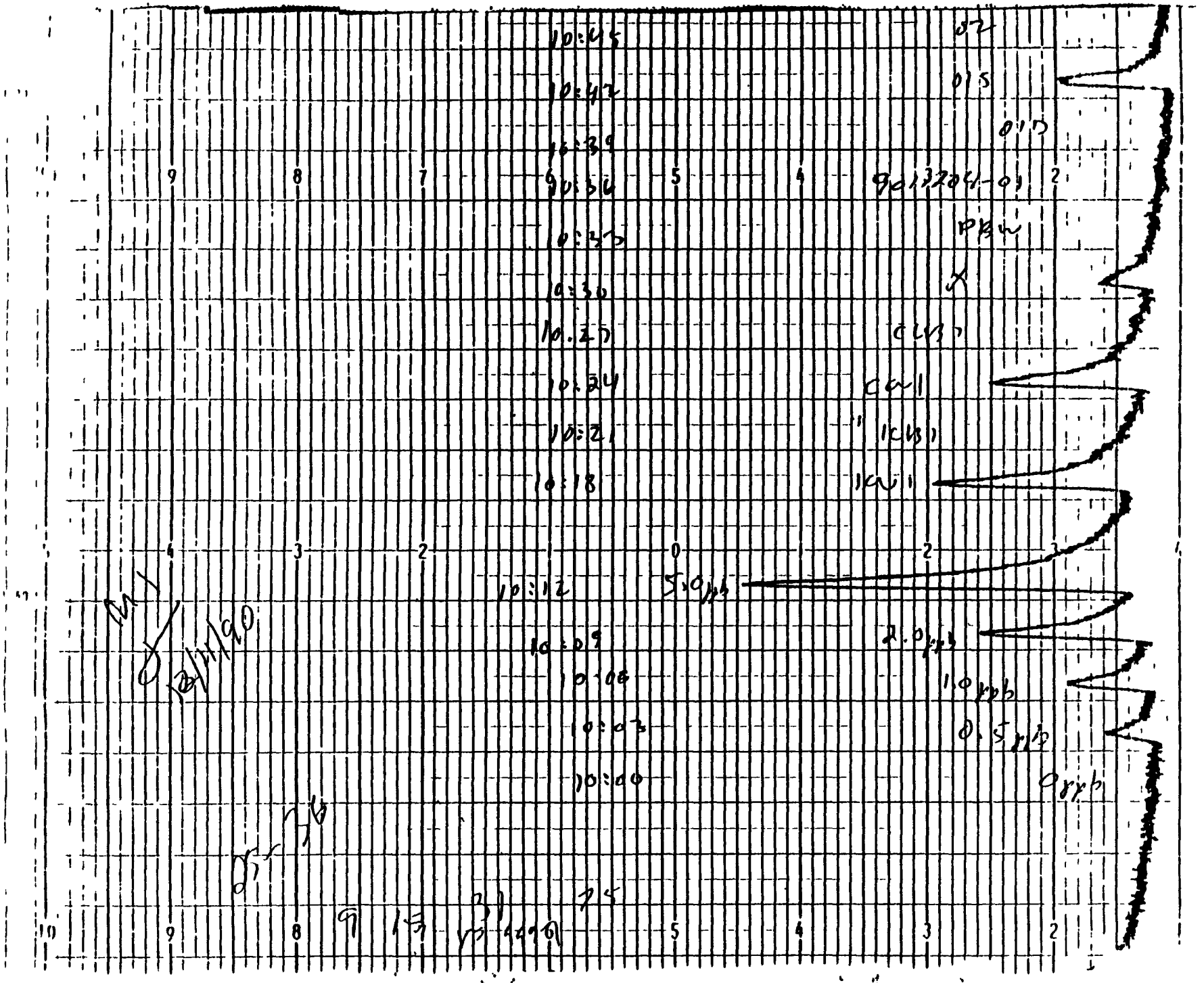
	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
06	ICV-5	ICV	37	2.44 x2 = 4.88	
07	CAL BLK	ICB	0	<0.20	
08	CCV1		29	1.90	
09	CCB1		0	<0.20	
10	X		X		
11	PBW		0	<0.20	
12	9011204-01	MCOE23	0		
13	010	230	0		
14	01s	235	20	1.30	
15	02	24	0	<0.20	
16	03	25	0		
17	04	26	0		
18	05	27	0		
19	06	28	0		
20	CCV2		30	1.97	
21	CCB2		0	<0.20	
22	07	29			
23	08	31			
24	09	32			
25	10	33			
26	11	34			
27	12	35			
28	13	36			
29	14	37			
30	15	38			
31	16	20			
32	CCV3		30	1.97	
33	CCB3		0	<0.20	
34	17	40			
35	18	41			
36	19	42			
37	=	=			
38	CCV4		30	1.97	
39	CCB4		0	<0.20	

0)

SEQ NO: _____

Skinner & Sherman Labs
COLD VAPOUR ATOMIC ABSORPTION
MERCURY BENCH SHEET

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
40	G011133-01		3	<0.20	
41	02		2		
42	G011136-01		0		
43	G011137-01		2		
44	02		3		
45	03		0		
46	04		0		
47	04R		0		
48	04C		24	1.36	
49	CAL 4		29	1.90	
50	CAL 5		0	<0.20	
51	PBW		0		
52	G011176-01	DICW001	2		
53	01R	001D	0		
54	01C	001C	24	1.36	
55	02	003	0	<0.20	
56	G011145-01	1.6	0		
57	01		0		
58	01C		12	0.76	
59	CAL 6		25	1.63	
60	CAL 6		0	<0.20	
61	G011161-01		0	<0.20	
62	01C		15	0.96	
63	02		0	<0.20	
64	03		2		
65	G011178-01		0		
66	02				
67	03				
68	04				
69	CAL 7		28	1.83	
70	CAL 7		0	<0.20	
71	PBW		0		
72	G011172-01	MDZ001	0		
73	02	MDZ003	50	3.98	
74	03	003	0	<0.20	
75	07	008	0		
76	07R	008S	0		
77	07C	008D	12	0.73	
78	16	021	0	<0.20	
79	CAL 8		30	1.97	
80	CAL 8		0	<0.20	
81	PBW		0		
82	G011[illegible]	MDX[illegible]	0		
83	[illegible]	[illegible]	7	[illegible]	
84	[illegible]	[illegible]	0	[illegible]	
85	[illegible]	[illegible]	0	[illegible]	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10:42
10:39
10:36
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5.0 μg
2.0 μg
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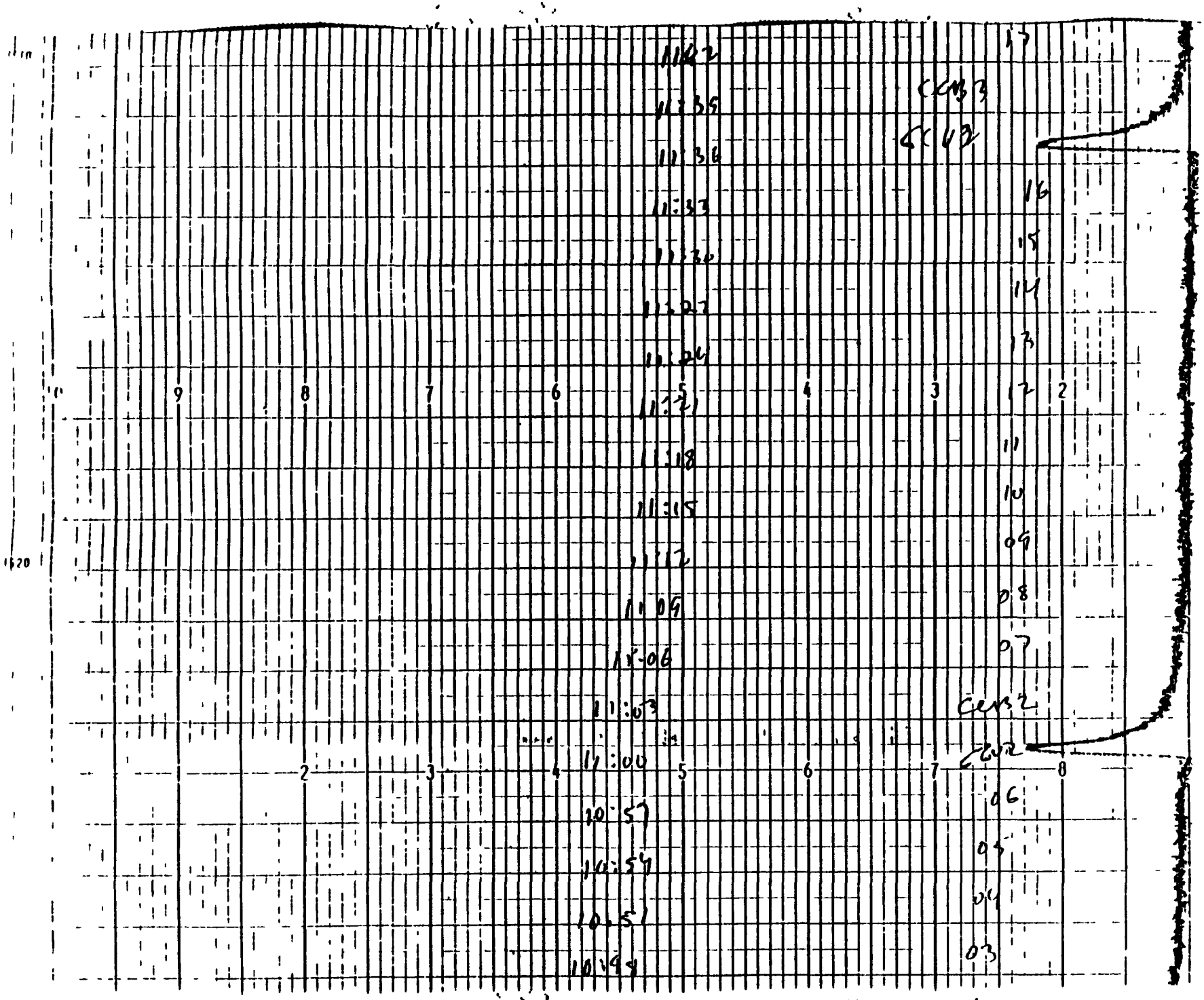
0.5 μg
0 μg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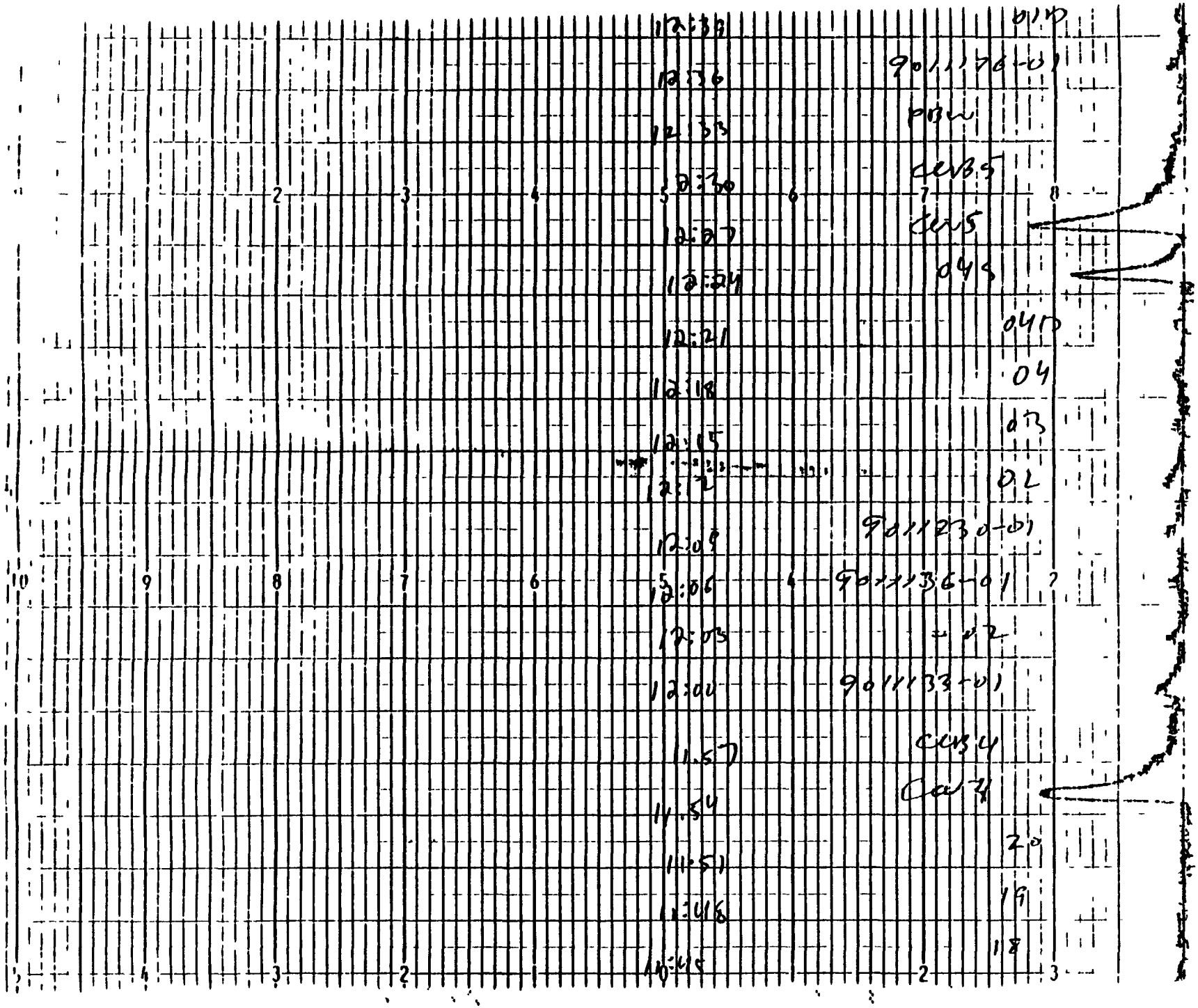
CCM2



12:39
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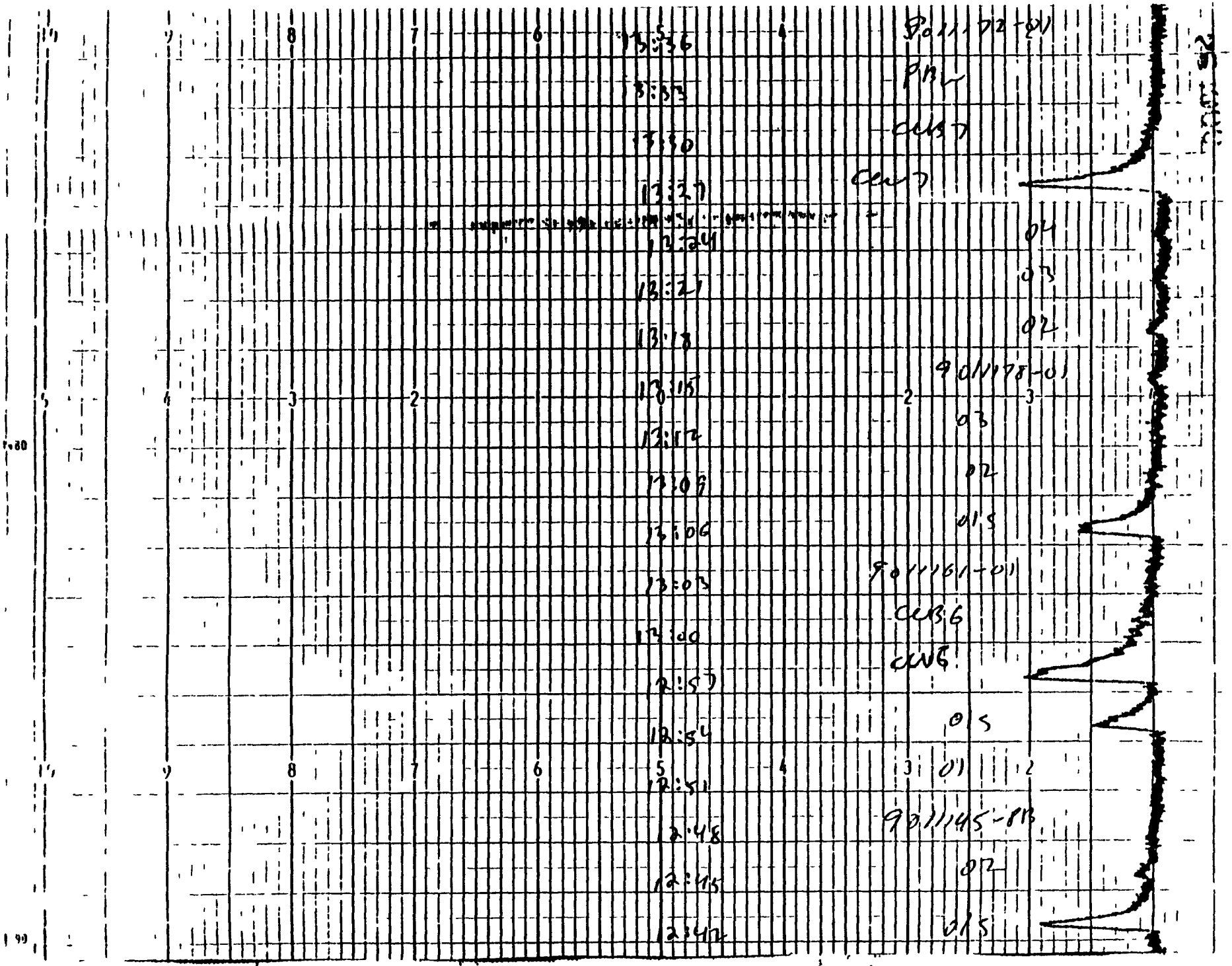
9011176-01
PBW
CCB5
CCW5
04S
04D
04
03
02
9011230-01
9011136-01
02
9011133-01
CCB4
CCW4
20
19
18



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12:48
12:45
12:42
9011172-01
PBW
CUB7
CUV7
04
03
02
9011178-01
03
02
01S
9011161-01
CUB6
CUV6
01S
01
9011145-PB
02
01S

SAMPLE PREPARATION REPORT AQUEOUS

Prep Batch 1 1

Page

Date 12/13/90

Approved KD 12/18/90

Sample identification			Digest 1		Digest 2		Digest 3		Mercury		Digest 4	
Client ID	Sample ID	Lab code	Initial vol ml	Final vol ml	Initial vol, ml	Final vol ml	Initial vol ml	Final vol ml			Initial vol ml	Final vol ml
01CWCS	9011176-01	DS					100 0	100				
01CWC	9011176-01	S	100 0	100	100 0	100	100 0	100				
01CWCD	9011176-01	S2	100 0	100	100 0	100	100 0	100				
02CWCS	9011176-02	DS	100 0	100	100 0	100						
02CWC	9011176-02	S	100 0	100	100 0	100	100 0	100				
	LCSFW	LCSW	100 0	100								
	LCSPW	LCSW			100 0	100						
	PB	PBW	100 0	100	100 0	100	100 0	100				

AMPLE PREPARATION REPORT, AQUEOUS

Page

Prep batch 11[illegible]

Date 12/18/90

Approved KDJ 12/18/90

Sample identification				Digest 1			Digest 2			Digest 3 Mercury			Digest 4		
Sample ID	Lab code	pH	pH(CN)	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution
9011176-01	DS	2 0								12/11/90	KDJ	1 00			
9011176-01	S	2 0		12/14/90	KDJ	1 00	12/14/90	KDJ	1 00	12/11/90	KDJ	1 00			
9011176-01	S2	2 0		12/14/90	KDJ	1 00	12/14/90	KDJ	1 00	12/11/90	KDJ	1 00			
9011176-02	DS	2 0		12/14/90	KDJ	1 00	12/14/90	KDJ	1 00	~~12/18/90~~	~~KDJ~~				
9011176-02	S	2 0		12/14/90	KDJ	1 00	12/14/90	KDJ	1 00	12/11/90	KDJ	1 00			
LCSFW	LCSW			12/14/90	KDJ	1 00									
LCSPW	LCSW						12/14/90	KDJ	1 00						
PB	PBW			12/14/90	KDJ	1 00	12/14/90	KDJ	1 00	12/11/90	KDJ	1 00			

PJ 12/19

DATE 12/14/90 ANALYST MF FOR GFAA/ICP

DATE 12/14/90 ANALYST KDJ FOR MERCURY

SKINNER & SHERMAN

WATERS PREP LOG

PREP BATCH # 101

REVIEWED BY 12/17

LCS SOURCE		Digest 1 (GFAA)		Digest 2 (ICP)			Digest 3 (Hg)	Description Color Clarity
Client ID	Lab ID	Initial Vol(ml)	Final Vol(ml)	Initial Vol(ml)	Final Vol(ml)	pH	Initial Vol(ml)	
Woodward Nor	9011176-01	100	100	100	100	2.0	100	Colorless, clear
	01.Sc							
	02							
	02:DS							
	LCSW						100	
	MB						100	Colorless clear
	01 DS							

(1)

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

STANDARD PREPARATION LOG

STANDARD IDENTITY: STANDARD B

DATE PREPARED: 12/4/90
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

Reprepped 12/10/90

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

000096

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

(2)

STANDARD PREPARATION LOG

STANDARD IDENTITY: STANDARD 1

DATE PREPARED: 12/4/90
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-1	1000 ppm	5 ml	5 ppm
As	MVAs-3	1000 ppm	5 ml	5 ppm
Ba	MVBa-2	1000 ppm	5 ml	5 ppm
Be	MVBe-2	1000 ppm	1 ml	1 ppm
Cd	MVCd-2	1000 ppm	5 ml	5 ppm
Cr	MVCr-2	1000 ppm	5 ml	5 ppm
Co	MVCo-2	1000 ppm	5 ml	5 ppm
Cu	MVCu-2	1000 ppm	5 ml	5 ppm
Pb	MVPb-2	1000 ppm	5 ml	5 ppm
Mn	MVMn-1	1000 ppm	5 ml	5 ppm
Ni	MVNi-1	1000 ppm	5 ml	5 ppm
Se	MVSe-2	1000 ppm	5 ml	5 ppm
Tl	MVTl-2	1000 ppm	5 ml	5 ppm
V	MVV-2	1000 ppm	5 ml	5 ppm
Zn	MVZn-2	1000 ppm	5 ml	5 ppm
Ti	MVTi-1	1000 ppm	5 ml	5 ppm

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

000097

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

(3)

STANDARD PREPARATION LOG

STANDARD IDENTITY: STANDARD 2

DATE PREPARED: ~~11/28/90~~ 11/29/90
PREPARED BY: SRP

FINAL VOLUME: 1000 ml

MATRIX: 2 %HNO3
___ %HCl
___ Other

MLS ADDED: 20 HNO3
___ HCl
___ Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Ag			1000 ppm	1 ml	4.0 ppm

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

0000098

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

(4)

STANDARD PREPARATION LOG

STANDARD IDENTITY: STANDARD 3

DATE PREPARED: 12/4/90
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
AL	MVAl-2	10,000 ppm	5 ml	50 ppm
Ca	MVCa-2	10,000 ppm	5 ml	50 ppm
Fe	MVFe-2	10,000 ppm	3 ml	30 ppm
Mg	MVMg-2	10,000 ppm	5 ml	50 ppm
K	MVK-2	10000 ppm	50 ml	50 ppm
Na	MVNa-3	10000 ppm	50 ml	50 ppm

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

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

(5)

STANDARD PREPARATION LOG

STANDARD IDENTITY: Initial Calibration Verification Solutions

DATE PREPARED: 12/13/90
PREPARED BY: SRP

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	-29		20ml → 200ml	
b) ICV-2	QCICV3	-41		20ml → 100ml	
c) ICV-3	QCICV3	-17		20ml → 200ml	

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

000100

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

(6)

STANDARD PREPARATION LOG

STANDARD IDENTITY: Interference Check Sample Solutions

DATE PREPARED: 12/4/90
PREPARED BY: SRP

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	-40		20 ml →	200 ml
b) ICSAB	QCICSA	-40		20 ml →	200 ml
	QCICSB	-23		20 ml →	

Reprepared 12/10/90

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

000101

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

(7)

STANDARD PREPARATION LOG

STANDARD IDENTITY: 2 x Contract Required Detection Limit Solution

DATE PREPARED: 12/5/90
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-1	1000 ppm	120 ul	120 ppb
As	MVAs-3	1000 ppm	50 ul	50 ppb
Be	MVBe-2	1000 ppm	10 ul	10 ppb
Cd	MVCd-2	1000 ppm	10 ul	10 ppb
Cr	MVCr-2	1000 ppm	20 ul	20 ppb
Co	MVCo-2	1000 ppm	100 ul	100 ppb
Cu	MVCu-2	1000 ppm	50 ul	50 ppb
Pb	MVPb-2	1000 ppm	50 ul	50 ppb
Mn	MVMn-1	1000 ppm	30 ul	30 ppb
Ni	MVNi-1	1000 ppm	80 ul	80 ppb
Se	MVSe-2	1000 ppm	100 ul	100 ppb
V	MVV-2	1000 ppm	100 ul	100 ppb
Tl	MVTl-2	1000 ppm	500 ul	500 ppb
Ag	MVAg-2	1000 ppm	20 ul	20 ppb
Zn	MVZn-2	1000 ppm	40 ul	40 ppb
Ti	MVTi-1	1000 ppm	100 ul	100 ppb

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

000102

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

(8)

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

STANDARD IDENTITY: Continuing Calibration Verification Solution (HalfSTD)

DATE PREPARED: 12/4/90
PREPARED BY: SRP

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			1000 ppm	250 ul	

Reprepped 12/10/90
Reprepped 12/13/90

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

000103

FEDERAL EXPRESS

USE THIS AIRBILL FOR DOMESTIC SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238 5355 TOLL FREE

AIRBILL
PACKAGE TRACKING NUMBER 7578275725

7578275725

RECIPIENT'S COPY

Date 11/14/90

1 From (Your Name) Please Print: [illegible]
Your Phone Number (Very Important): (303) 279-1157
Company: [illegible] Federal Express
Department/Floor No:
Street Address: [illegible]
City: [illegible] State: CO ZIP Required: 80403

2 To (Recipient's Name) Please Print: Sample Recipient
Recipient's Phone Number (Very Important): [illegible]
Company: TMA - Stanley/[illegible]
Department/Floor No:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 300 Second Ave
City: Waltham State: MA ZIP Required: [illegible]

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)

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

4 IF HOLD FOR PICK-UP Print FEDEX Address Here
Street Address
City State ZIP Required

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER
12 [ ] FEDEX PAK
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER
52 [ ] FEDEX PAK
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
30 [ ] ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
70 [ ] HEAVYWEIGHT **
80 [ ] DEFERRED HEAVYWEIGHT **

† Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments)
5 [ ] CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
6 [ ] DRY ICE
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ] STATION
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE	OVER SIZE
4	1.7	8000	
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only) [ ] lbs.

Received At
1 [ ] Regular Stop 3 [ ] Drop Box 4 [ ] BSC
2 [ ] On-Call Stop 5 [ ] Station

FedEx Emp. No.

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 11/15/90 FedEx Employee Number 9-30
Release Signature:
Date/Time

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/89
PART #119500 SRCEF 4/90
FORMAT #014

014

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000104

FEDERAL EXPRESS

QUESTIONS? CALL 800 238 5355 TOLL FREE

AIRBILL PACKAGE TRACKING NUMBER 9727723224

9727723224

RECIPIENT'S COPY

Date 11/21/92

1 From (Your Name) Please Print: [illegible]

Your Phone Number (Very Important): (43) [illegible]

Company: [illegible] Service

Department/Floor No:

Street Address: [illegible]

City: [illegible] State: CO ZIP Required: [illegible]

2 To (Recipient's Name) Please Print: [illegible]

Recipient's Phone Number (Very Important): (617) [illegible]

Company: [illegible] Department/Floor No:

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

City: Waltham State: Mass ZIP Required: [illegible]

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): [illegible]

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

H IF HOLD FOR PICK UP Print FEDEX Address Here

Street Address

City State ZIP Required

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)

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

Standard Overnight Service (Delivery by next business afternoon†)

- 51 [ ]
- 56 [ ] FEDEX LETTER
- 52 [ ] FEDEX PAK
- 53 [ ] FEDEX BOX
- 54 [ ] FEDEX TUBE

Economy Two Day Service (formerly Standard Air) (Delivery by second business day†)

- 30 [ ] ECONOMY TWO DAY SVC

Heavyweight Service (for Extra Large or any package over 150 lbs)

- 70 [ ] HEAVYWEIGHT *
- 80 [ ] DEFERRED HEAVYWEIGHT *

† Delivery commitment may be later in some areas

*Declared Value Limit $100

**Call for delivery schedule

DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK UP (If it is in Box H)

2 [X] 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 (If offered) (Extra charge)

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE
1	26	2000
Total	Total	Total
1	26	

DIM SHIPMENT (Chargeable Weight) [ ] lbs.

Received At: 1 [ ] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

FedEx Emp. No. 758 [illegible]

Emp. No. Date

[ ] Cash Received

[ ] Return Shipment

[ ] Third Party [X] Chg To Del [ ] Chg To Hold

Street Address

City State Zip

Received By: X [illegible]

Date/Time Received: 11/21/92 FedEx Employee Number: 9:30

5 Release Signature:

Date/Time: [illegible] 1510

Federal Express U

Base Charges

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 8/90 PART #119500 CBFE FORMAT #041

041

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000105

See Sample # Ø2CWC1ØØ3, COC #ØØ5 at TMA/Norcal for Radionuclide Assay

Woodward-Clyde Consultants
Stanford Place 3 Suite 1000 4582 South Ulster Street Parkway
Denver Colorado 80237 (303) 694 2770

Chain of Custody Record
COC # ØØ6

PROJECT NO: 22558 Task 500

SAMPLERS: (Signature) BR Clow

DATE	TIME	SAMPLE NUMBER	Metals	Wet Chem.*	NO_3/NO_2					NUMBER OF CONTAINERS
11/20/90	1100	Ø2CWC1ØØ3	X	X	X					3

BR Clow 11/20/90

REMARKS (Sample preservation handling procedures etc.)

For TMA-Skinner/Sherman

Matrix – Water

All samples stored on ice

*Wet Chem: Cl^-, F^-, Carb/bicarb, pH, Sulfate, TDS, TSS, Conductivity

– Metals preserved w/ HNO_3 to pH<2

– NO_3/NO_2 preserved w/ H_2SO_4 to pH<2

Contact personnel
Brian Clow
(303) 279-4501 x205

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
BR Clow	11/20/90 1700				

METHOD OF SHIPMENT	SHIPPED BY (Signature)	COURIER (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
Fed Ex	[signature]		[signature]	11/21/90 9 30

AB 11/21/90

see Sample No. 01CWC1001, COC# 001 or TMA/Norcal for Rad. S

Woodward-Clyde Consultants
Stanford Place 3 Suite 1000 4582 South Ulster Street Parkway
Denver Colorado 80237 (303) 694-2770

Chain of Custody Record
COC # 002

PROJECT NO. 22558 Task 500

SAMPLERS (Signature) BR Clow

DATE	TIME	SAMPLE NUMBER	Metals	Major Ions*	Nitrate/Nitrite					NUMBER OF CONTAINERS
11/13/90	1135	01CWC1001	1	1	1					3

BR Clow 11/14/90

TOTAL NUMBER OF CONTAINERS

REMARKS (Sample preservation handling procedures, etc.)
For TMA-Skinner/Sherman

Matrix - Water

All samples stored on ice

*Major Ions:
Chloride
Flouride
Carbonate/Bicarbonate
pH
Sulfate
T.D.S.
T.S.S.
Conductivity

- Metals preserved w/ HNO_3 to pH<2
- NO_3/NO_2 preserved w/ H_2SO_4 to pH<2

Contact personnel:
Brian Clow
(303) 279-4501 x205

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
BR Clow	11/14/90 1700				

METHOD OF SHIPMENT	SHIPPED BY (Signature)	COURIER (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
Fed Ex			[illegible]	11/14/90

Mixed Waste Work Plan

Lab I.D. Ø1cwc1ØØ1 Date 11/16/90

Customer Woodward Clyde

Chemist Floyd Prg Mgr DMS

Copy of Data Sheet attached ☑

or complete the following: Sample Type Water

Anlys Req'd Gross α, β

Describe radioactivity levels and nuclides

Source of information: customer ☐ Activity check ☒

No activity above background

Maximum aliquots allowed in uncontrolled area (if applicable)

Treat as Non-radioactive.

Proposed Processing

Treat as non-radioactive

000108

Approval [signature] Date 11-16-90

TS-125

TMA
Thermo Analytical Inc

Skinner & Sherman Laboratories Inc
300 Second Avenue
Post Office Box 521
Waltham MA 02254 0521
(617) 890 7200

Federal Express 9295313064

February 6, 1991

TMA/NORCAL
7030 Wright Avenue
Richmond, CA 94801-0040

Attention: Dan Stuermer

Quality Control Narrative

Scope

One water sample was submitted to TMA/Skinner & Sherman Labs from TMA/Norcal. The samples were taken by Woodward-Clyde Consultants on November 28, 1990 under Project Number 22558, Task 500. The client requested that the samples be analyzed for the USEPA CLP Target Analyte List metals. The analysis were performed under Skinner and Sherman work order 9011263.

Methodology

The samples were prepared and analyzed in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788), Exhibit D. The data is reported in accordance with CLP SOW788, Exhibit B. Quality control requirements are specified in Exhibit E of the SOW788.

Discussion

All quality control requirements were met for the samples with the following exceptions.

The thallium matrix spike recovery exceded the control limit. The low recovery of the analytical spike on the sample as well as the digestion spike indicates the presence of an matrix interference.

The sample received an "E" flag for thallium due to less than 40% recovery on the sample run both diluted and undiluted.

The mercury digeston spike was out of the control limits.

The ICP serial dilution for zinc did not meet control limit requirements it therefore received an "E" flag.

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

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES

David Peterson
Assistant Laboratory Manager

TMA/SKINNER AND SHERMAN LABORATORIES, INC.
RAS INORGANIC COMPLETENESS CHECKLIST

CASE NUMBER: INADWAND SDG NUMBER: 03CWC WORK ORDER NUMBER: 9011263

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Approved by: [signature] Date: 2/6/91

WOODWARD-CLYDE CONSULTANTS
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward CSAS No SDG No 03CWC

SOW No 7/88

SAMPLE NUMBER	Lab Sample ID
03CWC	11263-01S
03CWCD	11263-01S2
03CWCS	11263-01DS

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 diskette has been authorized by the Laboratory Manager or his designee as verified by the following signature.

Signature [illegible] Name David N. Peterson

Date 1/24/91 Title Asst. Laboratory Director

000001

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

03CWC

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Matrix (soil/water) WATER Lab Sample ID 11263-019

Level (low/med) LOW Date Received 11/29/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	38.30	B		P
7440-36-0	Antimony	24.00	U		P
7440-38-2	Arsenic	2 00	U		F
7440-39-3	Barium	209 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	3 00	U		P
7440-70-2	Calcium	116000 00			P
7440-47-3	Chromium	6 00	U		P
7440-48-4	Cobalt	4 00	U		P
[illegible]	[illegible]	15 10	B		P
[illegible]	Iron	20 00	U		P
[illegible]	Lead	3 00	B		F
[illegible]	Magnesium	31600 00			P
[illegible]	Manganese	15 00			P
[illegible]	Mercury	0 20	U	N	CV
[illegible]	Nickel	6 00	U		P
[illegible]	Potassium	2050 00	B		P
[illegible]	Selenium	3 00	U		F
7440-22-4	Silver	5 00	U		P
[illegible]	Sodium	37300 00			P
7440-28-0	Thallium	10 00	U	NE	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	318 00		E	P
	Cyanide				NR

[illegible] COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

[illegible]

[illegible] IN

[illegible]DWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

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
Aluminum	2172 0	2085 90	96 0	25000 0	23844.00	95 4	24082 00	96.3	P
Antimony	978 0	1006 30	102 9	2500.0	2435 30	97 4	2486 80	99.5	P
Arsenic	47 4	47 62	100 5	50 0	49.56	99 1	49 36	98 7	F
Barium	2041 0	1977 10	96 9	2500 0	2393 10	95 7	2410 00	96 4	P
Beryllium	510 0	483 77	94 9	500 0	485 30	97 1	492 65	98 5	P
Cadmium	499 0	479 95	96 4	2500 0	2331 40	93 3	2439 90	97 6	P
Calcium	51519 0	49012 00	95 1	25000 0	24001 00	96 0	24[illegible]15 00	98 5	F
Chromium	[illegible]	[illegible]	[illegible]	2500 0	2361 40	94 5	2409 30	96 [illegible]	P
Cobalt	520 0	[illegible]	[illegible]	2500 0	2353 10	94 3	2410 30	96 4	P
Copper	515 0	[illegible]	[illegible]	2500 0	2361 [illegible]	[illegible]	[illegible]	[illegible]	P
Iron	2044 0	[illegible]	[illegible]	10000 0	9684 50	96 8	[illegible]	[illegible]	P
Lead	[illegible]	[illegible]	102 3	50 0	48 30	97 6	48 34	96 1	F
Magnesium	25745 0	25145 00	97 7	25000 0	24183 00	96 7	24443 00	97 [illegible]	P
Manganese	[illegible]	[illegible]	[illegible]	2500 0	2353 40	94 3	[illegible]	[illegible]	P
Mercury	5 0	5 10	102 0	2 0	2 01	100 5	2 0[illegible]	104 0	C
Nickel	497 0	476 16	95 8	2500 0	2347 50	93 9	2394 90	95 8	P
Potassium	52068 0	51060 00	98 1	25000 0	24013 00	96 1	24209 00	96 8	P
Selenium	52 5	50 17	95 4	50 0	50 46	100 9	53 54	107 1	F
Silver	498 0	491 35	98 7	500 0	477 98	95 6	482 35	96 5	P
Sodium	51368 0	51611 00	100 5	25000 0	24047 00	96 2	24076 00	96 3	P
Thallium	97 0	102 21	105 4	50 0	51 20	102 4	50 24	100 5	F
Vanadium	507 0	439 52	96 6	2500 0	2387 20	95 5	2420 70	96 8	P
[illegible]	[illegible]	[illegible]	[illegible]	2500 0	2472 10	[illegible]	[illegible]	100 [illegible]	[illegible]
[illegible]									F

[illegible]

00[illegible]

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No. SDG No 03CWC

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
Aluminum				25000.0	23808 00	95.2			P
Antimony				2500 0	2405.40	96 2			P
Arsenic									NR
Barium				2500 0	2400 80	96 0			P
Beryllium				500 0	475.66	95.1			P
Cadmium				2500 0	2289 90	91 6			P
Calcium				25000 0	23179 00	92 7			P
Chromium				2500 0	2309 20	92 4			P
Cobalt				2500 0	2295 00	91 8			P
Copper				2500 0	2371 50	94 8			P
Iron				10000 0	9500 60	95 0			P
Lead									NR
Magnesium				25000 0	24008 00	96 0			P
Manganese				2500 0	2312 40	92 5			P
Mercury									NR
Nickel				2500 0	2291 60	91 7			P
Potassium				25000 0	24047 00	96 2			P
Selenium	52 6	49 16	93 5	50 0	47 39	94 0	51 50	103 5	F
Silver				500 0	473 86	94 8			P
Sodium				25000 0	24129 00	96 5			P
Thallium	97 0	97 89	100 9	50 0	48 32	96 6	49 33	98 7	F
Vanadium				2500 0	2347 40	93 9			P
Zinc				2500 0	2439 40	97 6			P
[illegible]									NR

[illegible]

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[illegible]

WOODWARD-CLYDE CONSULTANTS

2B
CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

AA CRDL Standard Source SKINER

ICP CRDL Standard Source SKINER

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony				120.0	123.18	102.6	124.50	103.8
Arsenic	10.0	8.59	85.9					
Barium								
Beryllium				10.0	10.11	101.1	9.83	98.3
Cadmium				10.0	10.08	100.8	10.31	103.1
Calcium								
Chromium				20.0	17.29	86.4	14.82	74.1
Cobalt				100.0	96.77	96.7	92.3	92.3
Copper				50.0	47.95	95.9	43.60	87.4
Iron								
Lead	3.0	4.81	160.3					
Magnesium								
Manganese				30.0	29.47	98.2	28.95	96.5
Mercury								
Nickel				80.0	76.92	96.2	74.58	93.2
Potassium								
Selenium	5.0	5.77	115.4					
Silver				20.0	25.51	127.6	21.15	105.8
Sodium								
Thallium	10.0	9.58	95.8					
Vanadium				100.0	96.52	96.5	94.0[illegible]	[illegible]
Zinc				40.0	39.[illegible]	[illegible]	39.[illegible]	[illegible]

000035

WOODWARD-CLYDE CONSULTANTS

2B
CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

AA CRDL Standard Source SKINER

ICP CRDL Standard Source

Concentration Units ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
[illegible]								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5 0	5 72	114 4					
Silver								
Sodium								
Thallium	10 0	9 86	98 6					
[illegible]								
[illegible]								

WOODWARD-CLYDE CONSULTANTS

3

BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	26 0	U	47 9	B	28 8	B	60 0	B	26 0	U	P
Antimony	24 0	U	24 0	U	24 0	U	24.0	U	24.0	U	P
Arsenic	2 0	U	2 0	U	2 0	U			2 0	U	F
Barium	2 0	U	2 0	U	2 0	U	2 0	U	2 0	U	P
Beryllium	1 0	U	1 0	U	1 0	U	1 0	U	1 0	U	P
Cadmium	3 0	U	3 0	U	3 0	U	3 0	U	3 0	U	P
Calcium	10 0	U	43 4	B	42 3	B	43 6	B	[illegible]	B	P
Chromium	6 0	U	6 0	U	6 0	U	6 0	U	6 0	U	P
Cobalt	4 0	U	4 0	U	4 0	U	4 0	U	4 0	U	P
Copper	3 0	U	3 0	U	3 0	U	3 0	U	3 0	U	P
Iron	20 0	U	20 0	U	20 0	U	20 0	U	20 0	U	P
Lead	2 0	U	2 0	U	2 0	U			2 0	U	F
Magnesium	30 0	U	35 7	B	30 0	U	43 8	B	60 4	B	P
Manganese	2 0	U	2 6	B	2 4	B	2 9	B	2 0	U	P
Mercury	0 2	U	0 2	U	0 2	U			0 2	U	CV
Nickel	6 0	U	6 0	U	6 0	U	6 0	U	6 0	U	P
Potassium	72 0	U	72 0	U	72 0	U	72 0	U	72 0	U	P
Selenium	3 0	U	3 0	U	3 0	U			3 0	U	F
Silver	5 0	U	5 0	U	5 0	U	5 0	U	5 0	U	P
Sodium	50.0	U	50.0	U	50.0	U	50 0	U	50 0	U	P
Thallium	2 0	U	2 0	U	2 0	U			2 0	U	F
Vanadium	3 0	U	3 0	U	3 0	U	3 0	U	3 0	U	P
Zinc	5 0	U	5 0	U	5 0	U	5 0	U	[illegible]	[illegible]	P
Cyanide											NR

WOODWARD-CLYDE CONSULTANTS

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Preparation Blank Matrix (soil/water)

Preparation Blank Concentration Units (ug/L or 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
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	3.0	U	3.0	U	3.0	U					P
Silver											NR
Sodium											NR
Thallium	2.0	U	2.0	U	2.0	U					P
Vanadium											NR
Zinc											NR
Cyanide											NR

WOODWARD-CLYDE CONSULTANTS

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

ICP ID Number P2 ICS Source ICF-1089

Concentration Units ug/L

Analyte	True Sol A	True Sol AB	Initial Found Sol A	Initial Found Sol AB	Initial Found %R	Final Found Sol A	Final Found Sol AB	Final Found %R
Aluminum	481000	536472	535770	538200.0	100.3	529510	532420 0	99 2
Antimony	0	0	17	-8.6		-6	4.2	
Arsenic								
Barium	0	502	9	469 3	93 5	10	464 9	92.6
Beryllium	0	480	0	471 0	98 1	0	448 5	93 4
Cadmium	0	907	7	859 8	94 8	8	838 5	92 4
Calcium	448250	512228	501770	495120 0	96 7	474940	468990 0	91 6
Chromium	25	529	19	479 1	90 6	20	457 9	86 6
Cobalt	0	477	2	429 7	90 1	0	409 4	85 8
Copper	0	543	16	500 0	92 6	18	500 6	92 2
Iron	[illegible]	[illegible]	[illegible]	[illegible]	92 7	179380	170210 0	89 2
Lead								
Magnesium	[illegible]	527530	510140	512930 0	97 2	499630	501540 0	95 1
Manganese	16	496	27	459 2	92 6	25	440 7	88 9
Mercury								
Nickel	0	940	7	843 5	89 7	9	806 4	85 8
Potassium	0	0	144	52 0		70	33 0	
Selenium								
Silver	0	960	-13	918 3	95 7	-15	899 6	93 7
Sodium	0	0	1795	1780 8		1765	1747 4	
Thallium								
Vanadium	0	509	-2	465 8	91 5	1	448 3	88 1
Zinc	0	1208	206	1207 2	99 9	208	1181 6	97 8

WOODWARD-CLYDE CONSULTANT

5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER

Lab Name SKINNER & SHERMAN LABS Contract: 68-D9-0088 | 03CWCS

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

Matrix WATER Level (low/med) LOW

% Solids for Sample 0 0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2042 4000		38 3300	B	2000 00	100 2		P
Antimony	75-125	499 2500		24 0000	U	500 00	99 8		P
Arsenic	75-125	47 3500		2 0000	U	40.00	118 4		F
Barium	75-125	2119 8000		208 7300		2000 00	95 6		P
Beryllium	75-125	52 3900		1.0000	U	50 00	104 8		P
Cadmium	75-125	46 7400		3 0000	U	50 00	93 5		P
Calcium									NR
Chromium	75-125	192 5300		5 0000	U	200 00	[illegible] 3		P
Cobalt	[illegible]	[illegible]		4 0000	[illegible]	500 00	[illegible]		F
Copper	75-125	[illegible]		15 0300	B	250 00	90 [illegible]		F
Iron	75-125	992 [illegible]		20 0000	U	1000 00	[illegible]		F
Lead	75-125	21 [illegible]		2 9950	B	20 00	92 [illegible]		F
Magnesium									NR
Manganese	75-125	491 [illegible]		15 3100		500 00	95 [illegible]		F
Mercury	75-125	1 4700		0 2000	U	1 00	147 0	N	Cv
Nickel	75-125	475 2800		6 0000	U	500 00	95 1		P
Potassium									NR
Selenium	75-125	9 3900		3 0000	U	10 00	93 [illegible]		F
Silver	75-125	49 7900		5 0000	U	50 00	99 6		P
Sodium									NP
Thallium	75-125	20 2050		10 0000	U	50 00	40 4	N	F
Vanadium	75-125	484 1400		3 0000	U	500 00	[illegible]		P
[illegible]	75-125	[illegible]		[illegible]		500 00	[illegible]		[illegible]
[illegible]									[illegible]

[illegible]

[illegible]

WOODWARD-CLYDE CONSULTANTS

6
DUPLICATES

SAMPLE NUMBER

03CWCD

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0083

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Matrix (soil/water) WATER Level (low/med) LOW

% Solids for Sample 0 0 % Solids for Duplicate 0 0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		38.3300	B	32.4100	B	16.7		P
Antimony		24 0000	U	24 0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium	200 0	208 7300		207 5600		0 6		P
Beryllium		1 0000	U	1 0000	U			P
Cadmium		3 0000	U	3 0000	U			P
Calcium		116170.0000		116950 0000		0 7		P
Chromium		6 0000	U	6 0000	U			P
Cobalt		4 0000	U	4 0000	U			P
Copper		15 0800	B	3 0000	U	200 0		P
Iron		20 0000	U	23 1000	B	200 0		P
Lead		2 9950	B	2 0000	U	200 0		F
Magnesium		31614 0000		31558 0000		0 2		P
Manganese	[illegible]	13 3100		13 1400		[illegible]		P
Mercury		0 2000	U	0 2000	U			CV
Nickel		6 0000	U	6 0000	U			P
Potassium		2049 6000	B	2032 8000	B	0 8		P
Selenium		3 0000	U	3 0000	U			F
Silver		5 0000	U	5 0000	U			P
Sodium		37327 0000		37138 0000		0 5		P
Thallium		10 0000	U	2 0000	U			F
Vanadium		3 0000	U	3 0000	U			P
Zinc		317 9700		304 1400		4 4		P
Cyanide								NR

WOODWARD-CLYDE CONSULTANTS

7

LABORATORY CONTROL SAMPLE

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Solid LCS Source

Aqueous LCS Source EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2172 0	1968 90	90 6						
Antimony	978 0	954 58	97 6						
Arsenic	47 4	48 00	101 3						
Barium	2041 0	1876 90	92 0						
Beryllium	510 0	483 48	94 8						
Cadmium	498 0	449 67	90 3						
Calcium	51519 0	46648 00	90 5						
Chromium	510 0	[illegible]	[illegible]						
Cobalt	520 0	462 53	[illegible]						
Copper	[illegible]	[illegible]	[illegible]						
Iron	2044 0	1372 40	[illegible]						
Lead	48 0	52 [illegible]	[illegible]						
Magnesium	25745 0	23767 00	92 3						
Manganese	514 0	460 62	89 3						
Mercury									
Nickel	457 0	454 01	[illegible]						
Potassium	52068 0	48256 00	92 7						
Selenium	52 6	52 42	99 7						
Silver	500 0	465 40	93 1						
Sodium	51369 0	48364 00	94 2						
Thallium	48 5	50 15	103 4						
Vanadium	507 0	463 75	[illegible]						
Zinc	3316 0	3120 30	94 1						
[illegible]									

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STANDARD ADDITION RESULTS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

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

WOODWARD-CLYDE CONSULTANTS

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ICP SERIAL DILUTIONS

SAMPLE NUMBER

03CWCL

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Matrix (soil/water) WATER Level (low/med) LOW

Concentration Units ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Differ-ence	Q	M
Aluminum	38 33	B	130 00	U	100 0		P
Antimony	24 00	U	120 00	U			P
Arsenic							NR
Barium	208 73		207.70	B	0 5		P
Beryllium	1 00	U	5.00	U			P
Cadmium	3.00	U	15 00	U			P
Calcium	116170 00		116955 00		0 7		P
Chromium	6 00	U	30 00	U			P
Cobalt	4 00	U	20 00	U			P
Copper	15 08	B	15 00	U	100 0		P
Iron	20 00	U	100 00	U			P
Lead							NR
Magnesium	[illegible] 00		30732 50		2 5		P
Manganese	15 [illegible]		[illegible] 50	B	27 4		P
Mercury							NR
Nickel	5 00	U	30 00	U			P
Potassium	2049 60	B	2205 35	B	7 6		P
Selenium							NR
Silver	5 00	U	25 00	U			P
Sodium	37327 00		35894 50		3 8		P
Thallium							NR
Vanadium	3 00	U	15 00	U			P
Zinc	317 97		363 55		14 3	E	P

10

Instrument Detection Limits (Quarterly)

Lab Name. SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No. ~~13536~~ WOODWARK SAS No.. SDG No. ~~MCEZ13~~ 03CWC

ICP ID Number: P2 1/21/91 Date: 10/15/90 1/21/91

Flame AA ID Number

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20		200	26.0	P
Antimony	206.80		60	24.0	P
Arsenic			10		
Barium	493.40		200	2.0	P
Beryllium	313.00		5	1.0	P
Cadmium	226.50		5	3.0	P
Calcium	317.90		5000	10.0	P
Chromium	267.70		10	6.0	P
Cobalt	228.60		50	4.0	P
Copper	324.70		25	3.0	P
Iron	259.90		100	20.0	P
Lead			3		
Magnesium	279.00		5000	30.0	P
Manganese	257.60		15	2.0	P
Mercury			0.2		
Nickel	231.60		40	6.0	P
Potassium	766.40		5000	72.0	P
Selenium			5		
Silver	328.00		10	5.0	P
Sodium	588.90		5000	50.0	P
Thallium			10		
Vanadium	292.40		50	3.0	P
Zinc	213.80		20	5.0	P

Comments

P2 THERMO JARRELL-ASH ICAP61 (#22982)

~~000022~~ 1/21/91

000225

WOODWARD-CLYDE CONSULTANTS

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Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0008

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

ICP ID Number Date ~~01/10/91~~ 1/21/91 10/15/90

Flame AA ID Number

Furnace AA ID Number F1

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead	220 30	BS	[illegible]	2.0 1/21/91	
Magnesium			5000		
Manganese			15		
Mercury			0 2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium	275 30	BS	10	2 0	F
Vanadium			50		
Zinc			20		

Comments

T1 THERMO JARRELL-ASH VIDEO 22E (#[illegible])

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FORM X - I

WOODWARD-CLYDE CONSULTANTS

10

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

ICP ID Number Date 10/15/90

Flame AA ID Number M1

Furnace AA ID Number

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury	253.60		0.2	0.2	CV
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments

M1 TECHNICON MERCURY ANALYZER (#[illegible]A-D)

WOODWARD-CLYDE CONSULTANTS

10

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

ICP ID Number Date ~~01/10/91~~ 2/1/91 10/15/90

Flame AA ID Number

Furnace AA ID Number F4

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic	197 20	BS	10	2.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury			0 2		
Nickel			40		
Potassium			5000		
Selenium	196 00	BS	5	3 0	F
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments

[illegible] THERMO JARRELL-ASH VIDEO 22E (#2564)

11A

ICP Interelement Correction Factors (Annually)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

ICP ID Number P2 Date 07/15/90

Analyte	Wave-length (nm)	Interelement Correction Factors for Al	Ca	Fe	Mg	Cr
Aluminum	308 20	0 0041800	0 0000000	0 0000000	0 0000000	0 0000000
Antimony	206.80	0 0000000	0 0000000	0.0002000	0 0000000	0 0118000
Arsenic						
Barium	493 40	0 0000000	0.0000000	0 0000000	0.0000000	0.0000000
Beryllium	313 00	0 0000000	0 0000000	0 0000000	0.0000000	0 0000000
Cadmium	226 50	0 0000000	0 0000000	0 0001800	0.0000000	0 0000000
Calcium	317 90	0 0000000	0 0000000	-0 0002200	0 0000000	0 0000000
Chromium	267 70	0 0000000	0 0000000	-0 0000300	0.0000000	0 0000000
Cobalt	228 60	0 0000000	0 0000000	0.0000200	0.0000000	0.0003500
Copper	324 70	0 0000000	0 0000000	-0 0002100	0 0000000	0 0000000
Iron	[illegible]	0 0001300	0 0000000	0 0000000	0 0000000	0 0000000
Lead						
Magnesium	[illegible]	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Manganese	[illegible]	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Mercury						
Nickel	[illegible]	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Potassium	[illegible]	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Selenium						
Silver	[illegible]	0 0000000	0 0000000	-0 0002100	0 0000000	0 0000000
Sodium	588 90	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Thallium						
Vanadium	292 40	0 0000000	0 0000000	-0 0001000	0 0000000	-0 0039400
Zinc	213 80	0 0000000	0 0000000	0 0001200	0 0000000	0 0000000

Comment

WOODWARD-CLYDE CONSULTANTS

11B

ICP Interelement Correction Factors (Annually)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0033

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

ICP ID Number P2 Date 07/15/90

Analyte	Wave-length (nm)	Interelement Correction Factors for Cu	Mn	Mo	Ni
Aluminum	308.20	0.0000000	0.0009600	0.0006000	0.0000000
Antimony	206.80	0.0000000	0.0000000	0.0000000	-0.0014600
Arsenic					
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000000	-0.0002900
Calcium	317.90	0.0000000	-0.0003200	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0006400	0.0000700	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	-0.0049500
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000
Iron	238.20	0.0000000	-0.0011600	0.0002000	0.0000000
Lead					
Magnesium	[illegible]	0.0000000	-0.0029700	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000
Mercury					
Nickel	231.60	0.0000000	0.0001900	-0.0002300	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000
Selenium					
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.60	0.0000000	0.0000000	0.0000000	0.0000000
Thallium					
Vanadium	292.40	-0.0000800	-0.0001300	0.0000000	0.0000000
Zinc	213.80	0.0017500	0.0000000	0.0000000	0.0036600

WOODWARD-CLYDE CONSULTANTS

12

ICP Linear Ranges (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 62-D9-0038

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

ICP ID Number P2 Date 10/15/90

Analyte	Integ Time (Sec)	Concentration (ug/L)	M
Aluminum	5 00	1000000.0	
Antimony	5.00	25000.0	
Arsenic			NR
Barium	5 00	100000 0	
Beryllium	5 00	25000 0	
Cadmium	5 00	25000 0	
Calcium	5 00	800000 0	
Chromium	5 00	200000 0	
Cobalt	5 00	100000 0	
Copper	5 00	250000 0	
Iron	5 00	500000 0	
Lead			NR
Magnesium	5 00	1000000 0	
Manganese	5 00	100000 0	
Mercury			NR
Nickel	5 00	250000 0	
Potassium	5 00	1000000 0	
Selenium			NR
Silver	5 00	50000 0	
Sodium	5 00	1000000 0	
Thallium			NR
Vanadium	5 00	25000 0	
Zinc	5 00	150000 0	

Comments

WOODWARD-CLYDE CONSULTANTS

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PREPARATION LOG

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0031

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Method CV

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
03CWC	12/21/90		100
03CWCD	12/21/90		100
03CWCS	12/21/90		100
PBW	12/21/90		100

WOODWARD-CLYDE CONSULTANTS

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0033

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Method F

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
03CWC	12/27/90		100
03CWCD	12/27/90		100
03CWCS	12/27/90		100
LCSW	12/27/90		100
PBW	12/27/90		100

003223

WOODWARD-CLYDE CONSULTANTS

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Method P

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
03CWC	12/27/90		100
03CWCD	12/27/90		100
03CWCS	12/27/90		100
LCSW	12/27/90		100
PBW	12/27/90		100

FORM III - IN

WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Instrument ID Number M1 Method CV

Start date 12/21/90 End date 12/21/90

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1 00	1800																X									
SO 5	1 00	1803																X									
S1 0	1.00	1806																X									
S2.0	1 00	1809																X									
S5 0	1 00	1812																X									
ICV	2 00	1818																X									
ICB	1 00	1821																X									
CCV	1 00	1824																X									
CCB	1 00	1827																X									
ZZZZZ	1 00	1830																									
[illegible]BW	1 00	1833																X									
03CW[illegible]	1 00	1836																X									
03CWCD	1 00	1839																X									
03CW[illegible]	1 00	1842																X									
CCV	1 00	1845																X									
CCB	1 00	1848																X									

00825

WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

Instrument ID Number F4 Method F

Start date 12/28/90 End date 12/28/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1813				X																					
S10	1 00	1817				X																					
S50	1.00	1821				X																					
S100	1 00	1825				X																					
ICV	1 00	1828				X																					
ICB	1 00	1832				X																					
CRA	1 00	1837				X																					
CCV	1 00	1841				X																					
CCB	1 00	1845				X																					
PBW	1 00	1849				X																					
PBWA	1 00	1853	89 5			X																					
LCSW	1 00	1857				X																					
LCSWA	1 00	1901	111 0			X																					
03CWC	1 00	1905																									
03CWCA	1 00	1909	114 1			X																					
03CWCD	1 00	1913				X																					
03CWCDA	1 00	1917	111 4			X																					
03CWCS	1 00	1922				X																					
ZZZZZ	1 00	1926																									
CCV	1 00	1930				X																					
CCB	1 00	1934				X																					

WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward SAS No SDG No 03CWC

Instrument ID Number F1 Method F

Start date 12/28/90 End date 12/28/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	2033													X												
S3	1 00	2037													X												
S50	1.00	2041													X												
S100	1 00	2045													X												
ICV	2 00	2052													X												
ICB	1 00	2057													X												
CRA	1 00	2102													X												
CCV	1 00	2107													X												
CCB	1 00	2112													X												
PBW	1 00	2117													X												
[illegible]EWA	1 00	2122	106 9												X												
LCSW	1 00	2127													X												
LCSWA	1 00	2132	114 4												X												
03CWC	1 00	2137													X												
03CWC4	00	2142	99 8												X												
03CWCD	1 00	2147													X												
03CWCDA	1 00	2152	110 5												X												
03CWCC	1 00	2157													X												
ZZZZZ	1 00	2202																									
CCV	1 00	2207													X												
CCB	1 00	2212													X												

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WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Instrument ID Number F4 Method F

Start date 12/28/90 End date 12/28/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1813																			X						
S5	1 00	1817																			X						
S50	1 00	1821																			X						
S100	1 00	1825																			X						
ICV	1.00	1828																			X						
ICB	1 00	1832																			X						
CRA	1 00	1837																			X						
CCV	1 00	1841																			X						
CCB	1 00	1845																			X						
PBW	1 00	1849																			X						
PBWA	1 00	1853	91 2																		X						
LCSW	1 00	1857																			X						
LCSWA	1 00	1901	126 4																		X						
03CWC	1 00	1905																									
03CWCA	1 00	1909	91 2																								
03CWCS	1 00	1913																			X						
03CWCDA	1 00	1917	92 3																		X						
03CWCS	1 00	1922																			X						
ZZZZZ	1 00	1925																									
CCV	1 00	1930																			X						
CCB	1 00	1934																			X						

000028

WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Instrument ID Number F1 Method F

Start date 12/28/90 End date 12/28/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	2033																						X			
S10	1 00	2037																						X			
S50	1 00	2041																						X			
S100	1 00	2045																						X			
ICV	2 00	2052																						X			
ICB	1 00	2057																						X			
CRA	1 00	2102																						X			
CCV	1 00	2107																						X			
CCB	1 00	2112																						X			
[illegible]BW	1 00	2117																						X			
[illegible]BWA	1 00	2122	114 0																					X			
LCSW	[illegible] 00	[illegible]																						X			
LCSWA	[illegible] 00	[illegible]	121 0																					X			
03CW	1 00	[illegible]																									
03CWC-	1 00	[illegible]	37 2																								
03CWCD	[illegible] 00	[illegible]																						X			
03CWCDA	1 00	2152	41 2																					X			
03CWCS	1 00	2157																						X			
[illegible]	1 00	[illegible]																									
CCV	1 00	2207																						X			
CCB	1 00	2212																						X			

[illegible]

WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0023

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Instrument ID Number F4 Method F

Start date 12/29/90 End date 12/29/90

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	0116																			X						
S5	1 00	0120																			X						
S50	1 00	0124																			X						
S100	1 00	0128																			X						
ICV	1.00	0204																			X						
ICB	1 00	0208																			X						
CRA	1 00	0212																			X						
CCV	1 00	0216																			X						
CCB	1 00	0221																			X						
03CWC	1 00	0225																			X						
03CWCA	1 00	0229	104 8																		X						
CCV	1 00	0233																			X						
CCB	1 00	0237																			X						

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WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Instrument ID Number F1 Method: F

Start date 12/31/90 End date 12/31/90

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1946																						X			
S10	1 00	1950																						X			
S50	1 00	1954																						X			
S100	1 00	1958																						X			
ICV	2 00	2007																						X			
ICB	1 00	2012																						X			
CRA	1 00	2017																						X			
CCV	1 00	2022																						X			
CCB	1 00	2027																						X			
ZZZZZ	1 00	2032																									
ZZZZZ	1 00	2037																									
03CWC	5 00	2041																						X			
03CWC-	5 00	2046	37 2																					X			
CCV	1 00	2051																						X			
CCB	1 00	2056																						X			

WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No Woodward GAS No SDG No 03CWC

Instrument ID Number P2 Method P

Start date 01/02/91 End date 01/02/91

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
SO	1 00	1016		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
S	1 00	1018		X	_	_	_	_	_	X	_	_	_	X	_	X	_	_	_	X	_	_	X	_	_	_	_
S	1 00	1020		_	X	_	X	X	X	_	X	X	X	_	_	_	X	_	X	_	_	_	_	_	X	X	_
S	1 00	1022		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	X	_	_	_	_	_
ICV	1.00	1026		X	_	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
ICV	1 00	1028		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ICV	1 00	1031		_	X	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ICB	1 00	1033		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
ICSA	1 00	1035		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
ICSAB	1 00	1038		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
CRI	1 00	1040		_	X	_	_	X	X	_	X	X	X	_	_	_	X	_	X	_	_	X	_	_	X	X	_
CCV	1 00	1043		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
CCB	1 00	1045		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_		X	_	X	X	_	X	X	_
[illegible]	1 00	1050		X		_	X	X			X	X	X	X	_	X	X	_	X	X	_	X	X	_	X		_
LCSW	1 00	1052		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
03CWC	1 00	1055		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_		X	_	X	X	_
03CWCD	1 00	1057		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
03CWCD	1 00	1100		X	X	_	X	X	X	_	X	X	X	X	_	_	X	_	X	_	_		_	_	X	X	_
03CWCL	5 00	1102		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
03CWCA	1 00	1104		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
CCV	1 00	1107		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
CCB	1 00	1109		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
ICSA	1 00	1112		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
ICSAB	1 00	1114		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
CRI	1 00	1117		_	X	_	_	X	X	_	X	X	X	_	_	_	X	_	X	_	_	X	_	_	X	X	_
CCV	1 00	1119		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_
CCB	1 00	1122		X	X	_	X	X	X	X	X	X	X	X	_	X	X	_	X	X	_	X	X	_	X	X	_

000332

C L P M E T A L S 2 21b

WOODWARD NORCAL

Run 13 P2 9100201
FMU TARRELL-ASH ICAP61 (#229821)

Acquired 01/02/91 by SPF
Crunched 01/10/91 by SPF
Time 1101
Processing protocol [illegible]

Element Multi-Element
Al Sb Ba Be Cd Ca Cr Co Cu
Fe Mg Mn Ni K Ag Na V Zn

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV1	ICV		ICV	01/02/91	10 26
2	ICV2	ICV		ICV	01/02/91	10 28
3	ICV3	ICV		ICV	01/02/91	10 31
4	STDB	ICB		ICB	01/02/91	10 33
5	ICSAA	ICSA0		ICSA	01/02/91	10 35
6	ICSABB	ICSAB0		ICSAB	01/02/91	10 38
7	2XCRDL	CRI0		CRI	01/02/91	10·40
8	HALFSTD	CCV		CCV	01/02/91	10 43
9	STDB	CCB		CCB	01/02/91	10 45
10	PB	PBW	ICP	PBW	01/02/91	10 50
11	LCSPW	LCSW	ICP	LCSW	01/02/91	10 52
12	9011263-01	S	ICP	03CWC	01/02/91	10 55
13	9011263-01	S2	ICP	03CWCD	01/02/91	10 57
14	9011263-01	DS	ICP	03CWCS	01/02/91	11 00
15	9011263-01	ISD	ICP	03CWCL	01/02/91	11:02
16	9011263-01	PS	ICP	03CWCA	01/02/91	11 04
[illegible]	HALFSTD	CCV		CCV	01/02/91	11:07
[illegible]	STDB	CCB		CCB	01/02/91	11:09
19	ICSAA	ICSA1		ICSA	01/02/91	11:12
20	ICSABB	ICSAB1		ICSAB	01/02/91	11:14
21	2XCRDL	CRI1		CRI	01/02/91	11·17
22	HALFSTD	CCV		CCV	01/02/91	11:19
23	STDB	CCB		CCB	01/02/91	11:22
24	STDB	WS0		S0	01/02/91	10:16
25	STD3	WS1		S	01/02/91	10:18
26	STD1	WS2		S	01/02/91	10:20
27	STD2	WS3		S	01/02/91	10:22

Method CLP01A Standard STDB

Elem	Al1670	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	01547	- 00133	- 00287	00073	00060	00000	00314
SDev	00048	00133	00070	00012	00000	00020	00000
%RSD	3.063	-99.875	-24.500	15.746	00000	00000	6.911
#1	01520	- 00220	- 00360	00060	00060	00000	00310
#2	01600	00020	- 00220	00080	00060	- 00020	00294
#3	01520	- 00200	- 00280	00080	00060	00020	00337

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	00067	- 00020	00020	00780	00073	00133	00033
SDev	00031	00020	00035	00053	00012	00042	00023
%RSD	45.826	-100.00	173.21	6.7840	15.746	31.225	69.282
#1	00040	00000	00000	00760	00080	00100	00020
#2	00060	- 00040	00060	00740	00080	00120	00020
#3	00100	- 00020	00000	00840	00060	00180	00060

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	00053	- 00260	02467	03227	00020	00047
SDev	00050	00053	00760	00031	00020	00031
%RSD	94.373	-20.352	30.814	9.4681	100.00	65.465
#1	00000	- 00220	01700	03220	00000	00040
#2	00100	- 00240	03220	03200	00020	00080
#3	00060	- 00320	02480	03260	00040	00020

Method CLP01A Standard STD3

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	11 [illegible]	00120	03313	00060	00053	00127	22 420
SDev	[illegible]	00106	00133	00020	00012	00012	045
%RSD	27217	88 192	4 0191	33 333	21 651	9 1161	20177
#1	11 872	00200	03200	00060	00040	00120	22 391
#2	11 809	00160	03280	00080	00060	00120	22 473
#3	11 829	00000	03460	00040	00060	00140	22 395

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	00193	- 00007	00027	12 370	00460	5 4107	00173
SDev	00012	00012	00012	019	00171	0074	00012
%RSD	5 9726	-173 21	43 301	15008	37 148	13763	6 6617
#1	00200	00000	00020	12 390	00440	5 4192	00180
#2	00200	00000	00020	12 368	00640	5 4052	00160
#3	00180	- 00020	00040	12 353	00300	5 4078	00180

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	00127	1 5765	00207	6 5143	00067	00193
SDev	00042	0065	01049	0303	00012	00012
%RSD	32 868	41016	507 52	46523	17 321	5 9726
#1	00160	1 5824	- 00640	6 5430	00060	00200
#2	00140	1 5696	01380	6 4826	00060	00180
#3	00080	1 5776	- 00120	6 5172	00080	00200

Method CLE01A Standard STD1

Elem	Al7082	Sb 068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	00720	78200	69107	2 715	69913	1 4526	00240
SDev	00481	00658	00 26	0109	00566	0110	00611
%RSD	18 [illegible]	84166	47142	4-099	80929	75801	9 [illegible]
#1	00720	78720	69480	2 2820	70540	1 4626	06901
#2	00180	77460	68960	2 2602	69440	1 4408	06123
#3	- 00240	78420	68880	2 2724	69760	1 4544	05695

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	1 0798	79167	1 3703	02347	66567	00587	2 0467
SDev	0081	00530	0059	00352	00613	00172	0143
%RSD	75168	66951	43330	15 014	92133	29 392	69658
#1	1 0876	79700	1 3768	02720	67060	00740	2 0616
#2	1 0714	78640	1 3652	02300	65880	00620	2 0332
#3	1 0804	79160	1 3688	02020	66760	00400	2 0452

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	1 1402	00273	03667	06327	1 1985	58113
SDev	0085	00167	00289	00212	0078	00291
%RSD	74934	60 927	7 8730	3 3505	65090	50149
#1	1 1492	00460	03500	06520	1 2062	58420
#2	1 1322	00140	03500	06360	1 1906	57840
#3	1 1392	00220	04000	06100	1 1986	58080

Method CLE01A Standard STD2

Elem	Al308	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Avge	02260	00053	- 00113	00193	00120	00127	00778
SDev	00722	00076	00103	00050	00020	00042	00060
%RSD	15 6 5	141 97	-90 558	26 034	16 667	3 86[illegible]	[illegible]
#1	02020	00000	- 00200	00240	00140	00160	00778
#2	02400	00140	00000	00200	00120	00140	00727
#3	01760	00020	- 00140	00140	00100	00080	00618

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Avge	00080	00060	00100	00340	00133	00100	00227
SDev	00035	00035	00072	00100	00179	00151	00050
%RSD	43 301	57 735	72 111	29 412	134 44	151 00	22 205
#1	00100	00080	00180	00440	00040	00120	00280
#2	00100	00080	00080	00340	00340	00240	00220
#3	00040	00020	00040	00240	00020	- 00060	00180

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Avge	00093	- 00013	3 5882	04280	00073	00053
SDev	00042	00042	0087	00183	00050	00012
%RSD	44 607	-312 25	24277	4 2828	68 635	21 651
#1	00140	00020	3 5898	04440	00120	00060
#2	00080	00000	3 5960	04320	00080	00060
#3	00060	- 00060	3 5788	04080	00020	00040

00337

Analysis Report QC Standard Wed 01-02-91 10:[illegible]:25 AM page 1

Method CLP01A Sample Name ICV1 ICV Operator SRP
Run Time 01/02/91 10:[illegible]:04
Comment ICV#
[illegible] Conc Factor 1

Elem	Al[illegible]	Sb 06[illegible]	As193[illegible]	Ba4934	Be3130	Cd 265	Ca[illegible]179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2 0859	00394	03286	1 9771	48378	47995	49 018
SDev	0133	00664	00224	0048	00346	00415	478
%RSD	63656	168 57	6 8137	24433	71593	86427	97458
#1	2 0963	- 00338	03233	1 9809	48502	47949	49 060
#2	2 0904	00957	03093	1 9787	47986	47605	48 521
#3	2 0709	00563	03532	1 9717	48645	48431	49 474
Errors	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass
Value	2 1720			2 0410	51000	49800	51 519
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	46493	48699	48498	1 9690	4 8304	25 145	47903
SDev	00516	00264	00193	0102	0578	063	00259
%RSD	1 1102	54225	39845	51802	1 1974	24859	53984
#1	46586	48614	48644	1 9692	4 8319	25 184	48000
#2	45937	48487	48279	1 9588	4 7719	25 073	47609
#3	46956	48995	48571	1 9792	4 8875	25 178	48098
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	51000	52000	51900	2 0440	5 1400	25 745	51600
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	47616	51 060	49135	51 611	48962	3 2102
SDev	00514	150	00187	204	00429	0261
%RSD	1 0798	29323	37953	39516	87544	81374
#1	47412	51 199	49158	51 772	49073	3 2068
#2	47236	51 079	48938	51 680	48489	3 1860
#3	48201	50 901	49309	51 382	49324	3 2379
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	49700	52 068	49800	51 368	50700	3 3160
Range	10 000	10 000	10 000	10 000	10 000	10 000

.00238

Method CLP01A Sample Name ICV2 ICV Operator SRP
Run Time 01/02/91 10:25:32
Comment ICV#1
[illegible] CONC Conc Factor 1

Elem	Al2082	Sb2068	As1936	Ba4934	Be3130	Cd 265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	02030	01073	20108	00088	00067	00069	04493
SDev	00258	00198	00751	00111	00017	00069	01051
%RSD	12 730	18 419	3 7341	125 83	24 744	100 34	23 380
#1	02086	00258	19241	00191	00057	00138	05641
#2	01748	01116	20543	00103	00086	00000	04260
#3	02256	01247	20541	- 00029	00057	00069	03579
Errors	NOCHECK	NOCHECK	QC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value			19000				
Range			10 000				

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00031	00210	00122	01316	00749	02835	00147
SDev	00142	00073	00084	00099	01482	01479	00056
%RSD	458 98	34 807	69 168	7 5180	197 71	52 170	38 500
#1	00154	00254	00219	01424	02452	04314	00212
#2	00062	00126	00073	01295	00049	02835	00114
#3	- 00124	00251	00073	01230	- 00252	01356	00114
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	00175	08443	00704	23861	00111	00172
SDev	00332	02993	00099	00816	00097	00099
%RSD	189 30	35 444	14 097	3 4212	86 892	57 283
#1	00556	09499	00818	24787	00167	00286
#2	00029	10765	00638	23552	00167	00115
#3	- 00058	05066	00655	23244	00000	.00115
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

Method CLP01A Sample Name TCV3 TCV Operator SRP
Run Time 01/02/91 10 31 00
Comment TCV#1
[illegible] Conc Factor 1

Elem	Al3US	Sb2068	As1936	Ba4934	Be3130	Cd 265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01748	1 0063	00474	- 00103	00000	00069	00745
SDev	01252	0100	01154	00025	00000	00119	00289
%RSD	71 609	99288	243 73	-24 744	00000	173 [illegible]2	38 755
#1	01156	1 0174	01631	- 00117	00000	00138	01040
#2	03186	1 0033	00467	- 00117	00000	00138	00731
#3	00902	99816	- 00677	- 00073	00000	- 00069	00463
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	- 00062	00042	00097	00162	- 00101	00247	00130
SDev	00214	00145	00084	00097	00654	01125	00102
%RSD	-345 87	343 21	86 593	60 088	-646 14	455 59	78 076
#1	00062	00127	00146	00259	00350	00987	00212
#2	00062	00126	00146	00162	00198	00802	00163
#3	- 00309	- 00125	00000	00065	- 00852	- 01047	00016
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	00088	36307	00112	04577	- 00111	- 00174
SDev	00101	04120	00075	01566	00128	00100
%RSD	115 47	11 348	66 393	34 210	-114 95	-57 630
#1	00205	40529	00155	05965	00000	- 00232
#2	00029	36096	00155	04885	- 00083	- 00058
#3	00029	32296	00026	02880	- 00251	- 00231
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

Method CLP01A Sample Name STDB,ICB Operator SRP
Run Time 01/02/91 10:33:27
Comment ICP#1
[illegible] ICP Corr Factor 1

Elem	Al3082	Sb2068	As1937	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00677	01248	00383	- 00044	- 00019	00000	00400
SDev	01864	00385	01665	00051	00017	00138	00562
%RSD	275.41	30.820	434.82	-115.47	-86.603	7e23400	140.30
#1	- 01466	00863	- 01532	- 00073	- 00029	- 00138	- 00247
#2	01579	01632	01486	00015	- 00029	00138	00750
#3	01917	01249	01196	- 00073	00000	00000	00698
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5.0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00247	00166	- 00049	- 00485	- 00902	- 00369	00098
SDev	00193	00193	00084	00148	01426	01363	00075
%RSD	-78.022	116.01	-172.96	-30.518	-158.20	-368.85	76.352
#1	- 00402	- 00003	- 00146	- 00647	- 02352	- 00863	00016
#2	- 00031	00125	00000	- 00453	00500	01171	00163
#3	- 00309	00376	00000	- 00356	- 00853	- 01417	00114
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	02500	10000	02800	5.0000	01500
Low	- 01000	- 05000	- 02500	- 10000	- 02800	-5.0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00351	00844	00129	02108	- 00139	00117
SDev	00221	09008	00111	02138	00210	00174
%RSD	-62.915	1066.8	86.006	101.39	-150.45	148.70
#1	- 00585	- 09499	00009	- 00360	- 00334	00291
#2	- 00146	05066	00150	03343	00083	00116
#3	- 00322	06966	00228	03343	- 00167	- 00056
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

Method CLP01A Sample Name ICSAA ICSA Operator SPP
Run Time 01/02/91 10 35 54
Comment
[illegible] CONC Corr Factor 1

Elem	Al3082	Sb2068	As1976	Ba4934	Be7130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	535 77	01690	05613	00939	00000	00710	501 77
SDev	80	00887	03786	00044	0003	00127	3 70
%RSD	15013	52 472	67 454	4 6875	-755e6	17 886	73645
#1	536 69	01573	09956	00939	00029	00808	505 29
#2	535 23	02630	03004	00984	00000	00754	502 09
#3	535 38	00868	03880	00895	- 00029	00567	497 92
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	01886	00213	01635	186 33	02041	510 14	02708
SDev	00194	00146	00156	99	00553	1 21	00048
%RSD	10 282	68 433	9 5404	52971	27 074	23726	1 7567
#1	01827	00381	01651	187 28	01665	511 17	02755
#2	02103	00129	01782	186 41	02676	510 45	02709
#3	01729	00128	01471	185 31	01782	508 81	02659
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	00731	14354	- 01283	1 7947	- 00217	20556
SDev	00088	00366	.00171	0117	00178	00185
%RSD	12 000	2 5471	-13 324	65088	-81 934	90214
#1	00819	14565	- 01215	1 7813	- 00267	20371
#2	00731	13932	-.01157	1 8029	- 00020	20555
#3	00643	14565	- 01478	1 7999	- 00365	20742
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High						25920
Low						17280

Method CLP01A Sample Name TCSABP TCSAB Operator SRP
Run Time 01/02/91 10 38 22
Comment
CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	538 20	- 00858	04511	46929	47099	85979	495 12
SDev	88	02556	06262	00111	00149	00508	2 61
%RSD	16357	-298 05	138 81	23615	31588	59080	52641
#1	539 22	01307	08685	46914	47270	86472	497 76
#2	537 72	- 00202	07536	46826	47013	86008	495 07
#3	537 66	- 03678	- 02689	47047	47013	85457	492 55
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	47909	42973	50299	185 16	4 5013	512 93	45918
SDev	00235	00192	00365	61	0396	91	00202
%RSD	49029	44671	72591	32677	87886	17792	43933
#1	48158	43016	50311	185 86	4 5376	513 92	46144
#2	47877	43139	49928	184 81	4 4591	512 12	45854
#3	47692	42763	50658	184 82	4 5072	512 75	45756
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	84352	05277	91833	1 7808	46576	1 2072
SDev	00232	09096	00308	0070	00313	0105
%RSD	27522	172 37	33581	39064	67291	87085
#1	84615	08866	92038	1 7875	46441	1 2163
#2	84177	12032	91479	1 7813	46352	1 1957
#3	84264	- 05066	91984	1 7736	46934	1 2095
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1 1280		1 1520		61080	1 4496
Low	75200		76800		40720	96640

Method CLP01A Sample Name 2XCRDI CRT Operator SRP
Run Time 01/02/91 10 40 49
Comment
[illegible] CONC Corr Factor 1

Elem	Al3082	Sb 062	As1976	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	40996	12319	05771	- 00103	01012	01009	47180
SDev	11791	01344	01141	00102	00044	00144	12240
%RSD	28 762	10 913	19 773	-98 974	4 3232	14 238	25 943
#1	53262	11671	05280	00015	01059	00893	60168
#2	39981	13864	07075	- 00161	01002	01169	45512
#3	29746	11420	04958	- 00161	00973	00963	35860

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01729	09674	04796	15556	05232	38399	02948
SDev	00245	00363	00224	05036	01474	13983	00085
%RSD	14 192	3 7532	4 6676	32 373	28 172	36 415	2 8722
#1	01915	09467	05040	21002	06925	53311	02898
#2	01822	10093	04747	14596	04532	36304	03045
#3	01451	09462	04600	11069	04238	25581	02899

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	07692	00000	02551	03085	09652	03944
SDev	00529	0661	00265	01775	00363	00100
%RSD	6 8757	-1775e6	10 367	57 518	3 7640	2 5354
#1	08190	- 03166	02848	01337	09902	03883
#2	07751	07599	02465	04885	09819	04059
#3	07137	- 04433	02341	03034	09235	03889

Method CLF01A Sample Name HALF510 CCV Operator SRP
Run Time 01/02/91 10:43:13
Comment Cal #1
[illegible] CONC Corr Factor 1

Elem	Al3082	[illegible]	As1937	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	23.844	2.4253	2.4320	2.3931	48530	2.3314	24.001
SDev	.012	.0088	.0194	.0040	.00348	.0137	.206
%RSD	.06871	.35993	.79872	.16865	.71773	.58936	.85583
#1	23.842	2.4404	2.4517	2.3887	48702	2.3349	24.128
#2	23.857	2.4404	2.4314	2.3940	48759	2.3431	24.111
#3	23.834	2.4252	2.4128	2.3967	48129	2.3163	23.763
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	2.3614	2.3581	2.3619	9.6846	2.3691	24.183	2.3584
SDev	.0148	.0217	.0030	.0624	.0150	.090	.0210
%RSD	.62572	.92014	.12857	.64478	.63498	.37180	.89132
#1	2.3685	2.3753	2.3585	9.7145	2.3806	24.214	2.3708
#2	2.3713	2.3652	2.3643	9.7265	2.3746	24.254	2.3703
#3	2.3445	2.3337	2.3628	9.6128	2.3521	24.082	2.3341
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	2.3475	24.013	47799	24.047	2.3873	2.4321
SDev	.0131	.023	.00051	.046	.0099	.0165
%RSD	.55819	.09508	.10761	.18927	.41510	.67718
#1	2.3571	24.007	47739	23.995	2.3926	2.4338
#2	2.3527	23.994	47824	24.066	2.3934	2.4477
#3	2.3326	24.039	47832	24.080	2.3758	2.4149
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

Method CLP01A Sample Name STDB CCB Operator SRF
Run Time 01/02 91 10 45 41
Comment CCB#1
[illegible] CONC Conc Factor 1

Elem	Al1670	Sb 206	As1936	Ba4934	Be1350	Cd 226	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	04793	00215	01422	00147	00038	00183	04341
SDev	00528	00592	00683	00044	00017	00105	00258
%RSD	11 021	275 25	47 989	30 000	43 301	57 349	5 9448
#1	04963	00861	H 02192	00147	00029	00275	04043
#2	04201	- 00302	01184	00191	00057	00206	04484
#3	05216	00087	00891	00103	00029	00069	04496
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00062	00335	00122	01197	00197	03575	00261
SDev	00193	00261	00169	00065	00985	01444	00000
%RSD	-311 50	77 939	138 33	5 4110	500 43	40 388	00406
#1	- 00216	00627	00219	01132	- 00704	01911	00261
#2	00154	00252	00219	01262	01249	04499	00261
#3	- 00124	00125	- 00073	01197	00046	04314	00261
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	02500	10000	02800	5 0000	01500
Low	- 01000	- 05000	- 02500	- 10000	- 02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00088	03588	- 00063	04320	00111	00289
SDev	00268	05711	00162	00642	00128	00173
%RSD	-305 51	159 15	-255 05	14 869	115 35	60 033
#1	- 00322	09499	- 00249	05040	00082	00462
#2	00205	03166	00049	03805	00250	00287
#3	- 00146	- 01900	00010	04114	00000	00116
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

Method CLP01A Sample Name PB PBW Operator SRP
Run Time 01/02/91 10 50 15
Comment
[illegible] Conc Corr Factor 1

Elem	Al[illegible]	Sb[illegible]	As1976	Ba4934	Be[illegible]130	Co[illegible]65	Ca[illegible]1 9
Units	[illegible]	[illegible]	[illegible]	ppm	ppm	ppm	ppm
Avge	020[illegible]	- 00298	00376	- 00073	00019	00023	39508
SDev	00781	00644	00792	00038	00017	00105	00569
%RSD	37 966	-216 14	210 86	-1[illegible]	[illegible]	459 57	1 4410
#1	01156	00345	- 00535	00015	00029	00138	39040
#2	02509	- 00296	00903	- 00161	00000	- 00069	40142
#3	02509	- 00944	00759	- 00073	00029	00000	39343
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00093	00043	00219	00550	01000	06840	00147
SDev	00193	00072	00073	00065	01066	00949	00028
%RSD	-208 00	169 14	33 317	11 746	106 64	13 869	19 256
#1	00062	00002	00292	00486	02152	07641	00163
#2	- 00309	00126	00146	00550	00048	07087	00163
#3	- 00031	00000	00219	00615	00799	05793	00114
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	02500	10000	02800	5 0000	.01500
Low	- 01000	- 05000	- 02500	- 10000	- 02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00175	01478	00176	03548	00055	01673
SDev	00268	04120	00196	00388	00174	00172
%RSD	152 75	278 85	111 51	10 942	314 66	10 291
#1	00468	- 02533	00402	03188	00250	01845
#2	00117	05699	00054	03960	- 00001	01673
#3	- 00058	01267	00071	03497	- 00083	01500
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

000[illegible]17

Method CLP01A Sample Name LCSPW LCSW Operator SRP
Run Time 01/02/91 10 52 42
Segment LCS
Conc Corr Factor 1

Elem	Al 082	Sb 068	As1936	Ba4934	Be3130	Cd2265	Ca 179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1 9689	95458	01808	1 8769	48349	44968	46 648
SDev	0055	01830	01312	0033	00207	00573	500
%RSD	27942	1 9174	72 542	17766	42840	1 2743	1 0711
#1	1 9686	93357	03302	1 8783	48215	44509	46 159
#2	1 9745	96703	01274	1 8792	48588	45610	47 157
#3	1 9635	96315	00848	1 8731	48244	44784	46 629
Errors	LC Pass	LC Pass	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	2 6060	1 1740		2 4490	61200	59580	61 820
Low	1 7380	78200		1 6330	40800	40020	41 215

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	44207	46259	46769	1 8784	4 6253	23 767	46062
SDev	00511	00512	00042	0137	0594	073	00395
%RSD	1 1549	1 1060	09005	72726	1 2834	30912	85751
#1	43620	45711	46745	1 8656	4 5647	23 699	45704
#2	44546	46724	46745	1 8928	4 6833	23 845	46486
#3	44454	46341	46818	1 8769	4 6278	23 758	45997
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	61200	62400	62280	2 4530	6 1680	30 890	61920
Low	40800	41600	41520	1 6350	4 1120	20 600	41280

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	45481	48 256	46540	48 364	46376	3 1203
SDev	00804	062	00380	113	00377	0379
%RSD	1 7682	12746	81552	23304	.81239	1 2161
#1	44779	48 242	46102	48 474	45986	3 0770
#2	46359	48 324	46748	48 248	46738	3 1480
#3	45306	48 204	46770	48 369	46405	3 1359
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	59640	62 480	59760	61 640	.60840	3.9800
Low	39760	41 650	39840	41 090	40560	2 6530

000048

Method CLP01A Sample Name 9011263-01 S Operator SRP
Run Time 01/02/91 10 55 09
Comment 03CWC1005
[illegible] CONC Corr Factor 1

Elem	Al2082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	03833	01356	00704	20874	00029	00046	116 17
SDev	00213	00394	01046	00111	00029	00040	1 32
%RSD	5 5542	29 029	148 57	53094	100 00	87 115	1 1360
#1	04031	01786	00174	20976	00029	00069	117 69
#2	03608	01014	01908	20888	00057	00000	115 51
#3	03862	01269	00029	20756	00000	00069	115 31

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00094	00211	01509	01781	01750	31 614	01531
SDev	00142	00147	00042	00032	00677	199	00049
%RSD	-151 28	69 355	2 7934	1 8128	38 712	63001	3 1918
#1	- 00125	00127	01533	01781	01099	31 839	01531
#2	- 00217	00126	01460	01749	01700	31 543	01580
#3	00061	00381	01533	01814	02451	31 460	01482

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00380	2 0496	- 00164	37 327	00055	31797
[illegible]	00316	0449	00054	101	00128	00520
[illegible]	83 205	2 1919	-32 584	27186	229 84	1 6361
#1	00292	2 0898	- 00114	37 423	00083	32317
#2	00117	2 0581	- 00220	37 338	- 00084	31798
#3	00731	2 0011	- 00159	37 221	00167	31276

Method CLP01A Sample Name 9011263-01 S2 Operator SRP
Run Time 01/02/91 10 57 35
Comment 03CWC1 U50
[illegible] CONC Corr Factor 1

Elem	Al3082	Sr2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	03241	00152	00465	20756	- 00019	00068	116 95
SDev	00988	00662	00875	00088	00017	00069	28
%RSD	30 475	435 99	188 04	42433	-86 603	100 52	24342
#1	04115	00883	01472	20668	00000	00137	116 64
#2	02170	- 00407	00037	20844	- 00029	00000	116 99
#3	03439	- 00020	- 00113	20756	- 00029	00068	117 21

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00063	00127	00195	02310	00048	31 558	01515
SDev	00054	00001	00112	00019	00261	092	00056
%RSD	-85 331	40049	57 168	80656	547 12	29231	3 7262
#1	- 00125	00127	00219	02299	- 00103	31 452	01482
#2	- 00032	00126	00073	02300	00349	31 602	01580
#3	- 00032	00127	00292	02332	- 00103	31 621	01482

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00234	2 0328	00264	37 138	00056	30415
SDev	00101	0228	00130	181	00096	00174
%RSD	43 301	1 1232	49 101	48822	173 06	57076
#1	00292	2 0264	00195	36 954	00000	30241
#2	00117	2 0138	00184	37 142	00000	30589
#3	00292	2 0581	00414	37 317	00167	30414

ethod CLP01A Sample Name 9011263-01 DS Operator SRP
un Time 01/02/91 11 00 00
omment 03CWC10055
CLNL Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2 0424	49925	1 9709	2 1198	05240	04674	118 52
SDev	0189	00520	0130	0089	00057	00069	93
%RSD	92348	1 0406	65763	41979	1 0929	1 4724	78391
#1	2 0210	49839	1 9584	2 1095	05182	04605	117 63
#2	2 0498	49454	1 9843	2 1249	05240	04743	118 45
#3	2 0565	50482	1 9698	2 1249	05297	04674	119 48

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	19259	46945	24030	99267	47942	31 880	49141
SDev	00142	00263	00146	00742	00377	137	00367
%RSD	73473	55981	60782	74730	78604	42969	74632
#1	19228	46734	24030	98619	47543	31 729	48782
#2	19135	46862	23884	99105	48292	31 912	49124
#3	19413	47239	24176	1 0008	47992	31 997	49515

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	47529	2 0264	04979	37 504	48414	80459
SDev	00268	0478	00084	121	00128	00720
%RSD	56401	2 3593	1 6900	32322	26327	89452
#1	47236	2 0201	05063	37 364	48303	79883
#2	47587	2 0771	04895	37 570	48386	80228
#3	47763	1 9821	04979	37 579	48553	81266

ethod CLPU1A Sample Name 9011263-01 ISD/5 Operator SRP
un Time 01/02/91 11 02 26
mment 03CWC1005
CONC Corr Factor 1

Elem	Al7052	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	02566	01813	01289	04154	- 00019	00115	23 391
SDev	01538	00595	01161	00044	00017	00040	197
%RSD	59 926	32 842	90 068	1 0601	-86 603	34 621	84036
#1	01325	01125	00620	04198	00000	00069	23 169
#2	04286	02156	02629	04110	- 00029	00138	23 458
#3	02086	02157	00617	04154	- 00029	00138	23 545

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00248	00252	00243	- 00054	- 00753	6 1465	00391
SDev	00054	00332	00112	00099	00230	0297	00028
%RSD	-21 631	131 78	45 831	-184 01	-30 609	48340	7 2123
#1	- 00217	- 00125	00146	- 00032	- 00552	6 1250	00358
#2	- 00217	00503	00219	- 00162	- 01004	6 1342	00407
#3	- 00309	00378	00365	00033	- 00702	6 1804	00407

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00146	44117	- 00015	7 1789	00027	07271
[illegible]v	00051	06375	00172	0386	00096	00200
[illegible]D	34 641	14 449	-1144.7	53739	357 77	2 7477
#1	00205	37362	- 00036	7 1408	00082	07387
#2	00117	50027	- 00176	7 1778	- 00084	07041
#3	00117	44961	00166	7 2179	00082	07387

Method CLP01A Sample Name 9011263-01 PS Operator SRP
Run Time 01/02/91 11 04 52
Comment 03CWC1005A
[illegible] CONC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be 130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	04538	00411	00797	20712	- 00019	00046	116 61
SDev	00639	01758	00795	00088	00017	00040	1 12
%RSD	14 073	427 43	99 645	42523	-86 603	87 189	94296
#1	03946	02299	01185	20712	- 00029	00069	119 55
#2	04454	- 01178	- 00117	20624	00000	00069	117 37
#3	05215	00112	01324	20800	- 00029	00000	118 90

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00094	00335	01484	01501	00648	31 714	01580
SDev	00142	00072	00042	00104	00655	145	00000
%RSD	-151 18	21 369	2 8385	6 9275	101 10	45675	00081
#1	00061	00252	01533	01458	01399	31 778	01580
#2	- 00125	00376	01460	01425	00197	31 549	01580
#3	- 00217	00376	01460	01619	00347	31 817	01580

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00029	2 0264	- 00030	37 107	00111	32607
SDev	00203	0290	00124	165	00127	00530
%RSD	-692 82	1 4321	-416 85	44392	114 17	1 6241
#1	00205	2 0328	00088	37 078	00001	32144
#2	- 00146	1 9948	- 00159	36 959	00083	32492
#3	- 00146	2 0518	- 00018	37 284	00249	33184

Method CLP01A Sample Name HALFSTD CCV Operator SRF
Run Time 01/02/91 11 07 18
Comment CCV#2
Dil Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24 082	2 4866	2 4904	2 4100	49265	2 4399	24 615
SDev	053	0258	0181	0059	00215	0135	147
%RSD	22023	1 0361	72710	24353	43620	55439	59621
#1	24 066	2 4940	2 5097	2 4085	49389	2 4553	24 784
#2	24 039	2 4581	2 4738	2 4050	49017	2 4298	24 515
#3	24 141	2 5082	2 4877	2 4165	49389	2 4346	24 547
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 4093	2 4103	2 3843	9 8328	2 4221	24 443	2 4077
SDev	0089	0091	0051	0256	0194	040	0060
%RSD	37102	37846	21499	26072	80010	16421	25048
#1	2 4158	2 4208	2 3789	9 8489	2 4061	24 469	2 4128
#2	2 3991	2 4044	2 3848	9 8032	2 4436	24 397	2 4011
#3	2 4130	2 4056	2 3891	9 8463	2 4165	24 463	2 4094
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 3949	24 209	48236	24 076	2 4207	2 4994
SDev	0066	071	00138	057	0057	0079
%RSD	27662	29128	28542	23858	23504	31671
#1	2 4019	24 146	48079	24 034	2 4227	2 5011
#2	2 3887	24 285	48291	24 054	2 4143	2 4908
#3	2 3940	24 197	48337	24 142	2 4251	2 5063
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

Method CLP01A Sample Name STDB CCB Operator SRP
Run Time 01/02/91 11 09 46
Comment CCB#2
[illegible] Factor 1

Elem	[illegible]	Sb2068	As1937	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	02876	00474	01393	00147	00029	00206	04249
SDev	00129	01023	01341	00044	00029	00119	00659
%RSD	4 4919	215 92	96 967	30 000	100 00	57 719	15 500
#1	03017	01248	H 02923	00191	00000	00344	04532
#2	02763	00859	00758	00147	00057	00138	04719
#3	02848	- 00686	00469	00103	00029	00138	03496
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00093	00293	00146	00097	- 00052	01849	00244
SDev	00142	00072	00193	00141	01428	00565	00075
%RSD	-152 51	24 538	132 27	145 51	-2746 4	30 545	30 557
#1	- 00217	00376	- 00073	00194	- 01454	01726	00309
#2	00062	00252	00292	00162	01400	02466	00261
#3	- 00124	00251	00219	- 00065	- 00102	01356	00163
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	02500	10000	02800	5 0000	01500
Low	- 01000	- 05000	- 02500	- 10000	- 02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00000	05277	00095	03754	00027	00173
SDev	00183	01594	00157	01027	00255	00099
%RSD	1345e6	30 199	164 98	27 363	930 96	57 317
#1	- 00146	05066	- 00086	04423	- 00250	00116
#2	00205	06966	00195	04268	00250	00287
#3	- 00058	03800	00178	02571	00083	00115
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

Method CLE01A Sample Name ICSAA ICSA Operator SRP
Run Time 01/02/91 11 1[illegible] 14
Comment
[illegible] CONC Corr Factor 1

Elem	Al3[illegible]	Sb2[illegible]	As1936	Ba4934	Be3130	Cd [illegible]	Ca3[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	529 51	- 00566	04597	00954	00029	00828	474 94
SDev	2 60	01432	01165	00025	00000	00112	59
%RSD	49063	-253 08	25 336	2 6647	00000	13 464	12383
#1	530 27	- 01895	05524	00939	00029	00808	474 26
#2	531 64	- 00752	03289	00939	00029	00728	475 26
#3	526 61	00950	04977	00984	00029	00948	475 30
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	02020	00046	01760	179 38	02709	499 63	02541
SDev	00214	00072	00077	43	01198	1 74	00027
%RSD	10 579	156 35	4 3846	23766	44 220	34786	1 0768
#1	02267	00129	01806	179 22	03113	499 73	02572
#2	01898	00004	01671	179 86	01362	501 32	02520
#3	01896	00005	01803	179 06	03653	497 84	02530
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	00907	07810	- 01497	1 7649	00099	20754
SDev	00176	05311	00078	0114	00084	00356
%RSD	19 355	67 999	-5 2228	64432	84 492	1 7142
#1	00731	05066	- 01536	1 7736	00178	20468
#2	00907	04433	- 01548	1 7690	00012	21153
#3	01082	13932	- 01407	1 7520	00107	.20642
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High						25920
Low						17280

ethod CLP01A Sample Name TCSABB TCSAB Operator SRP
un Time 01/02/91 11 14 42
omment
[illegible] CONC Corr Factor 1

Elem	Al7082	Sr2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	532 42	00426	- 00367	46489	44846	83848	468 99
SDev	3 62	01282	04262	00359	00294	00528	1 20
%RSD	65005	301 24	-1159 8	77150	65524	62979	25639
#1	534 59	00165	- 01475	46650	44923	83571	468 17
#2	528 24	- 00706	- 03967	46078	44522	83516	468 44
#3	534 42	01818	04339	46738	45094	84457	470 37
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	45788	40944	50059	178 21	4 2754	501 54	44073
SDev	00377	00317	00348	67	0175	2 19	00219
%RSD	82248	77417	69461	37875	40987	43753	49570
#1	45726	40985	50255	178 31	4 2565	502 45	44199
#2	45446	40608	49657	177 49	4 2787	499 04	43821
#3	46191	41238	50264	178 83	4 2910	503 14	44199
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	80638	03800	89956	1 7474	44831	1 1816
SDev	00268	00633	00490	0253	00192	0088
%RSD	33244	16 667	54443	1 4453	42798	74447
#1	80404	03166	90415	1 7412	44712	1 1793
#2	80579	03800	89440	1 7258	44729	1 1742
#3	80930	04433	90013	1 7752	45052	1 1913
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1 1280		1 1520		61080	1 4496
Low	75200		76800		40720	96640

Method CLP01A Sample Name 2XCRDL CRI Operator SRP
Run Time 01/02/91 11 17 10
Comment
CUNC Corr Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd2265	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	39051	12450	06599	- 00132	00983	01032	43401
SDev	10864	00445	00477	00067	00017	00119	10074
%RSD	27 819	3 5725	7 2229	-50 918	1 6816	11 554	23 212
#1	49371	12706	06599	- 00073	00973	00962	53041
#2	40066	12709	07076	- 00117	00973	01169	44220
#3	27715	11937	06123	- 00206	01002	00964	32942

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	01482	09296	04868	14099	05033	35256	02899
SDev	00054	00192	00112	04434	00346	10915	00000
%RSD	3 6196	2 0681	2 3054	31 447	6 8806	30 960	00749
#1	01544	09086	04966	18478	04825	45916	02899
#2	01451	09463	04893	14207	05433	35749	02899
#3	01451	09338	04746	09613	04841	24102	02899

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	07458	02111	02115	01337	09402	03945
SDev	00051	02224	00069	01080	00000	00199
%RSD	67923	105 36	3 2543	80 769	00226	5 0540
#1	07400	01900	02079	00257	09402	04060
#2	07488	04433	02072	02417	09402	04060
#3	07488	00000	02195	01337	09402	03715

Method CLP01A Sample Name HALFSTD CCV Operator SRP
Run Time 01/02/91 11 19 35
Comment CCV#
[illegible] CONC Conc Factor 1

Elem	Al3082	Sb2068	As1936	Ba4934	Be3130	Cd 2[illegible]5	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	23 808	2 4054	2 3929	2 4008	47566	2 2899	23 179
SDev	031	0219	0087	0068	00257	0187	226
%RSD	13114	41205	36498	28199	53950	51918	97469
#1	23 800	2 3907	2 3929	2 3962	47700	2 2963	23 245
#2	23 782	2 4306	2 4016	2 3975	47729	2 3046	23 365
#3	23 843	2 3948	2 3841	2 4085	47270	2 2688	22 928
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 3092	2 2950	2 3728	9 5016	2 3085	24 008	2 3129
SDev	0152	0146	0033	0488	0209	037	0110
%RSD	65713	63405	13836	51312	90471	15354	47639
#1	2 3119	2 2945	2 3730	9 5034	2 2980	24 030	2 3121
#2	2 3222	2 3097	2 3694	9 5494	2 3326	24 029	2 3243
#3	2 2925	2 2807	2 3759	9 4519	2 2950	23 966	2 3023
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 2916	24 047	47386	24 129	2 3474	2 4087
SDev	0197	067	00188	109	0118	0219
%RSD	86075	27661	39658	45311	50209	90764
#1	2 2869	24 045	47308	24 142	2 3458	2 4168
#2	2 3132	23 982	47601	24 014	2 3599	2 4253
#3	2 2746	24 114	47250	24 231	2 3365	2 3839
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

Method CLP01A Sample Name STDB CCB Operator SRP
Run Time 01/02/91 11 22 03
Segment CCB#3
Conc Corr Factor 1

Elem	Al 6	Sb2068	As1936	Ba4934	Be 130	Co2 65	Ca 179
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	06006	00730	01080	00191	00048	00252	04359
SDev	01300	00929	00706	00076	00017	00173	00435
%RSD	21 653	127 25	65 425	39 970	34 641	68 679	9 9711
#1	05385	- 00044	00601	00235	00057	00275	04326
#2	075	01761	01891	00235	00057	00413	04810
#3	05132	00475	00747	00103	00029	00069	03942
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	20000	06000	02000	20000	00500	00500	5 0000
Low	- 20000	- 06000	- 02000	- 20000	- 00500	- 00500	-5 0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00000	00336	00195	01122	00547	04376	00293
SDev	0019	00317	00084	00195	00568	00912	00075
%RSD	-125360	94 353	43 257	17 385	103 90	20 839	25 467
#1	00154	00378	00292	01100	- 00104	03760	00358
#2	00062	00631	00146	01326	00946	05424	00309
#3	- 00216	00000	00146	00938	00797	03944	00212
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	01000	05000	02500	10000	02800	5 0000	01500
Low	- 01000	- 05000	- 02500	- 10000	- 02800	-5 0000	- 01500

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00234	06333	00187	03754	00139	00230
SDev	00221	05411	00104	01545	00128	00264
%RSD	94 373	85 440	55 704	41 164	92 092	114 98
#1	00205	05699	00116	03651	00167	.00460
#2	00468	12032	00307	05348	00250	00286
#3	00029	01267	00139	02263	- 00001	- 00058
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

C L P M E T A L S 2 21b

[illegible] APPELL-ASH VIDEO 22E (#2 [illegible])

Element As

Acquired 12/28 [illegible] SLN
Crunched 01/04/91 [illegible] SLN
Time 1116
Processing protocol [illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	12/28/90	18 28
2	CAL BLK	ICB		ICB	12/28/90	18 32
3	CRA	CRAO		CRA	12/28/90	18 37
4	50 PPB	CCV		CCV	12/28/90	18 41
5	CAL BLK	CCB		CCB	12/28/90	18 45
6	PB	PBW	Furnace	PBW	12/28/90	18 49
7	PB	ASPBW	Furnace	PBWA	12/28/90	18 53
8	LCSFW	LCSW	Furnace	LCSW	12/28/90	18 57
9	LCSFW	ASLCSW	Furnace	LCSWA	12/28/90	19 01
10	9011263-01	S	Furnace	03CWC	12/28/90	19 05
11	9011263-01	AS	Furnace	03CWCA	12/28/90	19 09
12	9011263-01	S2	Furnace	03CWCD	12/28/90	19 13
13	9011263-01	ASS2	Furnace	03CWCDA	12/28/90	19 17
14	9011263-01	DS	Furnace	03CWCS	12/28/90	19 22
15	X	X		ZZZZZ	12/28/90	19 26
16	50 PPB	CCV		CCV	12/28/90	19.30
[illegible]	CAL BLK	CCB		CCB	12/28/90	19·34
18	0 PPB	WS0		S0	12/28/90	18:13
19	10 PPB	WS1		S10	12/28/90	18:17
20	50 PPB	WS2		S50	12/28/90	18.21
21	100 PPB	WS3		S100	12/28/90	18.25

C L P M E T A L S 2 21b

[illegible]
[illegible] LL-A VIDEO 22E (#2[illegible])

Element Se

Acquired 1 /28/90 [illegible]
Crunched 01 04/91 [illegible]
Time 111
Processing Protocol [illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	12/28/90	18 28
2	CAL BLK	ICB		ICB	12/28/90	18 32
3	CRA	CRA0		CRA	12/28/90	18 37
4	50 PPB	CCV		CCV	12/28/90	18 41
5	CAL BLK	CCB		CCB	12/28/90	18 45
6	PB	PBW	Furnace	PBW	12/28/90	18 49
7	PB	ASPBW	Furnace	PBWA	12/28/90	18 53
8	LCSFW	LCSW	Furnace	LCSW	12/28/90	18 57
9	LCSFW	ASLCSW	Furnace	LCSWA	12/28/90	19 01
10	9011263-01	S	Furnace	03CWC	12/28/90	19 05
11	9011263-01	AS	Furnace	03CWCA	12/28/90	19 09
12	9011263-01	S2	Furnace	03CWCD	12/28/90	19 13
13	9011263-01	ASS2	Furnace	03CWCDA	12/28/90	19 17
14	9011263-01	DS	Furnace	03CWCS	12/28/90	19 22
15	X	X		ZZZZZ	12/28/90	19 26
[illegible]	50 PPB	CCV		CCV	12/28/90	19.30
[illegible]	CAL BLK	CCB		CCB	12/28/90	19 34
18	0 PPB	WS0		S0	12/28/90	18 13
19	5 PPB	WS1		S5	12/28/90	18 17
20	50 PPB	WS2		S50	12/28/90	18 21
21	100 PPB	WS3		S100	12/28/90	18·25

000[illegible]

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 719 Instrument ID: $F_1, F_2, F_3, F_4, F_5, F_6$ Page 1 of 1

Date: 12/28/90 Reviewed by: SC 1/4/91 Instruments Method #: 150 AS/SO

Operator: XG Standards Prepared: 12/28/90

Background: BS BD 5.00

Time Calibrated: 18:13 Standards Source:

1. Calibration: 10 ppm
2. ICV: ICV-2
3. CCV: 50ppB

disc # 1

acq

9011263

SKINNER AND SHERMAN

Run ID: ~~9036203~~ 9036203 KC 12/24/90

Element: As Pb

Wavelength (nm): 197.2

Slitwidth (nm): 2

Integration Time (sec): 3

STD1: 0 STD2: 10

STD3: 50 STD4: 100

Run ID: ~~9036263~~ 9036253

Element: Se Tl

Wavelength (nm): 196

Slitwidth (nm): 2

Integration Time (sec): 3

STD1: 0 STD2: 5

STD3: 50 STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CRA		
	4	CCV		
	5	CCB		
	6	PBW		
	7	PBWA		
	8	LCSW		
	9	LCSWA		
	10	OI		Rerun RSD
	11	OIA		
	12	OID		
	13	OIDA		
	14	OIS		
	15	OISA		
	16	CCV		
	17	CCB		
	18			
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Norma Ca ibration

RINSE

		As-S	Se-S
[illegible]ndard Z STD 1 0/0			
[illegible]s	1	-0.004	-0.003
Mean		-0.004	-0.003
P/H		-0 002	-0.001
Abs	2	-0.003	0.000
Mean		-0.004	-0.002
P/H		-0.004	0.001

AUTO ZERO
18 13 02
Fri 28 DEC 1990

		As-S	Se-S
Standard C STD 2 10/5			
Abs	1	0.051	0.022
Mean		0.051	0.022
P/H		0.106	0.030
Abs	2	0.052	0.019
Mean		0.051	0.020
P/H		0.099	0.028
		As-S	Se-S
Mean		0.051	0.020
SD		0.001	0.002
RSD		01.96	11.00

		As-S	Se-S
Standard 1 STD 3 50/50			
Abs	1	0.226	0.174
[illegible]n		0.226	0.174
[illegible]		0.344	0.279
Abs	2	0.239	0.184
Mean		0.232	0.179
P/H		0.419	0.305
		As-S	Se-S
Mean		0.232	0.179
SD		0.009	0.007
RSD		03.96	03.91

		As-S	Se-S
Standard 2 STD 4 100/100			
Abs	1	0.375	0.279
Mean		0.375	0.279
P/H		0.629	0.383
Abs	2	0.381	0.281
Mean		0.378	0.280
P/H		0.623	0.376
		As-S	Se-S
Mean		0.378	0.280
SD		0.004	0.001
RSD		01.11	00.50

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	10.00	0.051
[illegible]1	50.00	0.232
[illegible]2	99.99	0.378

APP CONC

STD Z	00.00
STD C	09 61
STD 1	50 20

STD	CON.	MEAN
Z	00 00	0.000
C	05.00	0.020
1	50.00	0.179
2	99.99	0.280

ABP CONC
Z 00.00
STD C 04.67
STD 1 50.09
STD 2 DIG HI
As-S Se-S
MODE AA, SB ,ABC
CTF
Stats #2

Instrument code F4
Run ID 9036203

NO	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-2	ICV	1	1.00x	28 DEC 90	18 23

	As-S	Se-S
Burn 1	47 03	51.09
Burn 2	48.20	49.25
Mean	47 61 =	50.17 =
RSD	01.73	02.59

002	CAL BLK	ICB	1	1.00x	28 DEC 90	18 32

	As-S	Se-S
Burn 1	00.41	00.11
Burn 2	00.41	00.70
Mean	00.41 =	00.40 =
RSD	00.00	DIG HI
Check	OK	OK

003	CRA	CRAO		1.00x	28 DEC 90	18 37

	As-S	Se-S
Burn 1	07.83	05.84
Burn 2	09.35	05.70
Mean	08.59 =	05.77 =
RSD	12.50	01.69

004	50 PPB	CCV	1	1.00x	28 DEC 90	18 41

	As-S	Se-S
Burn 1	48.76	48.65
Burn 2	50.37	52.26
Mean	49.56 =	50.45 =
RSD	02.29	05.05
Check	OK	OK

005	CAL BLK	CCB	1	1.00x	28 DEC 90	18 45

	As-S	Se-S
Burn 1	00.43	-00.07
Burn 2	00.56	00.21
Mean	00.49 =	00.07 =
RSD	18.77	DIG HI
Check	OK	OK

Instrument code F4
Run ID 9036203

FILE SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006 PB	PBW		1.00x	28 DEC 90	18 49

	As-S	Se-S
Burn 1	00.48	-00.18
Burn 2	-00.28	-00.06
Mean	00.10 =	-00.12 =
RSD	DIG HI	-70.00

007 PB	ASPBW		1.00x	28 DEC 90	18 53

	As-S	Se-S
Burn 1	17.84	08.92
Burn 2	17.97	09.33
Mean	17.90 =	09.12 =
RSD	00.51	03.17
Sample value	2.00U	3.00U
Spike added	20.00	10.00
Spike recovery, %	89.5	91.2

008 LCSFW	LCSW		1.00x	28 DEC 90	18 57

	As-S	Se-S
Burn 1	47.29	51.45
Burn 2	48.71	53.38
Mean	48.00 =	52.41 =
RSD	02.09	02.60

009 LCSFW	ASLCSW		1.00x	28 DEC 90	19 01

	As-S	Se-S
Burn 1	70.10	64.04
Burn 2	70.31	66.06
Mean	70.20 =	65.05 =
RSD	00.21	02.19
Sample value	48.00	52.41
Spike added	20.00	10.00
Spike recovery, %	111.0	126.4

010 9011263-01	S	03CWC1005	1.00x	28 DEC 90	19 05

	As-S	Se-S
Burn 1	01.97	~~02.31~~
Burn 2	01.07	~~01.81~~
Mean	01.52 =	~~02.06~~ =
RSD	41.84	~~17.13~~

E 1/2/91

000067

Instrument code F4
Run ID 9036200

SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011 -01	[illegible]	03CWC1005A	1.00x	28 DEC 90	19 07

	As-S	Se-S
Burn 1	22.39	07.64
Burn 2	23.26	10.59
Mean	22.82 =	09.11 =
RSD	02.69	22.88 ***
Sample value	2.00U	3.00U
Spike added	20.00	10.00
Spike recovery, %	114.1	91.1

5/12/91 [illegible]

012 -01	S2	03CWC1005D	1.00x	28 DEC 90	19 13

	As-S	Se-S
Burn 1	01.78	01.07
Burn 2	01.17	01.78
Mean	01.47 =	01.42 =
RSD	29.31	35.35

013 -01	ASS2	03CWC1005A	1.00x	28 DEC 90	19 17

	As-S	Se-S
Burn 1	22.12	08.70
Burn 2	22.45	09.76
Mean	22.28 =	09.23 =
RSD	01.04	08.11
Sample value	2.00U	3.00U
Spike added	20.00	10.00
Spike recovery, %	111.4	92.3

014 ~~-02~~ 01S	DS		1.00x	28 DEC 90	19 22

	As-S	Se-S
Burn 1	45.94	09.03
Burn 2	48.76	09.75
Mean	47.35 =	09.39 =
RSD	04.21	05.42

015 ~~-02~~ 0X	AS		1.00x	28 DEC 90	19 26

	As-S	Se-S
Burn 1	72.14	18.42
Burn 2	72.08	17.37
Mean	72.11 =	17.89 =
RSD	00.05	04.14
Sample value	47.35	9.39
Spike added	20.00	10.00
Spike recovery, %	123.8	85.0

KC 12/29/90

Instrument code F4
Run ID 9036203

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
016	50 PPB	CCV	2	1 00x	23 DEC 90	19 30

	As-S	Se-S
Burn 1	48 00	52.41
Burn 2	50.72	54.66
Mean	49 36 =	53 53 =
RSD	03.89	02.97
Check	OK	OK

017	CAL BLK	CCB	2	1.00x	28 DEC 90	19 34

	As-S	Se-S
Burn 1	00.72	-00.88
Burn 2	-00 54	00.18
Mean	00.09 =	-00.35 =
RSD	DIG HI	DIG HI
Check	OK	OK

END OF RUN KC 12/29/90

C L P M E T A L S 2 21b

[illegible] id F[illegible] 51
[illegible] FM IA-PLLL-[illegible] /TOEO 22E (#2064)

Element Se

Acquired 1[illegible]/29/90 [illegible] N
Crunched 01/04/[illegible] [illegible]N
Time 11[illegible]0
Processing protocol [illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	12/29/90	02 04
2	CAL BLK	ICB		ICB	12/29/90	02 08
3	CRA	CRAO		CRA	12/29/90	02 12
4	50 PPB	CCV		CCV	12/29/90	02 16
5	CAL BLK	CCB		CCB	12/29/90	02 21
6	9011263-01	S	Furnace	03CWC	12/29/90	02 25
7	9011263-01	AS	Furnace	03CWCA	12/29/90	02 29
8	50 PPB	CCV		CCV	12/29/90	02 33
9	CAL BLK	CCB		CCB	12/29/90	02 37
10	0 PPB	WS0		S0	12/29/90	01 16
11	5 PPB	WS1		S5	12/29/90	01 20
12	50 PPB	WS2		S50	12/29/90	01 24
13	100 PPB	WS3		S100	12/29/90	01 28

000370

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 720 Instrument ID: F_1, F_2, F_3, (F4), F_5, F6 Page 1 of 1

Date: 12/29/90 Reviewed by: [illegible] Instruments Method #: [illegible]

Operator: [illegible] Standards Prepared: 12/29/90

Background: (BS) BD Standards Source: [illegible]

Time Calibrated. [illegible]

1. Calibration: [illegible]
2. ICV: ICU-2
3. CCV: [illegible]

disc # 33

acq

9011263

SKINNER AND SHERMAN

A	B
Run ID: 9036301	Run ID: 9036351
Element: (As) Pb	Element: (Se) Tl
Wavelength (nm): 1972	Wavelength (nm): 196
Slitwidth (nm): 2	Slitwidth (nm):
Integration Time (sec): 3	Integration Time (sec):
STD1: 0 STD2: 10	STD1: 0 STD2: 5
STD3: 50 STD4: 100	STD3: 50 STD4: 100

COMMENTS

	SAMPLE ID	DILUTION	COMMENTS
1	ICV		
2	ICB		
3	CRA		
4	CCV		
5	CCB		
6	O1		
7	O1A		
8	CCU		
9	CCB		
10	~~O2~~ KP		
11	12/29 ~~O2A~~ K	1:4	
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Normal Calibration

RINSE

		As-S	Se-S
Standard	I	STD 1 0/0	
Abs	1	0.002	0.004
Mean		0.002	0.004
P/H		0.005	0.002
Abs	2	0.005	-0.002
Mean		0.004	0.001
P/H		0.003	-0.003

AUTO ZERO

01 16 59

Sat 29 DEC 1990

		As-S	Se-S
Standard	C	STD 2 10/5	
Abs	1	0.039	0.021
Mean		0.039	0.021
P/H		0.069	0.027
Abs	2	0.037	0.024
Mean		0.038	0.022
P/H		0.065	0.030
		As-S	Se-S
Mean		0.038	0.022
SD		0.001	0.002
RSD		03.68	10.00
		As-S	Se-S
Standard	1	STD 3 50/50	
Abs	1	0.210	0.154
Mean		0.210	0.154
P/H		0.328	0.276
Abs	2	0.208	0.162
Mean		0.209	0.158
P/H		0.324	0.296
		As-S	Se-S
Mean		0.209	0.158
SD		0.001	0.006
RSD		00.66	03.54
		As-S	Se-S
Standard	2	STD 4 100/100	
Abs	1	0.376	0.258
Mean		0.376	0.258
P/H		0.529	0.368
Abs	2	0.375	0.264
Mean		0.375	0.261
P/H		0.534	0.376
		As-S	Se-S
Mean		0.375	0.261
SD		0.001	0.004
RSD		00.26	01.60

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	10.00	0.038
1	50.00	0.209
2	99.99	0.375

ADP CONC

STD Z	00.00
STD C	08.[illegible]
STD 1	50.61
STD 2	99.61

CALIBRATE B

STD	CONC	MEAN
Z	00.00	0.000
C	05.00	0.022
1	50.00	0.158
2	99.99	0.261

P	CONC
STD Z	00.00
STD C	06.00
STD 1	49.79
STD 2	DIG HI

Instrument code F4
Run ID 9036301

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-2	ICV	2	1.00x	29 DEC 90	02 04

	As-S	Se-S
Burn 1	46.03	50.56
Burn 2	47.21	47.76
Mean	46.62 =	49.16 =
RSD	01.78	04.02

002	CAL BLK	ICB	2	1.00x	29 DEC 90	02 08

	As-S	Se-S
Burn 1	00.29	-00.87
Burn 2	-00.58	00.03
Mean	-00.15 =	-00.42 =
RSD	DIG HI	DIG HI
Check	OK	OK

003	CRA	CRAO	1.00x	29 DEC 90	02 12

	As-S	Se-S
Burn 1	09.45	06.05
Burn 2	09.37	05.39
Mean	09.41 =	05.72 =
RSD	00.59	08.14

S 1/2/91

004	50 PPB	CCV	1	1.00x	29 DEC 90	02 16

	As-S	Se-S
Burn 1	48.85	46.94
Burn 2	49.91	49.04
Mean	49.38 =	47.99 =
RSD	01.51	03.09
Check	OK	OK

005	CAL BLK	CCB	1	1.00x	29 DEC 90	02 21

	As-S	Se-S
Burn 1	00.15	-00.03
Burn 2	-00.24	-00.27
Mean	-00.05 =	-00 15 =
RSD	DIG HI	DIG HI
Check	OK	OK

00077

Instrument code F4
Run ID 9036301

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	9011263-01	S	03CWC1005	1.00x	29 DEC 90	02 25

	As-S	Se-S
Burn 1	00.13	01.75
Burn 2	00.09	02.84
Mean	00.11 =	02.29 =
RSD	25.45	33.62

KC 12/31/90

007	-01	AS	03CWC1005A	1.00x	29 DEC 90 02 29

	As-S	Se-S
Burn 1	21.95	10.36
Burn 2	22.57	10.59
Mean	22.26 =	10.47 =
RSD	01.96	01.54
Sample value	2.00U	3.00U
Spike added	20.00	10.00
Spike recovery, %	111.3	104.7

008	50 PPB	CCV	2	1.00x	29 DEC 90 02 33

	As-S	Se-S
Burn 1	51.23	49.60
Burn 2	52.53	53.99
Mean	51.88 =	51.79 =
RSD	01.77	05.99
Check	OK	OK

009	CAL BLK	CCB	2	1.00x	29 DEC 90 02 37

	As-S	Se-S
Burn 1	-01.42	-01.77
Burn 2	-00.76	-01.46
Mean	-01.09 =	-01.62 =
RSD	-42.75	-13.51
Check	OK	OK

010	END of RUN	KC 12/31/90		1.00x	29 DEC 90 03 01

	As-S	Se-S
Burn 1	-00.94	-02.33
Burn 2	-00.89	00.05
Mean	-00.92 =	-01.14 =
RSD	03.91	DIG HI

C L P M E T A L S 2 21b

Run id F1 9036212
THERMO JARRELL-ASH VIDEO 22E (#2486)

Element Pb

Acquired 12/28/90 by SLN
Crunched 01/04/91 by SLN
Time 1123
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	12/28/90	20 52
2	CAL BLK	ICB		ICB	12/28/90	20 57
3	CRA	CRAO		CRA	12/28/90	21:02
4	50 PPB	CCV		CCV	12/28/90	21 07
5	CAL BLK	CCB		CCB	12/28/90	21 12
6	PB	PBW	Furnace	PBW	12/28/90	21.17
7	PB	ASPBW	Furnace	PBWA	12/28/90	21.22
8	LCSFW	LCSW	Furnace	LCSW	12/28/90	21.27
9	LCSFW	ASLCSW	Furnace	LCSWA	12/28/90	21:32
10	9011263-01	S	Furnace	03CWC	12/28/90	21:37
11	9011263-01	AS	Furnace	03CWCA	12/28/90	21.42
12	9011263-01	S2	Furnace	03CWCD	12/28/90	21:47
13	9011263-01	ASS2	Furnace	03CWCDA	12/28/90	21:52
14	9011263-01	DS	Furnace	03CWCS	12/28/90	21:57
15	X	X		ZZZZZ	12/28/90	22.02
16	50 PPB	CCV		CCV	12/28/90	22·07
17	CAL BLK	CCB		CCB	12/28/90	22 12
38	0 PPB	WS0		S0	12/28/90	20 33
39	3 PPB	WS1		S3	12/28/90	20 37
40	50 PPB	WS2		S50	12/28/90	20 41
41	100 PPB	WS3		S100	12/28/90	20 45

C L P M E T A L S 2 21b

Run id F1 9036262
THERMO JARRELL-ASH VIDEO 22E (#2486)

Element Tl

Acquired 12/28/90 by SLN
Crunched 01/04/91 by SLN
Time 1124
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	12/28/90	20 52
2	CAL BLK	ICB		ICB	12/28/90	20:57
3	CRA	CRAO		CRA	12/28/90	21 02
4	50 PPB	CCV		CCV	12/28/90	21 07
5	CAL BLK	CCB		CCB	12/28/90	21·12
6	PB	PBW	Furnace	PBW	12/28/90	21:17
7	PB	ASPBW	Furnace	PBWA	12/28/90	21 22
8	LCSFW	LCSW	Furnace	LCSW	12/28/90	21.27
9	LCSFW	ASLCSW	Furnace	LCSWA	12/28/90	21.32
10	9011263-01	S	Furnace	O3CWC	12/28/90	21.37
11	9011263-01	AS	Furnace	O3CWCA	12/28/90	21:42
12	9011263-01	S2	Furnace	O3CWCD	12/28/90	21·47
13	9011263-01	ASS2	Furnace	O3CWCDA	12/28/90	21·52
14	9011263-01	DS	Furnace	O3CWCS	12/28/90	21 57
15	X	X		ZZZZZ	12/28/90	22.02
16	50 PPB	CCV		CCV	12/28/90	22 07
17	CAL BLK	CCB		CCB	12/28/90	22 12
38	0 PPB	WSO		SO	12/28/90	20 33
39	10 PPB	WS1		S10	12/28/90	20 37
40	50 PPB	WS2		S50	12/28/90	20 41
41	100 PPB	WS3		S100	12/28/90	20 45

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 1332 Instrument ID: F1, F2, F3, F4, F5, F6 Page 1 of 1

Date: 12 28 90 Reviewed by: [illegible]

Operator: [illegible]

Background: BS BD

Time Calibrated: 20:33

disc # 20

acq ✗

Instruments Method #: 160

Standards Prepared: 12 28 9 800

Standards Source:

1. Calibration: 10 PPm
2. ICV: ICV-4 (5,100)
3. CCV: 50000

SKINNER AND SHERMAN

Run ID:	~~9036201~~ A 9036212	Run ID:	~~9036252~~ B 9036262
Element:	As (Pb)	Element:	Se (Tl)
Wavelength (nm):	283.3	Wavelength (nm):	276.8
Slitwidth (nm):	1	Slitwidth (nm):	1
Integration Time (sec):	3	Integration Time (sec):	3
STD1:	0	STD1:	0
STD2:	3	STD2:	10
STD3:	50	STD3:	50
STD4:	100	STD4:	100

9012003

9011263

	SAMPLE ID	DILUTION	COMMENTS
1	ICV		
2	ICB		
3	CRA		
4	CCV		
5	CCB		
6	PBW-9011263		
7	PBW A		
8	LCS		
9	LCSD		
10	01		7 DIL 1400
11	01A		
12	01D		
13	01DA		
14	01S		
15	01SD		
16	CCV		
17	CCB		
18	9012003-PBS		
19	PBSD		
20	LCS	7.14	
21	LCSD		
22	LSS	7.19	Pb
23	LSSD		
24	01		
25	01A		
26	01D		
27	01DA		
28	CCV		
29	CCB		
30	01S		
31	01SD		
32	L2		
33	L2A		
34	L3		
35	L3D		
36	CCV		
37	CCB		
38			
39			

COMMENTS

RAW C

D only

12/31/90

NOT

MS

CA2

Norm- Calibration

RINSE

		Pb-S	Tl-S	
Standard Z				
Abs	1	0 001	0 000	STD1 0/0
Mean		0.001	0 000	
P/H		0 000	0.000	
Abs	2	-0 004	0 002	
Mean		-0 002	0.001	
P/H		0.001	0.000	

AUTO ZERO
20 33 26
Fri 28 DEC 1990

		Pb-S	Tl-S	
Standard C				
Abs	1	0.023	0.029	STD 2 3/10
Mean		0 023	0.029	
P/H		0.038	0 047	
Abs	2	0.019	0.032	
Mean		0.021	0.030	
P/H		0.028	0.048	

	Pb-S	Tl-S
Mean	0.021	0.030
SD	0.003	0 002
RSD	13.33	07.33

		Pb-S	Tl-S	
Standard 1				
Abs	1	0.232	0.141	STD3 50/50
Mean		[illegible]	0 141	
P/H		[illegible]	[illegible]	
Abs	[illegible]	[illegible]	0 140	
Mean		[illegible]	[illegible]	
P/H		[illegible]	[illegible]	

	Pb-S	Tl-S
Mean	0 234	0.140
SD	0 003	0 001
RSD	01.19	00.71

		Pb-S	Tl-S	
Standard 2				
Abs	1	0 404	0 254	STD4 100/100
Mean		0.404	0.254	
P/H		0 566	0 385	
Abs	2	0.411	0.259	
Mean		0 407	0 256	
P/H		[illegible]	0.385	

	Pb-S	Tl-S
Mean	[illegible]	[illegible]
SD	0 005	0.004
RSD	01.2[illegible]	[illegible] 40

3

[illegible]

RAW DATA FROM ADLESS DATA SYSTEM

Instrument code F1
Run ID 9036202

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-4	ICV	1	2.00x	28 DEC 90	20 52

	Pb-S	Tl-S
Burn 1	50 45	51.35
Burn 2	49 29	50.86
Mean	49.87 =	51.10 =
RSD	01.64	00.67

002	CAL BLK	ICB	1	1.00x	28 DEC 90	20 57

	Pb-S	Tl-S
Burn 1	-01.43	-00.13
Burn 2	-01.21	-00.68
Mean	-01.32 =	-00.41 =
RSD	-11.74	-94.63
Check	OK	OK

003	CRA	CRAO		1.00x	28 DEC 90	21 02

	Pb-S	Tl-S
Burn 1	05 07	09.21
Burn 2	04 55	09.94
Mean	04 51 =	09.57 =
RSD	07 [illegible]2	05.39

004	[illegible] PPS	CCV	1	1.00x	28 DEC 90	21 07

	Pb-S	Tl-S
Burn 1	48 63	50 [illegible]
Burn 2	48.97	51.62
Mean	48.80 =	51 20 =
RSD	00.49	01.14
Check	OK	OK

005	CAL BLK	CCB	1	1.00x	28 DEC 90	21 12

	Pb-S	Tl-S
Burn 1	-00 [illegible]	-00.21
Burn 2	-00.63	-00.[illegible]0
Mean	-00 [illegible]2 =	-00 36 =
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

0[illegible]

Instrument code F1
Run ID 9036202

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	PB	PBW		1 00x	28 DEC 90	21 17

	Pb-S	Tl-S
Burn 1	-00.49	00.63
Burn 2	-01.06	00 02
Mean	-00.78 =	00.32 =
RSD	-51.66	DIG HI

007	PB	ASPBW	1.00x	28 DEC 90	21 22

	Pb-S	Tl-S
Burn 1	24.37	25.71
Burn 2	18.39	19.87
Mean	21.38 =	22.79 =
RSD	19.77	18.11
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	106.9	114.0

008	LCSFW	LCSW	1.00x	28 DEC 90	21 27

	Pb-S	Tl-S
Burn 1	52 05	49.96
Burn 2	52 27	50 34
Mean	52 41 =	50 15 =
RSD	00 37	00.53

009	LCSFW	ASLCSW	1.00x	28 DEC 90	21 32

	Pb-S	Tl-S
Burn 1	77.15	75.98
Burn 2	73.41	72 70
Mean	75.28 =	74.34 =
RSD	03.51	03.11
Sample value	52 41	50.15
Spike added	20.00	20.00
Spike recovery, %	114 4	121.0

010	[illegible]	S	3BCWC100[illegible]	1 00x	28 DEC 90	21 37

	Pb-S	Tl-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

[illegible]

Instrument code F1
Run ID 9036202

DCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011 -01	AS	03CWC1005A	1.00x	28 DEC 90	21 42

	Pb-S	Tl-S
Burn 1	23.67	08 29
Burn 2	22.26	06.59
Mean	22 96 =	07.44 =
RSD	04 34	16.15
Sample value	2.99	2.00U
Spike added	20.00	20.00
Spike recovery, %	99.8	37.2

012 -01	S2	03CWC1005D	1.00x	28 DEC 90	21 47

	Pb-S	Tl-S
Burn 1	01.66	-00.43
Burn 2	01.01	-00.47
Mean	01.33 =	-00.45 =
RSD	34.51	-06.22

013 -01	AS2	03CWC1005D	1.00x	28 DEC 90	21 52

	Pb-S	Tl-S
Burn 1	23.40	08.87
Burn 2	20.79	07.59
Mean	22 09 =	08 23 =
RSD	05.35	10.99
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	110.4	41 2

014 -01	DS	03CWC1005S	1.00x	28 DEC 90	21 57

	Pb-S	Tl-S
Burn 1	21.27	20 98
Burn 2	21.50	19.43
Mean	21.38 =	20.20 =
RSD	00 75	05 42

015 [illegible]	[illegible]		1.00x	28 DEC 90	22 02

	Pb-S	Tl-S
Burn [illegible]	45 23	[illegible]
[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]
RSD	07 41	[illegible]

Instrument code F1
Run ID 9026202

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
016	50 PPB	CCV Z		1.00x	28 DEC 90	22 07

	Pb-S	Tl-S
Burn 1	48.23	51.12
Burn 2	47.85	49.35
Mean	48.04 =	50.23 =
RSD	00.55	02.49
Check	OK	OK

017	CAL BLK	CCB Z		1.00x	28 DEC 90	22 12

	Pb-S	Tl-S
Burn 1	-00.54	00.05
Burn 2	-00.35	-00.03
Mean	-00.45 =	00.01 =
RSD	-29.77	DIG HI
Check	OK	OK

018	PB	PBS		1.00x	28 DEC 90	22 17

	Pb-S	Tl-S
Burn 1	-00.74	-00.[illegible]
Burn 2	-00.21	-00.0[illegible]
Mean	-00.48 =	-00.3[illegible]
RSD	-77.91	DIG HI

SP 12/31/90

NOT This CASE S 12/31/90

019	PB	Repr ASPBS		1.00x	28 DEC 90	22 22

	Pb-S	Tl-S
Burn 1	17.48	18.52
Burn 2	16.28	18.08
Mean	16.88 =	18.30 =
RSD	05.02	01.69
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	84.4	91.5

020	LCSFS	LCSS		5.00x	28 DEC 90	22 2[illegible]

	Pb-S	Tl-S
[illegible]	HIGH	[illegible]
[illegible]	[illegible]	4[illegible].0
[illegible]	[illegible]	40.0

[illegible] 12/31/90

[illegible]

C L P M E T A L S 2 21b

Run id F1 9036571
THERMO JARRELL-ASH VIDEO 22E (#2486)

Element Tl

Acquired 12/31/90 by DNP
Crunched 01/21/91 by DNP
Time 1415
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	12/31/90	20 07
2	CAL BLK	ICB		ICB	12/31/90	20 12
3	CRA	CRAO		CRA	12/31/90	20 17
4	50 PPB	CCV		CCV	12/31/90	20.22
5	CAL BLK	CCB		CCB	12/31/90	20 27
6	X	X		ZZZZZ	12/31/90	20 32
7	X	X		ZZZZZ	12/31/90	20 37
8	9011263-01	S	Furnace	03CWC	12/31/90	20 41
9	9011263-01	AS	Furnace	03CWCA	12/31/90	20 46
10	50 PPB	CCV		CCV	12/31/90	20 51
11	CAL BLK	CCB		CCB	12/31/90	20 56
48	0 PPB	WS0		S0	12/31/90	19 46
49	10 PPB	WS1		S10	12/31/90	19 50
50	50 PPB	WS2		S50	12/31/90	19·54
51	100 PPB	WS3		S100	12/31/90	19.58

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 1334 Instrument ID F1, F2, F3, F4, F5 F6 Page 1 of 2

Date: 12/31/90 Reviewed by: [illegible] Instruments Method #: 160

Operator: KC Standards Prepared: 12/31

Background: BS BD

Time Calibrated: 19:46 Standards Source: 8:00

1. Calibration: 10ppm

disc # 16 2. ICV: ICV-4

acq 3. CCV: 50ppB

9012003

9011263

SKINNER AND SHERMAN

A 21

Run ID: 903650A

Element: As Pb

Wavelength (nm): 283.3

Slitwidth (nm): 1

Integration Time (sec): 3

STD1: 0 STD2: 3

STD3: 50 STD4: 100

9011293

B

Run ID: 903655 T1 S 1/2

Element: Se Tl

Wavelength (nm): 276.8

Slitwidth (nm): 1

Integration Time (sec): 3

STD1: 0 STD2: 10

STD3: 50 STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CBA		
	4	CCV		
	5	CCB		
	6	X PBS-9012003		Pb NOT CASE
	7	X PBS60		only this
	8	01-9011263	> 1:4	<40% 2ND RUN
	9	01A		
	10	CCV		
	11	CCB		
	12	PBW-9011293		
	13	PBWA		
	14	LCSW		
	15	LCSWA		
	16	01		Dil <40%
	17	01A		
	18	02D		
	19	02DA		
	20	02		
	21	02A		
	22	CCV		
	23	CCB		
	24	02S		
	25	02SA		
	26	03		
	27	03A		
	28	04		
	29	04A		
	30	05		
	31	05A		
	32	06		<40%
	33	[illegible]		
	34	[illegible]		
	35	CCB		
	36	07		
	37	07A		
	38	08		
	39	[illegible]		

Tl only

NOT THIS CASE

S 1/2/91

CCV

CCB

GFAA RUN BENCH SHEET

AA SEQUENCE #: 1334

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	09		
	41	09A		
	42	10		<40%
	43	10A		
	44	11		
	45	11A		
	46	CCV		
	47	CCB		
	48			
	49			
	50			
	51			
	52			
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	84			
	85			

Normal Calibration

RIN3F

Pb-S Tl-S

Standard Z STD 1 0/0

Abs	1	0.004	-0.002
Mean		0.00[illegible]	-0.002
P/H		0.00[illegible]	-0.002
Abs	2	0.003	0.000
Mean		0.003	-0.001
P/H		0.004	-0.001

AUTO ZERO
19 46 38
Mon 31 DEC 1990

Pb-S Tl-S

Standard C STD 2 3/10

Abs	1	0.019	0.032
Mean		0.019	0.032
P/H		0.025	0.045
Abs	2	0.015	0.029
Mean		0.017	0.030
P/H		0.023	0.044

Pb-S Tl-S

Mean	0.017	0.030
SD	0.003	0.002
RSD	16.47	07.33

Pb-S Tl-S

Standard 1 STD 3 50/50

Abs	1	0.226	0.147
Mean		0.226	0.147
P/H		0.345	0.232
Abs	2	0.226	0.144
Mean		0.226	0.145
P/H		0.345	0.219

Pb-S Tl-S

Mean	0.226	0.145
SD	0.000	0.002
RSD	00.00	01.51

Pb-S Tl-S

Standard 2 STD 4 100/100

Abs	1	0.379	0.258
Mean		0.379	0.258
P/H		0.554	0.382
Abs	2	0.[illegible]	0.257
Mean		0.390	[illegible]
P/H		[illegible]	[illegible]

Pb-S T[illegible]

Mean	[illegible]	[illegible]

Instrument code F1
Run ID 90Oc5C1

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-4	ICV 2		2.00x	31 DEC 90	20 07

	Pb-S	Tl-S
Burn 1	47.31	48.46
Burn 2	47.05	49.43
Mean	47.43 =	48.94 =
RSD	01.13	01.39

002	CAL BLK	ICB 2		1.00x	31 DEC 90	20 12

	Pb-S	Tl-S
Burn 1	-00.21	00.73
Burn 2	-00.58	00.57
Mean	-00.40 =	00.65 =
RSD	-65.25	17.38
Check	OK	OK

003	CRA	CRAO		1.00x	31 DEC 90	20 17

	Pb-S	Tl-S
Burn 1	03.08	09.95
Burn 2	02.82	09.77
Mean	02.95 =	09.86 =
RSD	06.20	01.28

004	50 PPB	CCV	1	1.00x	31 DEC 90	20 22

	Pb-S	Tl-S
Burn 1	47.49	48.42
Burn 2	46.27	48.23
Mean	46.88 =	48.32 =
RSD	01.83	00.27
Check	OK	OK

005	CAL BLK	CCB	1	1.00x	31 DEC 90	20 27

	Pb-S	Tl-S
Burn 1	-00.32	00.11
Burn 2	-00.52	02.55
Mean	-00.42 =	01.33 =
RSD	-[illegible].57	DIG -I
Check	OK	

SJ 1/2/91

00030

Instrument code F1
Run ID 9036501

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	PB	PBS		1.00x	31 DEC 90	20 00

	Pb-S	T1-S
Burn 1	-01.57	00.22
Burn 2	00.00	00.72
Mean	-00.79 =	00.62 =
RSD	DIG HI	22.74

KC 1/2/90

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
007	PB	ASPBS		1.00x	31 DEC 90	20 37

	Pb-S	T1-S
Burn 1	18.95	20.12
Burn 2	16.97	18.22
Mean	17.96 =	19.17 =
RSD	07.79	07.00
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	89.8	95.8

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
008	9011263-01	S	03CWC1005	5.00x	31 DEC 90	20 41

	Pb-S	T1-S
Burn 1	02.50	-00.68
Burn 2	02.79	00.15
Mean	02.64 =	-00.27 =
RSD	07.76	DIG HI

KC 1/2/90

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
009	-01	AS	03CWC1005A	5.00x	31 DEC 90	20 46

	Pb-S	T1-S
Burn 1	21.39	06.78
Burn 2	21.36	08.10
Mean	21.37 =	07.44 =
RSD	00.10	12.54
Sample value	2.64	2.00U
Spike added	20.00	20.00
Spike recovery, %	93.6	37.2

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
010	50 PPB	CCV		1.00	31 DEC 90	20 51

2

	Pb-S	T1-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	[illegible]
RSD	00.[illegible]	01.[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

Instrument code F1
Run ID 9036501

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011	CAL BLK	CCB	2	1.00x	31 DEC 90	20 56

	Pb-S	Tl-S
Burn 1	-01.39	00.94
Burn 2	-01.03	00.32
Mean	-01.21 =	00.63 =
RSD	-20.99	69.52
Check	OK	OK

END OF CASE
8 1/2/91

012	PB	PBW		1.00x	31 DEC 90	21 01

	Pb-S	Tl-S
Burn 1	-00.74	00.80
Burn 2	-00.16	00.96
Mean	-00.45 =	00.88 =
RSD	-91.11	12.84

013	PB	ASPBW		1.00x	31 DEC 90	21 06

	Pb-S	Tl-S
Burn 1	17.59	17.95
Burn 2	17.24	19.08
Mean	17.41 =	18.51 =
RSD	01.41	04.31
Sample value	2.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	87.0	92.6

014	LCSFW	LCSW		1.00x	31 DEC 90	21 11

	Pb-S	Tl-S
Burn 1	50.41	48.46
Burn 2	48.88	49.09
Mean	49.64 =	48.77 =
RSD	02.17	00.91

015	LCSFw	ASLCSW		1.00x	31 DEC 90	21 16

	Pb-S	Tl-S
Burn 1	68.[illegible]	66.7[illegible]
Burn 2	68.6[illegible]	67.82
Mean	68.[illegible] =	67.30 =
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	20.[illegible]	20.00
[illegible]	94.[illegible]	[illegible]

[illegible]

C L P M E T A L S 2 215

Run id M1 9003509
TECHNICON MERCURY ANALYZER (#S34199A-D)

Element Hg

Acquired 12/21/90 by DMP
Crunched 01/21/91 by DMP
Time 1131
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	12/21/90	18 00
2	0 5 PPB	WS1		S0 5	12/21/90	18 03
3	1 0 PPB	WS2		S1.0	12/21/90	18 06
4	2 0 PPB	WS3		S2.0	12/21/90	18 09
5	5 0 PPB	WS4		S5 0	12/21/90	18 12
6	ICV-5	ICV		ICV	12/21/90	18 18
7	CAL BLK	ICB		ICB	12/21/90	18.21
8	2 PPB	CCV		CCV	12/21/90	18 24
9	CAL BLK	CCB		CCB	12/21/90	18.27
10	X	X		ZZZZZ	12/21/90	18 30
11	PB	PBW	Mercury	PBW	12/21/90	18 33
12	9011263-01	S	Mercury	03CWC	12/21/90	18·36
13	9011263-01	S2	Mercury	03CWCD	12/21/90	18 39
14	9011263-01	DS	Mercury	03CWCS	12/21/90	18 42
15	2 PPB	CCV		CCV	12/21/90	18 45
16	CAL BLK	CCB		CCB	12/21/90	18.48

22-3

SEQ NO: 222A SKINER MERCURY BENCH SHEET Pg 1 of 2
RUN IDS:

9035509

ANALYST [illegible]
INSTR: M1(water) M2(soil)
METHOD: HG
WAVELENGTH 253.7 mm

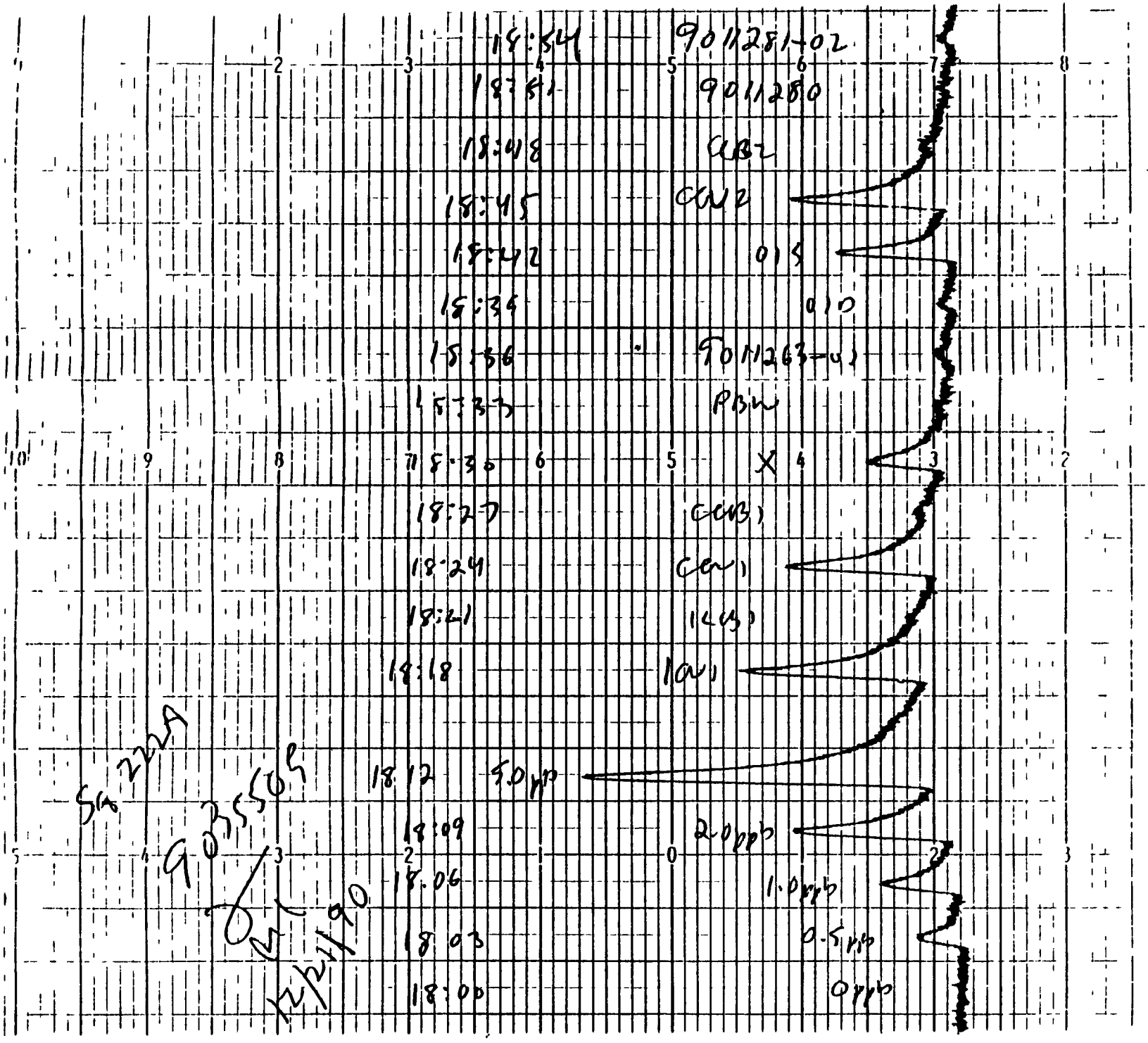
CALIBRATION TIME 18.00

RUN DATE 12/21/90
STANDARDS PREPPED
DATE: 12/21/90
STANDARD SOURCE
CALIB: 10 ppm SPEX
ICV : ICV-5 CCV : 2 ppb

		PK HT(mm)
01	BLANK	0
02	0.5 PPB	8
03	1.0 PPB	14
04	2.0 PPB	28
05	5.0 PPB	65

r=.9994

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
06	ICV-5	ICV	34	255 x2=	5.10
07	CAL BLK	ICB	0	<0.20	
08	CCV		27	2.01	
09	CCB		~~0~~ 1	<0.20	
10	X		X		
11	PBW		1	<0.20	
12	9011263-01		2	↓	
13	01D		2	↓	
14	01S		20	1.47	
15	Ca		28	2.09	
16	Ca		0	<0.20	
17	9011280-		0	↓	
18	9011281-07		2	↓	
19	02D		1	↓	
20	02S		18	1.31	
21	03		2	<0.20	
22	04		0	↓	
23	05		1	↓	
24	Ca		27	2.01	
25	Ca		1	<0.20	
26	9012011-01	1:9	50	~~3.70~~ 3.80 x10=	38
27	9011282-01		8	0.54	
28	9012009-01		3	<0.20	
29	01D		6	0.38	
30	01S		26	1.93	
31	~~02~~ 03		4	0.22	
32	~~03~~ 04		0	<0.20	
33	05		2	<0.20	
34	06		4	0.22	
35	X		X	~~[illegible]~~	
36	Ca		29	2.17	
37	Ca		0	<0.20	
38	9012151-01		0	↓	
39	01D		0	↓	


18:54 9011281-02
18:51 9011280
18:48 CCB2
18:45 CCW2
18:42 015
18:39 010
18:36 9011263-01
18:33 PBW
18:30 X
18:27 CCB1
18:24 CCW1
18:21 1CB1
18:18 1CW1
18:12 5.0ppb
18:09 2.0ppb
18:06 1.0ppb
18:03 0.5ppb
18:00 0ppb
Sig 222A
9035509
12/21/90

SAMPLE PREPARATION REPORT AQUEOUS

Prep batch 1135

Date 01/04/91

Approved

Sample identification			Digest 1	Furnace	Digest 2	ICP	Digest 3	Mercury	Digest 4	
Client ID	Sample ID	Lab code	Initial vol, ml	Final vol, ml	Initial vol, ml	Final vol, ml	Initial vol, ml	Final vol, ml	Initial vol, ml	Final vol, ml
03CWCS	9011263-01	DS	100 0	100	100 0	100	100 0	100		
03CWC	9011263-01	S	100 0	100	100 0	100	100 0	100		
03CWCD	9011263-01	S2	100 0	100	100 0	100	100 0	100		
	LCSFW	LCSW	100 0	100						
	LCSPW	LCSW			100 0	100				
	PB	PBW	100 0	100	100 0	100	100 0	100		

SAMPLE PREPARATION REPORT AQUEOUS

Prep batch 1135

Date 01/04/91

Approved

Sample identification				Digest 1 Furnace			Digest 2 ICP			Digest 3 Mercury			Digest 4		
Sample ID	Lab code	pH	pH(CN)	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution
9011263-01	DS	2 0		12/27/90	SLN	1 00	12/27/90	SLN	1 00	12/21/90	DNP	1 00			
9011263-01	S	2 0		12/27/90	SLN	1 00	12/27/90	SLN	1 00	12/21/90	DNP	1 00			
9011263-01	S2	2 0		12/27/90	SLN	1 00	12/27/90	SLN	1 00	12/21/90	DNP	1 00			
LCSFW	LCSW			12/27/90	SLN	1 00									
LCSPW	LCSW						12/27/90	SLN	1 00						
PB	PBW			12/27/90	SLN	1 00	12/27/90	SLN	1 00	12/21/90	DNP	1 00			

DATE 12/27/90 ANALYST LHE FOR GFAA/ICP WATERS PREP LOG

DATE 12/21/90 ANALYST KOJ FOR MERCURY PREP BATCH # 135 REVIEWED BY 1/2/22

SKINNER & SHERMAN

LCS SOURCE		Digest 1 (GFAA)		Digest 2 (ICP)			Digest 3 (Hg)	Description Color Clarity
Client ID	Lab ID	Initial Vol(ml)	Final Vol(ml)	Initial Vol(ml)	Final Vol(ml)	pH	Initial Vol(ml)	
Woodward-Norcal	9011263-01	100	100	100	100	2.0	100	Colorless, clear
	01 S2	50	50	50	50			
	01:DS	50	50	100	100			
	LCSW	100	100				—	
	MB	100	100				100	

(1)

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

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

STANDARD IDENTITY: STANDARD B

DATE PREPARED: 1/4/91
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
Reprepped 1/14/91					

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

00090

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

(2)

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

STANDARD IDENTITY: STANDARD 1

DATE PREPARED: 1/4/91
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-1	1000 ppm	5 ml	5 ppm
As	MVAs-3	1000 ppm	5 ml	5 ppm
Ba	MVBa-2	1000 ppm	5 ml	5 ppm
Be	MVBe-2	1000 ppm	1 ml	1 ppm
Cd	MVCd-2	1000 ppm	5 ml	5 ppm
Cr	MVCr-2	1000 ppm	5 ml	5 ppm
Co	MVCo-2	1000 ppm	5 ml	5 ppm
Cu	MVCu-2	1000 ppm	5 ml	5 ppm
Pb	MVPb-2	1000 ppm	5 ml	5 ppm
Mn	MVMn-1	1000 ppm	5 ml	5 ppm
Ni	MVNi-1	1000 ppm	5 ml	5 ppm
Se	MVSe-2	1000 ppm	5 ml	5 ppm
Tl	MVTl-2	1000 ppm	5 ml	5 ppm
V	MVV-2	1000 ppm	5 ml	5 ppm
Zn	MVZn-2	1000 ppm	5 ml	5 ppm
T	MVTi-1	1000 ppm	5 ml	5 ppm

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

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

(3)

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

STANDARD IDENTITY: STANDARD 2

DATE PREPARED: 12/18/90
PREPARED BY: SRP

FINAL VOLUME: 1000 ml

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 20 HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Ag	MVAg-2		1000 ppm	1 ml	4.0 ppm

Reprepped 1/14/91 SRP

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

DOC-02

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

(4)

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

STANDARD IDENTITY: STANDARD 3

DATE PREPARED: 1/4/91
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
AL	MVAl-2	10,000 ppm	5 ml	50 ppm
Ca	MVCa-2	10,000 ppm	5 ml	50 ppm
Fe	MVFe-2	10,000 ppm	2 ml	20 ppm
Mg	MVMg-2	10,000 ppm	5 ml	50 ppm
K	MVK-2	10000 ppm	5.0 ml	50 ppm
Na	MVNa-3	10000 ppm	5.0 ml	50 ppm

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

00:00

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

(5)

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

STANDARD IDENTITY: Initial Calibration Verification Solutions

DATE PREPARED: 1/10/91
PREPARED BY: SRP

FINAL VOLUME:

MATRIX: 2 %HNO3 ___%HCl ___Other

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

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
a) ICV-1	QCICV1	-34		20 ml → 200 ml	
b) ICV-2	QCICV2	-46		20 ml → 100 ml	
c) ICV-3	QCICV3	-25		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: 1/10/91
PREPARED BY: SRP

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	-42		20 ml →	200 ml
b) ICSABB	QCICSA	-42		20 ml →	200 ml
	QCICSB	-24		20 ml →	

Reprepped 1/15/91

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

0010-1

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

(7)

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

STANDARD IDENTITY: 2 x Contract Required Detection Limit Solution

DATE PREPARED: 1/4/91
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-1	1000 ppm	120 ul	120 ppb
As	MVAs-3	1000 ppm	50 ul	50 ppb
Be	MVBe 2	1000 ppm	10 ul	10 ppb
Cd	MVCd-2	1000 ppm	10 ul	10 ppb
Cr	MVCr-2	1000 ppm	20 ul	20 ppb
Co	MVCo-2	1000 ppm	100 ul	100 ppb
Cu	MVCu-2	1000 ppm	50 ul	50 ppb
Pb	MVPb-2	1000 ppm	50 ul	50 ppb
Mn	MVMn-1	1000 ppm	30 ul	30 ppb
Ni	MVNi-1	1000 ppm	80 ul	80 ppb
Se	MVSe-2	1000 ppm	100 ul	100 ppb
V	MVV-2	1000 ppm	100 ul	100 ppb
Tl	MVTl-2	1000 ppm	500 ul	500 ppb
Ag	MVAg-2	1000 ppm	20 ul	20 ppb
Zn	MVZn-2	1000 ppm	40 ul	40 ppb
	MVTi-1			

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

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

(8)

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

STANDARD IDENTITY: Continuing Calibration Verification Solution (HalfSTD)

DATE PREPARED: 1/4/91
PREPARED BY: SRP

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			1000 ppm	250 ml	

Reprepped 1/10/91
Reprepped 1/15/91

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

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

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

STANDARD IDENTITY:

DATE PREPARED: Hg Working Standard
PREPARED BY:

FINAL VOLUME: 100 ml

MATRIX: 2 %HNO3 ___%HCl ___Other

MLS ADDED: 2 HNO3 ___HCl ___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
12-24-90 Hg		MV-HG-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-26-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-27-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-31-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
1-2-91 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-20-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb

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

DOCUMENT#_____
(BOOK# - PAGE#)

→ See Sample # 03CWC1005, COC # 015 for TMH/NORCAL for Rad. Assay ←

Woodward-Clyde Consultants

Stanford Place 3 Suite 1000 4582 South Ulster Street Parkway
Denver Colorado 80237 (303) 694 2770

Chain of Custody Record

COC # 016

PROJECT NO. 22558 Task 500

SAMPLERS: (Signature) BR Clow

DATE	TIME	SAMPLE NUMBER	Metals	Wet Chem*	NO_3/NO_2					NUMBER OF CONTAINERS
11/28/90	1000	03CWC1005	X	X	X					3

ANALYSES

REMARKS (Sample preservation handling procedures etc.)
For TMA-Skinner/Sherman

Matrix – Water

All samples stored on ice.

*Wet Chem:
Cl^-, F^-, Carb./Bicarb., pH, Sulfate, TDS, TSS, Conductivity

– Metals Preserved w/ HNO_3 to pH<2

– NO_3/NO_2 preserved w/ H_2SO_4 to pH<2

Contact personnel
Brian Clow
(303) 279-4501 x205

BR Clow 11/28/90

TOTAL NUMBER OF CONTAINERS 3

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
BR Clow	11/28/90 1500				

METHOD OF SHIPMENT	SHIPPED BY (Signature)	COURIER (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
			Anita Berry	11/29/90 9:30

00153

SKINNER & SHERMAN LABS

Receiving Log at Loading Dock

DOCUMENT# 3 22
(BOOK# - PAGE#)

DATE	AIRBILL #	RTD	SENDER	# of CONT	TIME	INIT & COMMENTS
11/29/90	9380624131		Donohue Sheffield	1	9:30	AB
11/29/90	9380624890		" "	1	9:30	AB
11/29/90	9300435475		NUS Tucker Ga	2	9:30	AB
11/29/90	8545141850		ICF Edison NJ	1	9:30	AB
11/29/90	2249866533		NUS Wayne Pa	1	9:30	AB
11/29/90	no #		Woodward Clyde Denver Co	1	9:30	AB
11/30/90	13144514434		TMAER G	2	9:30	JD
11/30/90	7074590202		Normandrau	1	9:30	JD
	8939040040		Camp Dresser	1	9:30	JD
	7844545763		Normandrau	2	9:30	JD
	9380624061		Donohue	1	9:30	JD
	9693733582		Tetratech	1	9:30	JD
	3561453976		NUS Corp	1	9:30	JD
	3561452381		NUS Corp	1	9:30	JD
	8858250282		Dynamic	1	9:30	JD
	9300438243		NUS Corp	1	9:30	JD
	8545141872		ICF	1	9:30	JD
11/30/90	9130260370		NUS Edison NJ	1	9:30	AB
11/30/90	4364935241		Compuchem Apark NJ	1	9:30	AB
	4364938142			1		AB
	4364932216					AB
	4364932342					AB
	4364932644					AB
	4364932543					AB
	4364932740					AB
12/01/90	8939040025		CDM Edison NJ	1	10:00	AB
12/01/90	9140445650		Alliance Lowell MA	1	10:00	AB
12/01/90	8545140984		ICF ~~tech~~ Edison NJ	1	10:00	AB
12/01/90	9380624341		Donohue Houghton MI	2	10:00	AB
12/01/90	3561452473		NUS Bedford MA	1	10:00	AB
12/01/90	6373432283		ENSR Acton MA	1	10:00	AB
12/3	17423205215		Twinwood East	1	9:00	JD
12/	8728[illegible]		[illegible]			
12/4/90	8605553504		Cem [illegible]	1	9:30	JD
12/4	8877847451		echem	1	9:30	JD
12/	7955[illegible]		[illegible]	1	9:30	JD
12/	9847[illegible]		[illegible]		9:30	JD

TMA
Thermo Analytical Inc

TMA/Norcal
2030 W. ght Avenue
P O Box 4040
Richmond CA 94804 0040
(415) 235-2633 Fax No (415) 235-0438

RECEIVED
FEB 1 5 1991
WCC/DENVER, COLORADO

February 14, 1991

Woodward Clyde Consultants
4582 S Ulster Parkway
Denver, CO 80237

Attention Steve Baca

Reference Project No 22558

Dear Steve

Enclosed are four sets of results for samples referenced below

TMA/Norcal W O. Number	TMA/Skinner & Sherman Work Order Number	Sample Receipt Date (s)
N1-02-119	9012105	12/11/90
N1-02-120	9012106	12/11/90
N1-02-121	9012108	12/11 - 12/90
N1-02-122	9012109	12/11/90

Please let me know if you have any questions

Sincerely,

Daniel H Stuermer, Ph D
Program Manager

DHS/dss

Enclosures

TMA
Thermo Analytical Inc

Skinner & Sherman Laboratories Inc
300 Second Avenue
Post Office Box 521
Waltham MA 02254 0521
(617) 890 7200

RECEIVED
FEB 15 1991
WCC/DENVER, COLORADO

Federal Express 9295313296

February 4, 1991

TMA/NORCAL
7030 Wright Avenue
Richmond, CA 94801-0040

Attention: Dan Stuermer

Quality Control Narrative

Scope

Nineteen (19) water samples were submitted to TMA/Skinner & Sherman Labs from TMA/Norcal. The samples were taken by Woodward-Clyde Consultants on December 11-12, 1990 under Project Number 22558, Task 500. The client requested that the samples be analyzed for the USEPA CLP Target Analyte List metals. The analysis were performed under Skinner and Sherman work order 9012108.

Methodology

The samples were prepared and analyzed in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788), Exhibit D. The data is reported in accordance with CLP SOW788, Exhibit B. Quality control requirements are specified in Exhibit E of the SOW788.

Discussion

All quality control requirements were met for the samples with the following exceptions.

The iron, mercury and thallium matrix spike recoveries were below the control limits. The post-digestion spike for iron had an acceptable recovery.

The laboratory duplicate for iron was outside control limits.

The ICP serial dilutions for zinc did not meet control limit requirements.

Samples PF1026, PF1027, PF1028, and PF1031 were quanititated for selenium by MSA. The result from the MSA with the higher correlation coeeficient is reported. The "W" flags for the furnace elements indicate the possiblity of matrix interferences.

Dan Steurmer, TMA/Norcal
Project No. 22558, Task 500
Work Order 9012108

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

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES

Richard Purdy
Contract Laboratory Program
Program Manager

TMA/SKINNER AND SHERMAN LABORATORIES, INC.
RAS INORGANIC COMPLETENESS CHECKLIST

CASE NUMBER:_____ SDG NUMBER: PF1020 WORK ORDER NUMBER: 9012108

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SAMPLE PREPARATION & PERCENT SOLIDS	232-236
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CHAIN-OF-CUSTODY	247-251
SAMPLE DESCRIPTION	236
CASE NARRATIVE	✓
METHOD REFERENCES	✓

Approved by: [signature] Date: 2/4/91

WOODWARD-CLYDE CONSULTANTS
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

SOW No 7/88

SAMPLE NUMBER	Lab Sample ID
PF1020	12108-01S
PF1020D	12108-01S2
PF1020S	12108-01DS
PF1021	12108-02S
PF1022	12108-03S
PF1023	12108-04S
PF1024	12108-05S
PF1025	12108-06S
PF1026	12108-07S
PF1027	12108-08S
PF1028	12108-09S
PF1029	12108-10S
PF1030	12108-11S
PF1031	12108-12S
PF1032	12108-13S
PF1033	12108-14S
PF1034	12108-15S
PF1035	12108-16S
PF1036	12108-17S
PF1037	12108-18S

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
BECAUSE OF CLP REPORTING CONSTRAINTS, THE FIRST THREE DIGITS OF THE SAMPLE ID (32C AND 34C) HAVE BEEN OMITTED FROM THE FORMS PACKAGE

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 [signature] Name [illegible]

Date 2/4/91 [illegible]

[illegible]

000000

WOODWARD-CLYDE CONSULTANTS
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22550 SAS No SDG No PF1000

SOW No 7/88

SAMPLE NUMBER	Lab Sample ID
PF1038	12108-195

Were ICP interelement corrections applied	Yes/No	[illegible]
Were ICP background corrections applied	Yes/No	YES
If yes-were raw data generated before application of background corrections	Yes/No	NO

Comments
BECAUSE OF CLP REPORTING CONSTRAINTS, THE FIRST THREE DIGITS OF THE SAMPLE ID (33C AND 34C) HAVE BEEN OMITTED FROM THE FORMS PACKAGE

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 [illegible] 2/4/91. Name [illegible]

Title [illegible]

[illegible]

100002

07

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1020

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-01S

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	150 00	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 60	B	W	F
7440-39-3	Barium	205 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	6 80	B		F
7439-89-6	Iron	271 00			F
7439-92-1	Lead	3 60			F
7439-95-4	Magnesium	20500 00			F
7439-96-5	Manganese	12 10	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 30	U		F
7440-09-7	Potassium	2710 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	57400 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	154 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000002

02

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1021

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-02S

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	96 80	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	203 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	111000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	5 90	B		P
[illegible]	Iron	1070 00		N	P
[illegible]	Lead	2 42	B		F
[illegible]	Magnesium	29600 00			P
7439-96-5	Manganese	10 80	B		P
7439-97-6	Mercury	0 20	U	N	CV
[illegible]	Nickel	4 00	U		P
7440-09-7	Potassium	1660 00	B		P
7782-49-2	Selenium	4 00	U	W	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	59300 00			P
7440-28-0	Thallium	10 00	U	NW	F
7440-62-2	Vanadium	3 00			P
7440-66-6	Zinc	264 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After [illegible] Clarity After CLEAR Artifacts

[illegible]

[illegible]

000002

0 2

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1022

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22553 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-03S

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	27 70	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	200 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	111000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	6 00	B		P
[illegible]	Iron	[illegible]	B	[illegible]	P
[illegible]	Lead	[illegible]	B		F
[illegible]	Magnesium	29900 00			P
[illegible]	Manganese	10 30	B		F
[illegible]	Mercury	0 20	U	N	CV
[illegible]	[illegible]	4 00	U		P
7440-09-7	Potassium	1740 00	B		P
7782-49-2	Selenium	4 00	U	W	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	59900 00			P
7440-28-0	Thallium	10 00	U	NW	F
[illegible]	Vanadium	[illegible] 00			P
7440-66-6	Zinc	129 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

[illegible] Clarity After CLEAR [illegible]

000004

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WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1023

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-04S

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23 00	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3.00	U		F
7440-39-3	Barium	204 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1.00	U		P
7440-70-2	Calcium	112000 00			P
7440-47-3	Chromium	4 00	U		F
7440-48-4	Cobalt	2 00	[illegible]		P
7440-50-8	Copper	6 90	B		P
[illegible]	Iron	904 00		N'	P
[illegible]	Lead	4 00	[illegible]		F
[illegible]	Magnesium	29800 00	[illegible]		P
[illegible]	Manganese	10 80	B		P
[illegible]	Mercury	0 20	U'	N	CV'
[illegible]	Nickel	4 00	[illegible]		P
7440-09-7	Potassium	1570 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U'		P
7440-23-5	Sodium	60300 00	[illegible]		P
7440-28-0	Thallium	10 00	U	NW	F
7440-62-2	Vanadium	3 00	[illegible]		P
7440-66-6	Zinc	267 00	[illegible]	E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000005

05

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1024

Lab Name SKINNER & SHERMAN LABS Contract 63-D9-0038

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-050

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.00	U		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	207 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	4 10	B		P
[illegible]	Iron	17 00	[illegible]	N*	P
[illegible]	Lead	[illegible] 40	B		F
[illegible]	Magnesium	30700 00			P
[illegible]	Manganese	10 30	B		P
[illegible]	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1690 00	B		F
7782-49-2	Selenium	4 00	U	N	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	62400 00			P
7440-28-0	Thallium	10 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	133 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000006

06

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1025

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-065

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	104 00	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	210 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	21 70			P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	6 20	B		P
7439-89-6	Iron	925 00			P
7439-92-1	Lead	2 40	B		F
7439-95-4	Magnesium	30700 00			P
7439-96-5	Manganese	10 00	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	12 40	B		P
7440-09-7	Potassium	1710 00	B		P
7782-49-2	Selenium	4 00	U	W	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	40000 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	277 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After [illegible] Clarity After CLEAR Artifacts

[illegible]

000007

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1020

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-075

Level (low/med) LOW Date Received 12/11/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	92.60	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 30	B		F
7440-39-3	Barium	208 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	116000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	6 30	B		P
[illegible]	Iron	[illegible] 00	E	N*	P
[illegible]	Lead	[illegible] 00	E		F
[illegible]	Magnesium	30100 00			P
[illegible]	Manganese	6 90	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1730 00	B		P
7782-49-2	Selenium	4 60	B	+	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	40400 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	234 00		E	P
	Cyanide				NR

Color Before [illegible] Clarity Before CLEAR Texture

Color After [illegible] Clarity After CLEAR Artifacts

[illegible]

000008

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1027

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-08S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	70 10	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	214 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	118000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	1 60	B		P
7439-89-6	Iron	342 00			P
7439-92-1	Lead	1 50	E		F
7439-95-4	Magnesium	31200 00			P
7439-96-5	Manganese	8 10	E		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1660 00	B		P
7782-49-2	Selenium	4 00	B	+	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	41000 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	273 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000009

09

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1028

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-09S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20 00	U		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	202 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	113000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	11 50	B		P
[illegible]	Iron	27 60	E	N	P
[illegible]	Lead	3 40			F
7439-95-4	Magnesium	30100 00			P
[illegible]	Manganese	3 60	E		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	4250 00	B		P
7782-49-2	Selenium	4 00	E	+	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	39200 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	283 00		E	P
	Cyanide				NP

Color Before [illegible] Clarity Before CLEAR Texture

Color After [illegible] Clarity After CLEAR Artifacts

000010

10

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1029

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-10S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22 50	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	210 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	7 50	E		P
7439-89-6	Iron	[illegible]			P
7439-92-1	Lead	[illegible]	E		F
7439-95-4	Magnesium	30000 00			P
7439-96-5	Manganese	8 10	E		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1620 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	40000 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	274 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After [illegible] Clarity After CLEAR Artifacts

[illegible]

000011

WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1030

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0083

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-11S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	30.30	B		P
7440-36-0	Antimony	17.00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	205 00			P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	10 00	B		P
[illegible]	Iron	27 00	B	N*	P
[illegible]	Lead	[illegible]	[illegible]		P
[illegible]	Magnesium	30500 00			P
[illegible]	Manganese	[illegible]	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	[illegible]		P
7440-09-7	Potassium	[illegible]	B		P
7782-49-2	Selenium	4 00	U	W	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	39300 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	299 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000012

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1031

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-12S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21.40	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	206 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	114000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	9 60	B		P
[illegible]	Iron	764 00	[illegible]	[illegible]	P
[illegible]	Lead	1 40	B		F
7439-95-4	Magnesium	30400 00			P
7439-96-5	Manganese	3 40	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1620 00	B		P
7782-49-2	Selenium	4 00	U	+	F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	30700 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	272 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000013

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1032

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-13S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	31.90	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	210 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	117000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	21 00	B		P
[illegible]	Iron	21 40	[illegible]	N	P
[illegible]	Lead	[illegible] 10		N	F
7439-95-4	Magnesium	31100 00			P
7439-96-5	Manganese	8 90	B		P
[illegible]	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	2880 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	40700 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	264 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR [illegible]

[illegible]

[illegible]

000014

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1030

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-14S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23 00	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	210 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	5 60	B		P
[illegible]	Iron	304 00		W*	F
[illegible]	Lead	3 00	[illegible]		F
[illegible]	Magnesium	30700 00	[illegible]		P
[illegible]	Manganese	3 60	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1960 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	63200 00			P
7440-28-0	Thallium	10 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	231 00		E	P
	Cyanide				NR

Color Before CHLORLESS Clarity Before CLEAR Texture

Color After CHLORLESS Clarity After CLEAR Artifacts

000015

15

WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1034

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-15S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	29.80	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3.00	U		F
7440-39-3	Barium	203 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	115000 00			P
7440-47-3	Chromium	4 10	E		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	6 80	E		P
[illegible]	Iron	22 20	E	N*	P
[illegible]	Lead	2 80	B		F
7439-95-4	Magnesium	30500 00			P
7439-96-5	Manganese	8 90	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	2050 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	62900 00			P
7440-28-0	Thallium	10 00	U	NW	F
7440-62-2	Vanadium	3 30	U		P
7440-66-6	Zinc	101 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000016

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WOODWARD-CLYDE CONSULTANTS

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SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1035

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1210

Matrix (soil/water) WATER Lab Sample ID 12108-16S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	33 50	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	210 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	116000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	11 60	B		P
7439-89-6	Iron	301 00			F
7439-92-1	Lead	5 10			F
7439-95-4	Magnesium	30700 00			F
7439-96-5	Manganese	9 10	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00			P
7440-09-7	Potassium	1830 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	59700 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 30	U		P
7440-66-6	Zinc	275 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After Clarity After CLEAR Artifacts

000017

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WOODWARD-CLYDE CONSULTANTS

1

SAMPLE NUMBER

INORGANIC ANALYSIS DATA SHEET

PF1036

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1010

Matrix (soil/water) WATER Lab Sample ID 12108-17S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	32 40	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	201 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	116000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	2 70	B		P
[illegible]	Iron	[illegible] 50	[illegible]	NR	P
[illegible]	Lead	1 00	B		F
7439-95-4	Magnesium	10,200 00			P
7439-96-5	Manganese	8 40	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1830 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	59400 00			P
7440-28-0	Thallium	10 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	95 40		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

00001B

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WOODWARD-CLYDE CONSULTANTS

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1037

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-18S

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24 60	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3 00	U		F
7440-39-3	Barium	208 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	117000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	1 40	B		P
7439-89-6	Iron	[illegible]			P
[illegible]	Lead	[illegible]	B		F
7439-95-4	Magnesium	30100 00			P
7439-96-5	Manganese	0 60	B		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	1700 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	60800 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	284 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After [illegible] Clarity After CLEAR Artifacts

Comments

[illegible]

000019

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WOODWARD-CLYDE CONSULTANTS

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER

PF1020

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Lab Sample ID 12108-195

Level (low/med) LOW Date Received 12/12/90

% Solids 0 0

Concentration Units (ug/L or mg/Kg dry weight) UG/L

CAS No	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	56 00	B		P
7440-36-0	Antimony	17 00	U		P
7440-38-2	Arsenic	3.00	U		F
7440-39-3	Barium	204 00			P
7440-41-7	Beryllium	1 00	U		P
7440-41-7	Cadmium	1 00	U		P
7440-70-2	Calcium	117000 00			P
7440-47-3	Chromium	4 00	U		P
7440-48-4	Cobalt	2 00	U		P
7440-50-8	Copper	1 00	U		P
7439-89-6	Iron	54 00	[illegible]		P
7439-92-1	Lead	2 40	E		F
7439-95-4	Magnesium	21100 00			P
7439-96-5	Manganese	3 40	E		P
7439-97-6	Mercury	0 20	U	N	CV
7440-02-0	Nickel	4 00	U		P
7440-09-7	Potassium	2100 00	B		P
7782-49-2	Selenium	4 00	U		F
7440-22-4	Silver	2 00	U		P
7440-23-5	Sodium	61400 00			P
7440-28-0	Thallium	2 00	U	NW	F
7440-62-2	Vanadium	3 00	U		P
7440-66-6	Zinc	110 00		E	P
	Cyanide				NR

Color Before COLORLESS Clarity Before CLEAR Texture

Color After COLORLESS Clarity After CLEAR Artifacts

000020

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum	2172 0	2041 50	94 0	25000 0	24441 00	97 8	24224 00	96 9	P
Antimony	973 0	996 12	101 9	2500 0	2417 20	96 7	2393 50	95 7	P
Arsenic				50 0	50 48	101 0	51 24	102 5	F
Barium	2041 0	2025 30	99 2	2500 0	2457 00	98 3	2421 80	96 9	P
Beryllium	510 0	485 74	95 2	500 0	493 18	98 6	487 40	97 5	P
Cadmium	[illegible]	[illegible]	[illegible]	2500 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Calcium	[illegible]	[illegible]	[illegible]	25000 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Chromium	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	P
Cobalt	[illegible]	[illegible]	[illegible]	2500 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Copper	[illegible]	[illegible]	[illegible]	2500 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Iron	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	P
Lead	[illegible]	[illegible]	[illegible]	50 0	48 41	96 2	51 [illegible]	[illegible]	F
Magnesium	[illegible]	[illegible]	[illegible]	25000 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Manganese	[illegible]	[illegible]	[illegible]	2500 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Mercury	5 0	5 44	108 8	2 0	2 20	110 0	2 35	117 5	CV
Nickel	497 0	476 87	95 9	2500 0	2411 10	96 4	2388 00	95 5	P
Potassium	5200 0	4986 00	95 8	25000 0	24197 00	96 8	24005 00	96 0	P
Selenium	52 6	51 26	97 5	50 0	49 71	99 4	48 09	96 2	F
Silver	500 0	497 93	99 6	500 0	502 65	100 5	496 41	99 3	P
Sodium	[illegible]	49932 00	97 3	25000 0	24468 00	97 9	[illegible]	97 1	P
Thallium	97 0	96 74	99 7	50 0	49 22	98 4	49 52	99 0	F
Vanadium	[illegible]	409 15	[illegible]	2500 0	2444 70	97 8	[illegible]	[illegible]	P
Zinc	[illegible]	[illegible]	[illegible]	2500 0	[illegible]	[illegible]	[illegible]	[illegible]	P
Cyanide									NF

000021

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum				25000 0	23723 00	94 9	23774 00	95 1	P
Antimony				2500 0	2368 80	94 8	2384 90	95 4	P
Arsenic				50 0	48 44	96 9			F
Barium				2500 0	2375 80	95 0	2373 90	95 0	P
Beryllium				500 0	482 03	96 4	486 16	97 2	P
Cadmium				2500 0	2362 20	94 5	2402 00	96 1	F
Calcium				25000 0	23723 00	[illegible] 7	24285 00	97 1	P
Chromium				2500 0	2369 90	94 8	2403 70	96 2	F
Cobalt				2500 0	2357 50	94 3	2391 60	95 7	P
Copper				2500 0	2368 90	94 8	2364 80	94 6	P
Iron				10000 0	9607 40	96 0	9675 90	96 8	P
Lead				50 0	52 74	105 5	50 37	100 7	F
Magnesium				25000 0	23786 00	95 1	23800 00	95 [illegible]	P
Manganese				2500 0	2374 90	95 0	2395 40	95 2	P
Mercury				2 0	2 20	110 0	2 13	106 5	CV
Nickel				2500 0	2354 30	94 2	2388 40	95 5	P
Potassium				25000 0	23680 00	94 7	23607 00	94 4	P
Selenium				50 0	48 46	96 9			F
Silver				500 0	494 33	98 9	490 17	98 0	P
Sodium				25000 0	23785 00	95 1	23787 00	95 1	P
Thallium				50 0	51 71	103 4	49 43	99 0	F
Vanadium				2500 0	2377 40	[illegible]	2397 20	95 [illegible]	P
Zinc				2500 0	2383 40	[illegible]	2421 50	[illegible]	P
Cyanide									NP

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum				25000 0	23903 00	95 6			P
Antimony				2500 0	2377 30	95 1			P
Arsenic	47 4	51 78	109 2	50 0	54 08	108 2	52 98	106 0	F
Barium				2500 0	2389 00	95 6			P
Beryllium				500 0	486 57	97 3			P
Cadmium				2500 0	2359 10	95 6			P
Calcium				25000 0	24129 00	96 5			P
Chromium				2500 0	2395 10	95 8			P
Cobalt				2500 0	2382 00	95 3			P
Copper				2500 0	2379 10	95 2			P
Iron				10000 0	9710 70	97 1			P
Lead				50 0	51 61	103 2	51 34	102 7	F
Magnesium				25000 0	23914 00	95 7			P
Manganese				2500 0	2394 60	95 8			P
Mercury				2 0	2 13	106 5	2 35	117 5	CV
Nickel				2500 0	2379 40	95 2			P
Potassium				25000 0	23776 00	95 1			P
Selenium	52 6	55 01	104 6	50 0	52 08	104 2	51 54	103 1	F
Silver				500 0	495 37	99 1			P
Sodium				25000 0	23842 00	95 4			P
Thallium				50 0	50 75	101 5	49 84	99 7	F
Vanadium				2500 0	2399 10	96 0			P
Zinc				2500 0	2383 70	[illegible]			P
Cyanide									NP

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WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum									NR
Antimony									NR
Arsenic				50 0	54 20	108 4	53 12	106 2	F
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NP
Cobalt									NR
Copper									NP
Iron									NP
Lead	97 5	95 03	97 5	50 0	49 60	99 2	48 32	96 6	F
Magnesium									NR
Manganese									NP
Mercury	5 0	4 30	86 0	2 0	2 08	104 0	2 15	107 5	CV
Nickel									NR
Potassium									NR
Selenium				50 0	54 11	108 2	52 74	105 5	F
Silver									NP
Sodium									NP
Thallium	97 0	96 12	99 1	50 0	50 62	101 2	49 88	99 8	F
Vanadium									NP
Zinc									[illegible]
Cyanide									NP

[illegible] Metals [illegible]

000024

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium				50 0	54 90	109 8	51 76	103 5	F
Silver									NR
Sodium									NR
Thallium				50 0	49 74	99 5	48 74	97 5	F
Vanadium									NR
Zinc									NR
Cyanide									NR

[illegible]

000025

[illegible]

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium				50 0	53 07	106 1			F
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

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WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
[illegible]									NR
[illegible]									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium	52 6	52 12	99 1	50 0	53 86	107 7	52 12	104 2	F
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

000027

WOODWARD-CLYDE CONSULTANTS

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium	52 6	47 57	90 4	50 0	49 32	98 6	52 10	104 2	F
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

000028

WOODWARD-CLYDE CONSULTANTS

2B

CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0083

Lab Code SKINER Case No 22553 SAS No SDG No PF1020

AA CRDL Standard Source SKINER

ICP CRDL Standard Source SKINER

Concentration Units ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony				120 0	108 77	90 6	101 14	84 3
Arsenic	10 0	9 86	98 6					
Barium								
Beryllium				10 0	9 91	99 1	9 91	99 1
Cadmium				10 0	10 56	105 6	10 56	105 6
Calcium								
Chromium				20 0	[illegible]	[illegible]	[illegible]	[illegible]
Cobalt				100 0	96 46	96 5	96 46	96 5
Copper				50 0	[illegible]	104 3	48 77	97 5
Iron								
Lead	[illegible]	3 42	114 3					
Magnesium								
Manganese				30 0	28 30	94 3	28 06	93 5
Mercury								
Nickel				80 0	74 52	93 2	73 18	91 5
Potassium								
Selenium	5 0	5 96	119 2					
Silver				20 0	19 75	98 8	12 99	65 0
Sodium								
Thallium	10 0	[illegible]	[illegible]					
Vanadium				200 0	[illegible]	[illegible]	[illegible]	[illegible]
Zinc				40 0	40 50	101 2	[illegible]	[illegible]

000029

WOODWARD-CLYDE CONSULTANTS

2B

CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

AA CRDL Standard Source SKINER

ICP CRDL Standard Source

Concentration Units ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP Initial True	Initial Found	Initial %R	Final Found	Final %R
Aluminum								
Antimony								
Arsenic	10 0	13 08	130 8					
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	2 0	2 36	78 7					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5 0	8 79	175 8					
Silver								
Sodium								
Thallium	[illegible]	[illegible]	[illegible]					
Vanadium								
Zinc								

000030

WOODWARD-CLYDE CONSULTANTS

2B

CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

AA CRDL Standard Source SKINER

ICP CRDL Standard Source

Concentration Units ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5 0	7 55	151 0					
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

WOODWARD-CLYDE CONSULTANTS

2B

CRDL STANDARD FOR AA AND ICP

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

AA CRDL Standard Source SKINER

ICP CRDL Standard Source

Concentration Units ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5 0	7 64	152 8					
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

000032

WOODWARD-CLYDE CONSULTANTS

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	20	U	40	B	20	U	20	U	27	B	P
Antimony	17	U	-20	B	17	U	17	U	17	U	P
Arsenic	3	U	3	U	3	U	3	U	3	U	F
Barium	1	B	1	U	1	U	1	U	1	U	P
Beryllium	1	U	1	U	1	U	1	U	1	U	P
Cadmium	1	U	1	B	1	U	1	U	1	U	P
Calcium	10	U	36	B	25	B	25	B	10	U	P
Chromium	4	U	4	U	4	U	4	U	4	U	P
Cobalt	2	U	2	U	2	U	2	U	2	U	P
Copper	1	U	4	B	1	B	2	B	2	B	P
Iron	17	U	22	B	17	U	17	U	28	B	P
Lead	1	U	1	U	1	U	1	U	1	U	F
Magnesium	27	U	34	B	27	U	27	U	27	U	P
Manganese	6	U	6	U	6	U	6	U	6	U	P
Mercury	0	U	0	U	0	U	0	U	0	U	CV
Nickel	4	U	-5	B	4	U	-4	B	4	U	P
Potassium	101	U	101	U	101	U	101	U	101	U	P
Selenium	4	U	4	U	4	U	4	U	4	U	F
Silver	2	U	-6	B	-8	B	-9	B	-9	B	P
Sodium	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Thallium	2	U	2	U	2	U	2	U	2	U	F
Vanadium	3	U	3	U	3	U	3	U	3	U	P
Zinc	2	U	10	B	3	B	2	U	4	B	P
Cyanide											NT

000033

WOODWARD-CLYDE CONSULTANTS

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Preparation Blank Matrix (soil/water) WATER

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			20.0	U	39.3	B					P
Antimony			17.0	U	17.0	U					P
Arsenic	3.1	B	3.0	U	3.0	U	3.0	U			F
Barium			1.0	U	[illegible]	U					P
Beryllium			1.0	U	1.0	U					P
Cadmium			1.0	U	[illegible]	B					P
Calcium			[illegible]	U	29.[illegible]	B					P
Chromium			4.0	U	4.0	U					P
Cobalt			2.0	U	2.0	U					P
Copper			1.0	U	3.4	B					P
Iron			17.3	U	25.3	B					P
Lead			1.0	U	[illegible]	U	[illegible]	U			P
Magnesium			27.0	U	27.0	U					P
Manganese			6.0	U	6.0	U					P
Mercury			0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel			-6.0	B	4.0	U					P
Potassium			101.0	U	101.0	U					P
Selenium	4.1	B	4.0	U	4.0	U	4.0	U			F
Silver			-7.3	B	-8.8	B					P
Sodium			[illegible]	U	[illegible]	U					P
Thallium			[illegible]	U	[illegible]	U	[illegible]	U			F
Vanadium			[illegible]	U	[illegible]	U					P
Zinc			2.0	U	[illegible]	B					P
Cyanide											NR

000034

WOODWARD-CLYDE CONSULTANTS

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Preparation Blank Matrix (soil/water)

Preparation Blank Concentration Units (ug/L or 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
Aluminum											NR
Antimony											NR
Arsenic			3 0	U							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1 0	U	1 0	U	1 0	U					F
Magnesium											NR
Manganese											NR
Mercury	0 2	U	0 2	U	0 2	U					CV
Nickel											NR
Potassium											NR
Selenium			4 0	U	4 0	U	4 0	U			F
Silver											NR
Sodium											NR
Thallium	1 0		1 0	U	1 0	U	1 0	U			F
Vanadium											NR
Zinc											NR
Cyanide											NR

000035

WOODWARD-CLYDE CONSULTANTS

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Preparation Blank Matrix (soil/water)

Preparation Blank Concentration Units (ug/L or 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
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			4.0	U							F
Silver											NR
Sodium											NR
Thallium			2.0								F
Vanadium											NR
Zinc											NR
Cyanide											NR

000036

WOODWARD-CLYDE CONSULTANTS

3

BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Preparation Blank Matrix (soil/water)

Preparation Blank Concentration Units (ug/L or 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
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	4.0	U	4.0	U	4.0	U					F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
CN											NR

000037

WOODWARD-CLYDE CONSULTANTS

3
BLANKS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0098

Lab Code SKINER Case No 22538 SAS No SDG No PF1020

Preparation Blank Matrix (soil/water)

Preparation Blank Concentration Units (ug/L or 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
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	4 0	U	4 0	U	4 0	U					F
Silver											NR
Sodium											NR
Thallium											[illegible]
Vanadium											NR
Zinc											NR
Cyanide											NR

WOODWARD-CLYDE CONSULTANTS

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

ICP ID Number P1 ICS Source ICF-1089

Concentration Units ug/L

Analyte	True Sol A	True Sol AB	Initial Found Sol A	Initial Found Sol AB	Initial Found %R	Final Found Sol A	Final Found Sol AB	Final Found %R
Aluminum	481000	536472	543640	544520.0	101 5	539180	538910 0	100 5
Antimony	0	0	-27	-21 3		-27	-16 8	
Arsenic								
Barium	0	502	12	492 3	98 1	10	484 9	96 6
Beryllium	0	480	1	468 0	97 5	0	467 2	97 3
Cadmium	0	907	-4	859 6	94 8	-4	863 5	95 2
Calcium	448250	512228	474330	474840 0	92 7	475600	474420 0	92 6
Chromium	25	529	20	480 4	90 8	15	478 0	90 4
Cobalt	0	477	2	437 7	91 8	2	441 2	92 5
Copper	0	543	11	510 5	94 0	9	503 8	92 8
Iron	182650	199845	127550	188150 0	94 1	187720	187930 0	94 0
Lead								
Magnesium	450900	527500	497810	497350 0	94 3	496990	496110 0	94 0
Manganese	16	496	37	472 1	95 2	37	472 1	95 2
Mercury								
Nickel	0	540	3	855 [illegible]	91 0	4	857 2	91 2
Potassium	0	0	27	0 0		50	73 2	
Selenium								
Silver	0	960	-20	938 8	97 8	-24	944 6	98 4
Sodium	0	0	1691	1701 1		1634	1737 3	
Thallium								
Vanadium	0	509	-35	423 6	83 2	-40	423 1	83 1
Zinc	0	1208	188	1180 9	97 8	188	1177 6	97 5

WOODWARD-CLYDE CONSULTANTS

5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088 PF10205

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix WATER Level (low/med) LOW

% Solids for Sample 0 0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2071 3000		149 7100	B	2000 00	96 1		P
Antimony	75-125	473 6300		17 0000	U	500 00	94 7		P
Arsenic	75-125	40 9450		3 6500	B	40 00	93 2		F
Barium	75-125	2186 2000		204 8200		2000 00	99 1		P
Beryllium	75-125	50 8000		1 0000	U	50 00	101 6		P
Cadmium	75-125	49 1800		1 0000	U	50 00	98 [illegible]		P
Calcium									NR
Chromium	75-125	[illegible]		4 0000	U	200 00	91 6		P
Cobalt	75-125	472 3000		2 0000	U	500 00	94 5		F
Copper	75-125	[illegible]		[illegible]	B	250 00	96 5		P
Iron	75-125	[illegible] 5600		252 2300		1000 00	74 0	N	F
Lead	75-125	21 7600		3 6100		20 00	90 8		F
Magnesium									NR
Manganese	75-125	[illegible]		[illegible]	B	500 00	95 2		P
Mercury	75-125	0 5000		0 2000	U	1 00	50 0	N	CV
Nickel	75-125	473 5300		4 0000	U	500 00	94 7		P
Potassium									NR
Selenium	75-125	3 6850		4 0000	U	10 00	86 3		F
Silver	75-125	40 5100		2 0000	U	50 00	81 0		P
Sodium									NR
Thallium	75-125	18 6800		2 0000	U	50 00	37.4	N	F
Vanadium	75-125	[illegible]		[illegible]	U	500 00	96 [illegible]		[illegible]
Zinc	75-125	[illegible]		[illegible]		500 00	[illegible]		[illegible]
Cyanide									NR

Comments

000040

WOODWARD-CLYDE CONSULTANTS

5B

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NUMBER

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088 PF1020A

Lab Code SKINEP Case No 22558 SAS No SDG No PF1020

Matrix WATER Level (low/med) LOW

Concentration Units ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NP
Chromium									NR
Cobalt									NP
Copper									NR
Iron		800.47		152.23		500.0	109.[illegible]		P
Lead									NP
Magnesium									NP
Manganese									NP
Mercury									NP
Nickel									NP
Potassium									NP
Selenium									NR
Silver									NP
Sodium									NR
Thallium									NR
Vanadium									NP
Zinc									NR
[illegible]									[illegible]

Comments

000041

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5
DUPLICATES

SAMPLE NUMBER

PF10200

Lab Name SKINNER & SHERMAN LABS Contract CS-D9-0066

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Level (low/med) LOW

% Solids for Sample 0 0 % Solids for Duplicate 0 0

Concentration Units (ug/L or mg/kg dry weight) UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		149 7100	B	20 0000	U	200.0		P
Antimony		17 0000	U	17 0000	U			P
Arsenic		3 6500	B	3 0000	U	200.0		F
Barium	200 0	204 8200		197 4900	B	3 6		P
Beryllium		1 0000	U	1 0000	U			P
Cadmium		1 0000	U	1 0000	U			P
Calcium		114570 0000		110570 0000		3.6		P
Chromium		4 0000	U	4 0000	U			P
Cobalt		2 0000	U	2 0000	U			P
Copper		6 7900	B	4 7400	B	35 6		P
Iron	100 0	252 2800		37 2300	B	143 6		P
Lead	3 0	3 6100		4 5000		25 2		F
Magnesium		[illegible]		[illegible]		3		P
Manganese		12 0600	B	10 3000	B	10 7		P
Mercury		0 2000	U	0 2000	U			CV
Nickel		4 0000	U	4 0000	U			P
Potassium		2715 5000	B	2585 3000	B	4 8		P
Selenium		4 0000	U	4 0000	U			F
Silver		2 0000	U	2 0000	U			P
Sodium		57423 0000		55530 0000		3.4		P
Thallium		2 0000	U	10 0000	U			F
Vanadium		3 0000	U	3 0000	U			P
Zinc		153 5400		138 5200		10 3		P
Cyanide								NR

000042

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7

LABORATORY CONTROL SAMPLE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1010

Solid LCS Source

Aqueous LCS Source EPA-LV 0690

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	2172 0	2067 20	95 2					
Antimony	978 0	918 00	93 9					
Arsenic	47 4	44 74	94 4					
Barium	2041 0	1990 60	97 5					
Beryllium	510 0	485 74	95 2					
Cadmium	498 0	465 76	93 5					
Calcium	[illegible]	[illegible]	[illegible]					
Chromium	[illegible]	454 95	89 2					
Cobalt	[illegible]	[illegible]	[illegible]					
Copper	[illegible]	[illegible]	[illegible]					
Iron	[illegible]	[illegible]	[illegible]					
Lead	[illegible]	50 [illegible]	104 5					
Magnesium	[illegible]	[illegible]	90 0					
Manganese	[illegible]	[illegible]	[illegible]					
Mercury								
Nickel	497 0	459 16	92 4					
Potassium	52068 0	48696 00	93 5					
Selenium	[illegible]	43 44	82 6					
Silver	500 0	483 90	96 8					
Sodium	[illegible]	48740 00	94 9					
Thallium	48 5	46 52	95 9					
Vanadium	507 0	473 14	93 3					
Zinc	[illegible]	[illegible]	[illegible]					

000043

WOODWARD-CLYDE CONSULTANTS

7

LABORATORY CONTROL SAMPLE

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Solid LCS Source

Aqueous LCS Source

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
[illegible]								

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3

STANDARD ADDITION RESULTS

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

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
PF1026	SE	0 013	5 00	0 021	10 00	0 035	15 00	0 049	4 6	0 9928	+
PF1026	SE	0 010	5 00	0 015	10 00	0 024	15 00	0.044	3 0	0.9555	+
PF1027	SE	0 011	5 00	0 021	10 00	0 039	15 00	0 048	4 0	0 9913	+
PF1027	SE	0 012	5 00	0 021	10 00	0 028	15 00	0.047	4 6	0.9734	+
PF1028	SE	0 010	5 00	0 021	10 00	0 038	15 00	0 046	4 0	0 9915	+
PF1028	SE	0 012	5 00	0 027	10 00	0 042	15 00	0 050	5 2	0 9913	+
PF1031	SE	0 009	5 00	0 023	10 00	0 026	15 00	0 041	5 0	0 9738	+
PF1031	SE	0 009	5 00	0 022	10 00	0 030	15 00	0 052	2 8	0 9802	+

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9

ICP SERIAL DILUTIONS

SAMPLE NUMBER

PF1020L

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0033

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Matrix (soil/water) WATER Level (low/med) LOW

Concentration Units ug/L

Analyte		Initial Sample Result (I)	C		Serial Dilution Result (S)	C	% Difference	Q	M	
Aluminum		149 71	B		280 05	B	87 1		P	
Antimony		17 00	U		85 00	U			P	
Arsenic									NR	
Barium	10	204 82			202 85	B	1 0		P	
Beryllium		1 00	U		5 00	U			P	
Cadmium	10	1 00	U		5 00	U			P	
Calcium	100	114570 00			113360 00		- 1 1		P	
Chromium		4 00	U		20 00	U			P	
Cobalt		2 00	U		10 00	U			P	
Copper		6 79	B		23 70	B	249.0		P	
Iron	170	252 28			293 25	B	16 2		P	
Lead									NR	
Magnesium	270	70503 00			29980 00		[illegible]		P	
Manganese		[illegible]	B		20 00	U	100 0		P	
Mercury									NR	
Nickel		4 00	U		20 00	U			P	
Potassium	1010	2713 30	B		2974 25	B	9 6		P	
Selenium									NR	
Silver		2 00	U		10 00	U			P	
Sodium	390	57423 00			55915 00		2 6		P	
Thallium									NR	
Vanadium		3 00	U		15 00	U			P	
Zinc		153 54			257 30		67 6	E	P	IDL = 2

40.77 / 272.5 14.9 15

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WOODWARD- - DE CONSULTANTS

10

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

ICP ID Number P1 Date 01/15/91

Flame AA ID Number

Furnace AA ID Number

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M		
Aluminum	308 20		200	40 20 0	P		
Antimony	206 80		60	34 17 0	P		
Arsenic			10	6			
Barium	493 40		200	2 1 0	P		
Beryllium	313 00		5	2 1 0	P		
Cadmium	226 50		5	2 1 0	P		
Calcium	317 90		5000	20 10 0	P		
Chromium	267 70		10	8 4.0	P		
Cobalt	228 60		50	4 2 0	P		
Copper	324 70		25	2 1 0	P		
Iron	259 00		100	34 17 0	P		
Lead			3	2			
Magnesium	279 30		5000	54 27 0	P	27x50	1350
Manganese	257 30		15	12 6 0	P		
Mercury			0 2	.4			
Nickel	231 60		40	8 4 0	P		
Potassium	766 40		5000	202 101 0	P		
Selenium			5	8			
Silver	328 00		10	4 2 0	P		
Sodium	588 90		5000	78 39 0	P	39x50	1950
Thallium			10	4			
Vanadium	292 40		50	6 3 0	P		
Zinc	213 80		20	4 2 0	P		

Comments:

P: THERMO JARRELL-ASH ICAP-1 (#10732)

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WOODWARD-CLYDE CONSULTANTS

10

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

ICP ID Number Date 01/16/91

Flame AA ID Number

Furnace AA ID Number F3

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead	283.31	BS	3	.0	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium	276.80	BS	10	2.0	F
Vanadium			50		
Zinc			20		

Comments

F3 THERMO JARRELL-ASH VIDEO 22E (#2910)

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WOODWARD-CLYDE CONSULTANTS

10

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0028

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

ICP ID Number Date 10/15/90

Flame AA ID Number M1

Furnace AA ID Number

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury	253.50		0.2	0.2	CV
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments

M1 TECHNICON MERCURY ANALYZER (#991199A-D)

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WOODWARD-CLYDE CONSULTANTS

10

Instrument Detection Limits (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

ICP ID Number Date 01/16/91

Flame AA ID Number

Furnace AA ID Number Fo

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic	197 20	BS	10	3 0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury			0 2		
Nickel			40		
Potassium			5000		
Selenium	196 00	BS	5	4 0	F
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments

Fo THERMO JARRELL-ASH VIDEO 21

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WOODWARD-CLYDE CONSULTANTS

11A

ICP Interelement Correction Factors (Annual)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No 22558 SAS No SDG No PF1010

ICP ID Number P1 Date 07/01/90

Analyte	Wave-length (nm)	Interelement Correction Factors for Al	Ca	Fe	Mg	Cr
Aluminum	308 20	0 0000000	0 0005900	0 0000000	0 0000000	0 0000000
Antimony	206 80	0 0000000	0 0000000	0.0000000	0 0000000	0 0084500
Arsenic						
Barium	493 40	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Beryllium	313 00	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Cadmium	226 50	0 0000000	0 0000000	0 0002200	0 0000000	0 0000000
Calcium	317 90	0 0000000	0 0000000	-0 0003400	0 0000000	0 0000000
Chromium	267 70	0 0000000	0 0000000	-0 0000200	0 0000000	0 0000000
Cobalt	228 60	0 0000000	0 0000000	-0 0000100	0 0000000	0 0000000
Copper	324 70	0 0000000	0 0000000	-0 0001000	0 0000000	0 0000000
Iron	259 90	0 0001120	0 0000000	0 0000000	0 0000000	0 0000000
Lead						
Magnesium	279 00	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Manganese	257 60	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Mercury						
Nickel	231 60	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Potassium	766 40	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Selenium						
Silver	328 00	0 0000000	0 0000000	-0 0000400	0 0000000	0 0000000
Sodium	588 90	0 0000000	0 0000000	0 0000000	0 0000000	0 0000000
Thallium						
Vanadium	292 40	0 0000000	0 0000000	0 0000000	0 0000000	-0 0017600
Zinc	213 80	0 0000000	0 0000000	0 0001800	0 0000000	0 0000000

Comments

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WOODWARD-CLYDE CONSULTANTS

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ICP Interelement Correction Factors (Annually)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

ICP ID Number P1 Date 07/01/90

Analyte	Wave-length (nm)	Interelement Correction Factors for Cu	Mn	Ni
Aluminum	308 20	0 0000000	0 0019200	0 0000000
Antimony	206 80	0 0000000	0 0000000	-0 0027300
Arsenic				
Barium	493 40	0 0000000	0 0000000	0 0000000
Beryllium	313 00	0 0000000	0 0000000	0 0000000
Cadmium	226 50	0 0000000	0 0000000	-0 0001000
Calcium	317 90	0 0000000	0 0000000	0 0000000
Chromium	267 70	0 0000000	0 0000000	0 0000000
Cobalt	228 60	0 0000000	0 0000000	0 0000000
Copper	324 70	0 0000000	0 0000000	0 0000000
Iron	259 90	0 0000000	0 0000000	0 0000000
Lead				
Magnesium	279 00	0 0000000	0 0000000	0 0000000
Manganese	257 60	0 0000000	0 0000000	0 0000000
Mercury				
Nickel	231 60	0 0000000	0 0000000	0 0000000
Potassium	766 40	0 0000000	0 0000000	0 0000000
Selenium				
Silver	328 00	0 0000000	0 0001500	-0 0000100
Sodium	589 90	0 0000000	0 0000000	0 0000000
Thallium				
Vanadium	292 40	0 0007600	-0 0001300	0 0000000
Zinc	213 80	-0 0000600	0 0004900	0 0040200

Comments

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ICP Linear Ranges (Quarterly)

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No 22558 SAS No SDG No FF1020

ICP ID Number P1 Date 01/15/91

Analyte	Integ Time (Sec)	Concentration (ug/L)	M
Aluminum	5 00	1000000 0	
Antimony	5 00	50000 0	
Arsenic			NR
Barium	5 00	100000 0	
Beryllium	5 00	25000 0	
Cadmium	5 00	25000 0	
Calcium	5 00	1200000 0	
Chromium	5 00	200000 0	
Cobalt	5 00	100000 0	
Copper	5 00	250000 0	
Iron	5 00	1000000 0	
Lead			NF
Magnesium	5 00	1000000 0	
Manganese	5 00	100000 0	
Mercury			NF
Nickel	5 00	250000 0	
Potassium	5 00	1000000 0	
Selenium			NR
Silver	5 00	100000 0	
Sodium	5 00	1000000 0	
Thallium			NF
Vanadium	5 00	25000 0	
Zinc	5 00	150000 0	

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Method CV

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
PBW	01/02/91		100
PBW	01/04/91		100
PF1020	01/02/91		100
PF1020D	01/02/91		100
PF1020S	01/02/91		100
PF1021	01/02/91		100
PF1022	01/02/91		100
PF1023	01/02/91		100
PF1024	01/02/91		100
PF1025	01/02/91		100
PF1026	01/02/91		100
PF1027	01/02/91		100
PF1028	01/02/91		100
PF1029	01/02/91		100
PF1030	01/02/91		100
PF1031	01/02/91		100
PF1032	01/02/91		100
PF1033	01/02/91		100
PF1034	01/02/91		100
PF1035	01/02/91		100
PF1036	01/02/91		100
PF1037	01/02/91		100
PF1037	01/04/91		100
PF1038	01/02/91		100
PF1038	01/04/91		100

WOODWARD-CLYDE CONSULTANTS

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Method F

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
LCSW	01/14/91		100
PBW	01/14/91		100
PF1020	01/14/91		100
PF1020D	01/14/91		100
PF1020S	01/14/91		100
PF1021	01/14/91		100
PF1022	01/14/91		100
PF1023	01/14/91		100
PF1024	01/14/91		100
PF1025	01/14/91		100
PF1026	01/14/91		100
PF1027	01/14/91		100
PF1028	01/14/91		100
PF1029	01/14/91		100
PF1030	01/14/91		100
PF1031	01/14/91		100
PF1032	01/14/91		100
PF1033	01/14/91		100
PF1034	01/14/91		100
PF1035	01/14/91		100
PF1036	01/14/91		100
PF1037	01/14/91		100
PF1038	01/14/91		100

WOODWARD-CLYDE CONSULTANTS

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PREPARATION LOG

Lab Name SKINNER & SHERMAN LABS Contract 62-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Method P

EPA Sample No	Preparation Date	Weight (gram)	Volume (mL)
LCSW	01/14/91		100
PBW	01/14/91		100
PF1020	01/14/91		100
PF1020D	01/14/91		100
PF1020S	01/14/91		100
PF1021	01/14/91		100
PF1022	01/14/91		100
PF1023	01/14/91		100
PF1024	01/14/91		100
PF1025	01/14/91		100
PF1026	01/14/91		100
PF1027	01/14/91		100
PF1028	01/14/91		100
PF1029	01/14/91		100
PF1030	01/14/91		100
PF1031	01/14/91		100
PF1032	01/14/91		100
PF1033	01/14/91		100
PF1034	01/14/91		100
PF1035	01/14/91		100
PF1036	01/14/91		100
PF1037	01/14/91		100
PF1038	01/14/91		100

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0068

Lab Code SKINER Case No 22558 SAS No SDG No PF1010

Instrument ID Number M1 Method CV

Start date 01/02/91 End date 01/02/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	0931																X									
S0 5	1.00	0934																X									
S1 0	1 00	0937																X									
S2 0	1 00	0940																X									
S5 0	1 00	0943																X									
ICV	2 00	0949																X									
ICB	1 00	0952																X									
CCV	1 00	0955																X									
CCB	1 00	0958																X									
ZZZZZ	1 00	1001																									
ZZZZZ	1 00	1004																									
ZZZZZ	1 00	1007																									
ZZZZZ	1 00	1010																									
ZZZZZ	1 00	1013																									
ZZZZZ	1 00	1016																									
ZZZZZ	1 00	1019																									
ZZZZZ	1 00	1022																									
ZZZZZ	1 00	1025																									
CCV	1 00	1028																X									
CCB	1 00	1031																X									
ZZZZZ	1 00	1034																									
ZZZZZ	1 00	1037																									
ZZZZZ	1 00	1040																									
ZZZZZ	1 00	1043																									
ZZZZZ	1 00	1046																									
ZZZZZ	1 00	1049																									
ZZZZZ	1 00	1052																									
ZZZZZ	1 00	1055																									
CCV	1 00	1058																X									
CCB	00	1101																X									
ZZZZZ	1 00	1104																									
ZZZZZ	00																										

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0083

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number M1 Method CV

Start date 01/02/91 End date 01/02/91

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZ	1 00	1110																									
ZZZZZ	1 00	1113																									
ZZZZZ	1 00	1116																									
ZZZZZ	1 00	1119																									
CCV	1 00	1122																X									
CCB	1 00	1125																X									
PBW	1 00	1128																X									
PF1020	1 00	1131																X									
PF1020D	1 00	1134																X									
PF1020S	1 00	[illegible]																X									
PF1021	1 00	1140																X									
PF1022	1 00	[illegible]																X									
PF1023	1 00	[illegible]																									
PF1024	1 00	1149																X									
PF1025	1 00	[illegible]																X									
PF1026	1 00	1155																X									
CCV	1 00	[illegible]																X									
CCB	1 00	[illegible]																X									
PF1027	1 00	1204																X									
PF1028	1 00	1207																X									
PF1029	1 00	1210																X									
PF1030	1 00	1213																X									
PF1031	1 00	1216																X									
PF1032	1 00	1219																X									
PF1033	1 00	1222																X									
PF1034	1 00	[illegible]																									
PF1035	1 00	[illegible]																									
PF1036	1 00	[illegible]																									
CCV	1 00	[illegible]																X									
CCB	1 00	[illegible]																X									

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ANALYSIS RUN LOG

Lab Name SKINNER & SHEPMAN LABS Contract 68-D9-0023

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number M1 Method CV

Start date 01/04/91 End date 01/04/91

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1000																X									
S0 5	1 00	1003																X									
S1 0	1 00	1006																X									
S2 0	1 00	1009																X									
S5 0	1 00	1012																X									
ICV	2 00	1015																X									
ICB	1 00	1018																X									
CCV	1 00	1021																X									
CCB	1 00	1024																X									
ZZZZ	1 00	1027																									
PBW	1 00	1030																X									
PF1077	00	033																									
PF1033	[illegible]	[illegible]																X									
CCV	1 00	1039																X									
CCB	1 00	1042																X									

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0033

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1	00	1837												X												
S3	1	00	1841												X												
S50	1	00	1845												X												
S100	1	00	1849												X												
ICV	2	00	1855												X												
ICB	1	00	1859												X												
CRA	1	00	1903												X												
CCV	1	00	1907												X												
CCB	1	00	1911												X												
PBW	1	00	1915																								
PBWA	1	00	[illegible]	[illegible]																							
LCSW	1	00	[illegible]												X												
LCSWA	1	00	[illegible]	[illegible]											X												
PF1020	1	00	[illegible]												X												
PF1020A	1	00	[illegible]	[illegible]											X												
PF1020D	1	00	[illegible]												X												
PF1020DA	1	00	[illegible]	[illegible]											X												
PF1020E	1	00	[illegible]												X												
ZZZZZ	1	00	1952																								
CCV	1	00	1956												X												
CCB	1	00	2000												X												
PF1021	1	00	2004																								
PF1021A	1	00	2008	43 9																							
PF1022	1	00	2012												X												
PF1022A	1	00	2016	95 0											X												
PF1023	1	00	2020												X												
PF1023A	1	00	[illegible]	[illegible]											X												
PF1024	1	00	[illegible]												X												
PF1024A	1	00	2032	102 4											X												
PF1025	1	00	[illegible]												X												
PF1025A	1	00	[illegible]	[illegible]											X												

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	2048													X												
PF1026	1 00	2052													X												
PF1026A	1 00	2056	103 0												X												
PF1027	1 00	2100													X												
PF1027A	1 00	2104	101 2												X												
PF1028	1 00	2108													X												
PF1028A	1 00	2112	103 6												X												
PF1029	1 00	2116																									
PF1029A	1 00	2120	97 7																								
PF1030	1 00	2124													X												
PF1030A	1 00	2128	101 9												X												
CCV	1 00	2132													X												
CCB	1 00	2136													X												
PF1031	1 00	2140													X												
PF1031A	1 00	2144	105 1												X												
PF1032	1 00	2147													X												
PF1032A	1 00	2152	102 4												X												
PF1033	1 00	2157													X												
PF1033A	1 00	2201	104 4												X												
PF1034	1 00	2205													X												
PF1034A	1 00	2209	96 9												X												
PF1035	1 00	2213													X												
PF1035A	1 00	2217	102 1												X												
CCV	1 00	2221													X												
CCB	1 00	2225													X												
PF1036	1 00	2229													X												
PF1036A	1 00	2233	1 3												X												
PF1037	1 00	2237													X												
PF1037A	1 00	2241	96 2												X												
PF1038	1 00	2245													X												
PF1038A	1 00	2249	96																								

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WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0008

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	2257													X												

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WOODWARD-CLYDE CONSULTANTS

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ANALYSIS RUN LOG

Lab Name S INNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F6 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	VZ	CN
S0	1 00	2026				X																				
S10	1 00	2030				X																				
S50	1 00	2034				X																				
S100	1 00	2038				X																				
ICV	1 00	2042																								
ICB	1 00	2046				X																				
CRA	1 00	2050				X																				
CCV	1 00	2054				X																				
CCB	1 00	2058				X																				
[illegible]	1 00	[illegible]																								
PSWA	1 00	[illegible]	32 2																							
LCSW	1 00	[illegible]				X																				
LCSWA	1 00	[illegible]	[illegible] 5			X																				
PF[illegible]	1 00	[illegible]				X																				
PF[illegible]04	1 00	[illegible]	10 5			X																				
PF[illegible]020D	1 00	[illegible]				X																				
PF[illegible]	1 00	[illegible]	[illegible]			X																				
PF[illegible]03	1 00	[illegible]				X																				
ZZZZZ	1 00	2130																								
CCV	1 00	2144				X																				
CCB	1 00	2148				X																				
PF1020	1 00	2152				X																				
PF[illegible]021A	1 00	2156	89 7			X																				
PF[illegible]	1 00	2200				X																				
PF[illegible]022A	1 00	2204	93 6			X																				
PF[illegible]	00	[illegible]				X																				
[illegible]	[illegible]	[illegible]	[illegible]			X																				
PF[illegible]	1 00	[illegible]																								
PF[illegible]024	1 00	[illegible]	[illegible] 1			X																				
PF[illegible]	[illegible]	[illegible]				X																				
PF[illegible]	[illegible]	[illegible]	[illegible]																							

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number Fo Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	2237				X																					

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1837																						X			
S10	1 00	1841																						X			
S50	1 00	1845																						X			
S100	1 00	1849																						X			
ICV	2 00	1855																						X			
ICB	1 00	1859																						X			
CRA	1 00	1903																						X			
CCV	1 00	1907																						X			
CCB	1 00	1911																						X			
PBW	1 00	1915																						X			
PBWA	1 00	1919	110 8																					X			
LCS	1 00	[illegible]																									
LCS[illegible]	1 00	[illegible]	[illegible]																					X			
PF1020	1 00	1931																						X			
PF1020A	1 00	1935	44 4																					X			
PF1020D	1 00	1939																									
PF1020DA	1 00	1944	38 6																								
PF1020S	1 00	1948																									
ZZZZZ	1 00	1952																									
CCV	1 00	1956																						X			
CCB	1 00	2000																						X			
PF1021	1 00	2004																									
PF1021A	1 00	2008	37 8																								
PF1022	1 00	2012																									
PF1022A	1 00	2016	37 6																								
PF1023	1 00	[illegible]																									
PF1023A	1 00	[illegible]	[illegible]																								
PF1024	1 00	2028																									
PF1024A	1 00	2032	36 4																								
PF1025	1 00	2036																						X			
PF[illegible]	1 00	[illegible]	[illegible]																								
[illegible]	[illegible]	[illegible]																									

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINEF Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	VN	ZN	CN
CCB	1 00	2048																						X			
PF1026	1 00	2052																						X			
PF1026A	1 00	2056	48 7																					X			
PF1027	1 00	2100																						X			
PF1027A	1 00	2104	47 4																					X			
PF1028	1 00	2108																						X			
PF1028A	1 00	2112	43 2																					X			
PF1029	1 00	2116																						X			
PF1029A	1 00	2120	49 5																					X			
PF1030	1 00	2124																						X			
PF1030A	1 00	2128	50 0																					X			
CCV	1 00	2132																						X			
CCB	1 00	2136																						X			
PF1031	1 00	2140																						X			
PF1031A	1 00	2145	50 0																					X			
PF1032	1 00	2149																						X			
PF1032A	1 00	2153	51 6																					X			
PF1033	1 00	2157																									
PF1033A	1 00	2201	39 2																								
PF1034	1 00	2205																									
PF1034A	1 00	2209	33 3																								
PF1035	1 00	2213																						X			
PF1035A	1 00	2217	43 1																					X			
CCV	1 00	2221																						X			
CCB	1 00	2225																						X			
PF1036	1 00	2229																									
PF1036A	1 00	2233	[illegible]																								
PF1037	1 00	2237																						X			
PF1037A	1 00	2241	44 4																					X			
PF1038	1 00	2245																						X			
PF1038A	1 00	2249	[illegible]																								

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	2257																						X			

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0068

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F6 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	2026																			X						
S5	1 00	2030																			X						
S50	1 00	2034																			X						
S100	1 00	2038																			X						
ICV	1 00	2042																			X						
ICB	1 00	2046																			X						
CRA	1 00	2050																			X						
CCV	1 00	2054																			X						
CCB	1 00	2058																			X						
PBW	1 00	2100																									
PBWA	1 00	2102	80 8																								
LCSW	1 00	[illegible]																			X						
LCSWA	1 00	[illegible]	[illegible]																								
PF1020	1 00	[illegible]																									
PF1020A	1 00	2125	37 0																								
PF1020D	1 00	2127																			X						
PF1020DA	1 00	2131	75 4																		X						
PF1020S	1 00	2135																			X						
ZZZZZ	1 00	2139																									
CCV	1 00	2144																			X						
CCB	1 00	2148																			X						
PF1021	1 00	2152																			X						
PF1021A	1 00	2156	80 4																		X						
PF1022	1 00	2200																			X						
PF1022A	1 00	2204	76 2																		X						
PF1023	1 00	2208																									
PF1023A	1 00	2212	73 0																								
PF1024	1 00	[illegible]																			X						
PF1024A	1 00	2221	74 2																		X						
PF1025	1 00	[illegible]																			X						
[illegible]	1 00		[illegible]																		X						

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[illegible]

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0038

Lab Code SKINER Case No 22558 SAS No SDG No PF1010

Instrument ID Number F6 Method F

Start date 01/30/91 End date 01/30/91

EPA Sample No	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AL	TL	V	ZN	CN
CCB	1 00	2237																			X						

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1010

Instrument ID Number F3 Method F

Start date 01/31/91 End date 01/31/91

EPA Sample No	D/F	Time	% R	AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
				Analytes																							
S0	1 00	1041													X												
S3	1 00	1045													X												
S50	1 00	1049													X												
S100	1 00	1053													X												
ICV	2 00	1057													X												
ICB	1 00	1101													X												
CRA	1 00	1105													X												
CCV	1 00	1109													X												
CCB	1 00	1113													X												
PBW	1 00	11[illegible]													X												
PBWA	1 00	1121	102 3												X												
PF1020	1 00	[illegible]													X												
PF[illegible]	1 00	[illegible]	102												X												
PF1020	1 00	1133													X												
PF1020A	1 00	1137	102 4												X												
ZZZZZ	5 00	1141																									
ZZZZZ	5 00	1145																									
ZZZZZ	5 00	1149																									
ZZZZZ	5 00	1153																									
CCV	1 00	1157													X												
CCB	1 00	1201													X												

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1C[illegible]

Instrument ID Number F6 Method F

Start date 01/31/91 End date 01/31/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	0858				X																					
S10	1 00	0902				X																					
S50	1 00	0906				X																					
S100	1 00	0910				X																					
ICV	1 00	0924				X																					
ICB	1 00	0928				X																					
CRA	1 00	0932				X																					
CCV	1 00	0936				X																					
CCB	1 00	0940				X																					
[illegible]	1 00	0944				X																					
PE[illegible]A	1 00	094[illegible]	[illegible]			X																					
PF[illegible]	1 00	[illegible]				X																					
PF[illegible]	1 00	[illegible]	[illegible]4 0			X																					
PF1027	1 00	100[illegible]				X																					
PF1027A	1 00	100[illegible]	10[illegible] 2			X																					
PF1028	1 00	1009				X																					
PF[illegible]	1 00	[illegible]	105 6			X																					
PF[illegible]	1 00	101[illegible]				X																					
PF1029A	1 00	1022	105 4			X																					
CCV	1 00	1026				X																					
CCB	1 00	1030				X																					
PF1030	1 00	1034				X																					
PF1030A	1 00	1038	100 5			X																					
PF[illegible]	1 00	1042				X																					
PF[illegible]A	1 00	1047	101 5			X																					
[illegible]	1 00	[illegible]																									
[illegible]	1 00	[illegible]	[illegible] 7																								
PF[illegible]	1 00	10[illegible]				X																					
PF1030A	1 00	110[illegible]	100 6			X																					
PF[illegible]	1 00	[illegible]																									
[illegible]	[illegible]		[illegible]			X																					

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F6 Method F

Start date 01/31/91 End date 01/31/91

EPA Sample No	D/F	Time	% R	Analytes																						
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	1120				X																					
PF1035	1 00	1124				X																					
PF1035A	1 00	1128	102 2			X																					
PF1036	1 00	1132				X																					
PF1036A	1 00	1136	101 7			X																					
PF1037	1 00	1140				X																					
PF1037A	1 00	1144	102 8			X																					
PF1038	1 00	1149				X																					
PF1038A	1 00	1153	100 5			X																					
ZZZZZ	1 00	1157																									
ZZZZZ	1 00	1201																									
CCB	1 00	1205				X																					
CCB	1 00	1209				X																					

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/31/91 End date 01/31/91

EPA Sample No	D/F	Time	% R	Analytes																						
				ALB	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	1041																						X			
S10	1 00	1045																						X			
S50	1 00	1049																						X			
S100	1 00	1053																						X			
ICV	2 00	1057																						X			
ICB	1 00	1101																						X			
CRA	1 00	1105																						X			
CCV	1 00	1109																						X			
CCB	1 00	1113																						X			
PB[illegible]	1 00	1117																									
PB A	1 00	1121	97 9																								
[illegible]	[illegible]	[illegible]																									
[illegible]	[illegible]	[illegible]																									
[illegible]	[illegible]	[illegible]																									
[illegible]	[illegible]	[illegible]																									
PF1020D	5 00	1141																						X			
PF1020	5 00	[illegible]	[illegible]																					X			
PF1020	5 00	[illegible]																						X			
PF1021A	5 00	1153	62 8																					X			
CCV	1 00	1157																						X			
CCB	1 00	1201																						X			
PF1022	5 00	1205																						X			
PF1022A	5 00	1209	63 5																					X			
PF1023	5 00	1213																						X			
PF1023A	5 00	1218	63 3																					X			
PF1024	5 00	[illegible]																									
PF 02	[illegible]	[illegible]	60 9																								
PF1025	5 00	1230																						X			
PF1025A	5 00	1234	62 3																					X			
PF 026	5 00	[illegible]																									
[illegible]	[illegible]	[illegible]	[illegible]																								

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0088

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F3 Method F

Start date 01/31/91 End date 01/31/91

EPA Sample No	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	1250																						X			
PF1036	5 00	1254																						X			
PF1036A	5 00	1258	61 8																					X			
CCV	1 00	1302																						X			
CCB	1 00	1306																						X			

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ANALYSIS RUN LOG

Lab Name SKINNER & SHERMAN LABS Contract 68-D9-0005

Lab Code SKINER Case No 22558 SAS No SDG No PF1020

Instrument ID Number F5 Method F

Start date 01/31/91 End date 01/31/91

EPA Sample No	D/F	Time	% R	Analytes																					
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1 00	0858																			X						
S5	1 00	0902																			X						
S50	1 00	0906																			X						
S100	1 00	0910																			X						
ICV	1 00	0924																			X						
ICB	1 00	0928																			X						
CRA	1 00	0932																			X						
CCV	1 00	0936																			X						
CCB	1 00	0940																			X						
[illegible]	1 00	[illegible]																			X						
[illegible]EWA	1 00	[illegible]	[illegible]																		X						
PF1020	1 00	[illegible]																									
[illegible]	1 00	[illegible]	[illegible]																								
PF1020	1 00	[illegible]																									
PF1020A	1 00	[illegible]	[illegible]																								
PF1020	1 00	100																									
[illegible]	1 00	[illegible]	[illegible]																								
PF1020	1 00	[illegible]																			X						
PF1020A	1 00	1022	109 2																		X						
CCV	1 00	1026																			X						
CCB	1 00	1030																			X						
PF1020	1 00	1034																									
PF1020A	1 00	1038	109 4																								
PF1020	1 00	1042																									
PF1020	1 00	1046	54 4																								
[illegible]	1 00	[illegible]																									
[illegible]	1 00	[illegible]	[illegible]																								
[illegible]	1 00	[illegible]																			X						
PF1020A	1 00	[illegible]	95 1																		X						
[illegible]	1 00	[illegible]																									
[illegible]	[illegible]																										
[illegible]	[illegible]																										

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[illegible]

EPA Sample No	D F	Time	% R	Analytes																				
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1 00	1120																									
PF1035	1 00	1124																			X						
PF1035A	1 00	1128	50 0																		X						
PF1036	1 00	1132																			X						
PF1036A	1 00	1136	104 6																		X						
PF1037	1 00	1140																			X						
PF1037A	1 00	1144	114 [illegible]																		X						
PF1038	1 00	1148																			X						
PF1038A	1 00	1152	115 4																		X						
[illegible]1023	1 00	1157																			X						
[illegible]1023A	1 00	1201	107 9																		X						
CCV	1 00	1205																			X						
CCB	1 00	1209																			X						
PF1030	1 00	1214																			X						
PF1030A	1 00	1218	122 7																		X						
CCV	1 00	1222																			X						
CCB	1 00	1227																			X						
PF10260	1 00	1235																			X						
PF10261	1 00	1238																			X						
PF10262	1 00	1240																			X						
PF10263	1 00	1242																			X						
PF10270	1 00	1245																			X						
PF10271	1 00	1247																			X						
PF10272	1 00	1249																			X						
PF10273	1 00	1252																			X						
PF10280	1 00	1254																			X						
PF10281	1 00	1256																			X						
PF10282	1 00	1259																			X						
PF10283	1 00	1301																			X						
ZZZZZ	1 00	1303																									
ZZZZZ	1 00	1306																									
ZZZZZ	1 00	1308																									

[illegible] DETECTANT

[illegible]

[illegible]

[illegible] Method [illegible]

[illegible] End date [illegible]

EPA Sample No	D/F	Time	% R	Analytes																						
				ALE	SEAS	BAA	BEE	CDA	CAR	COU	CUE	FEB	PBG	MGN	MNG	HGI	K	SEG	AGA	NAL	TL	V	ZN	CN
[illegible]	[illegible]	[illegible]																						
[illegible]	[illegible]	[illegible]															X							
PF [illegible]	1	00	1315														X							
PF10262	[illegible]	[illegible]	[illegible]														X							
PF[illegible]	[illegible]	[illegible]	[illegible]														X							
[illegible]	[illegible]	[illegible]	[illegible]														X							
[illegible]	[illegible]	[illegible]	[illegible]														X							
PF10210		00	1331														X							
PF10211	[illegible]	00	1334														X							
[illegible]10312	[illegible]	00	1336														X							
[illegible]10313	1	00	1338														X							
PF10270	1	00	1340														X							
PF10271	1	00	1343														X							
PF10272	1	00	1345														X							
PF10273	1	00	1347														X							
ZZZZZ	1	00	1350																					
ZZZZZ	1	00	1352																					
PF10310	1	00	1354														X							
PF10311	1	00	1357														X							
PF10312	1	00	1359														X							
PF10313	1	00	1402														X							
CCV	1	00	1404														X							
CCB	1	00	1406														X							

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

EFA Sample No	D,F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
[illegible]	[illegible] 00	1705																			X						
SE	[illegible] 00	1709																			X						
SED	[illegible] 00	1713																			X						
S100	[illegible] 00	1717																			X						
ICV	[illegible] 00	1729																			X						
ICB	[illegible] 00	1732																			X						
[illegible]	[illegible] 00	1734																			X						
CCV	1 00	1736																			X						
CCB	[illegible] 00	1739																			X						
[illegible]ZZ	2 00	1741																									
[illegible]ZZ	2 00	1743																									
ZZZZZ	2 00	1746																									
ZZZZZ	2 00	1748																									
PF10280	1 00	1750																			X						
PF10281	1 00	1753																			X						
PF10282	1 00	1755																			X						
PF10283	1 00	1757																			X						
CCV	1 00	1759																			X						
CCB	1 00	1802																			X						

000078

[illegible]

[illegible]

[illegible]

[illegible] Case No. [illegible] [illegible]

[illegible] ID Number [illegible] Method F

[illegible] End Case [illegible]

EPA Sample No	D/F	Time	% F	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
[illegible]	[illegible]	[illegible]																			X						
[illegible]	1 00	[illegible]																			X						
[illegible]	1 00	[illegible]																			X						
[illegible]	[illegible]	[illegible]																			X						
[illegible]	1 00	[illegible]																			X						
[illegible]	[illegible]	[illegible]																			X						
[illegible]	1 00	[illegible]																			X						
[illegible]	1 00	[illegible]																			X						
CCB	[illegible]	[illegible]																			X						
[illegible]ZZZ	1 00	1941																									
[illegible]ZZZ	1 00	1945																									
ZZZZZ	1 00	1949																									
ZZZZZ	1 00	1953																									
ZZZZZ	1 00	1957																									
ZZZZZ	1 00	2001																									
ZZZZZ	1 00	2006																									
ZZZZZ	1 00	2010																									
PF1020	1 00	2015																			X						
PF1020A	1 00	2020	99 0																		X						
CCV	1 00	2024																			X						
CCB	1 00	2028																			X						

000079

EPA Sample No	D/F	Time	% R	AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
[illegible]B	1	[illegible]		X	X				X	X	X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]	1	CC [illegible]		X						X				X		X				X			X				
S	1	00 1113			X		X	X	X		X	X	X				X		X						X	X	
[illegible]		[illegible]																				X					
I[illegible]	1	[illegible]		X				X	X	X	X	X	X	X		X	X			X		X	X		X	X	
I[illegible]		[illegible]																									
IC	1	[illegible]			X																						
ICB	1	00 1133		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSA	1	00 1135		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]AB	1	00 1138		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]I	1	00 1141			X			X	X		X	X	X				X		X			X			X	X	
CCV	1	00 1144		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1	00 1147		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PBW	1	00 1150		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
LCSW	1	00 1153		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1020	1	00 1156		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1020D	1	00 1158		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1020S	1	00 1201		X	X		X	X	X		X	X	X	X			X		X			X			X	X	
PF1020L	5	00 1204		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1021	1	00 1207		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1022	1	00 1209		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1023	1	00 1212		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1024	1	00 1215		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCV	1	00 1218		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1	00 1221		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1025	1	00 1224		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1026	1	00 1226		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1027	1	00 1229		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1028	1	00 1232		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1029	1	00 1235		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1030	1	00 1237		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PF1031	1	00 1240		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	

000080

EPA Sample No	D/F	Time	% R	AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
[illegible]	00	[illegible]		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X			X	X	
[illegible]	1 00	1246		X	X		X	X	X	X	X	X	X	X		X	X		X	X			X		X	X	
[illegible]	1 00	1249		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]	00	[illegible]		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	00	[illegible]					X	X	X		X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]	1 00	[illegible]		X	X			X	X	X	X	X	X	X		X	X			X					X	X	
[illegible]	00	[illegible]			X			X	X	X	X	X	X	X		X	X		X	X		X			X	X	
[illegible]	00	1303		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]	1 00	[illegible]		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
[illegible]1020A	1 00	1308												X													
[illegible]V	1 00	1311		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1 00	1314		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSA	1 00	1317		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSAB	1 00	1320		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CRI	1 00	1323			X			X	X		X	X	X				X		X			X			X	X	
CCV	1 00	1326		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1 00	1329		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	

000081

Al Sb Ba Be Cd Ca Cr Co Cu
Fe Mg Mn Ni K Ag Na V Zn

[illegible]	Sample	[illegible]	Preparation Method	Client ID	Date	Time
5	ICV1	ICV		ICV	01/31/91	11 24
6	ICV2	ICV		ICV	01/31/91	11 27
7	ICV3	ICV		ICV	01/31/91	11 30
8	STDB	ICB		ICB	01/31/91	11 33
9	ICSAA	ICSA0		ICSA	01/31/91	11 35
10	ICSABB	ICSAB0		ICSAB	01/31/91	11 38
11	2XCRDL	CRI0		CRI	01/31/91	11 41
12	HALFSTD	CCV		CCV	01/31/91	11 44
13	STDB	CCB		CCB	01/31/91	11 47
14	PB	PBW	ICP	PBW	01/31/91	11 50
15	LCSW	LCSW	ICP	LCSW	01/31/91	11 53
16	[illegible]-01	[illegible]	ICP	PF1020	01/31/91	11 56
17	9012108-01	[illegible]	ICP	PF1020D	01/31/91	11 58
18	9012108-01	[illegible]	ICP	PF1020	01/31/91	12 01
19	9012108-01	[illegible]	ICP	PF1020L	01/31/91	12 04
20	9012108-02	S	ICP	PF1021	01/31/91	12 07
21	9012108-03	S	ICP	PF1022	01/31/91	12 09
[illegible]	9012108-04	S	ICP	PF1023	01/31/91	12 12
23	9012108-05	S	ICP	PF1024	01/31/91	12 15
24	HALFSTD	CCV		CCV	01/31/91	12 18
25	STDB	CCB		CCB	01/31/91	12 21
26	9012108-06	S	ICP	PF1025	01/31/91	12 24
27	9012108-07	S	ICP	PF1026	01/31/91	12 26
28	9012108-08	S	ICP	PF1027	01/31/91	12 29
29	9012108-09	S	ICP	PF1028	01/31/91	12 32
30	9012108-10	S	ICP	PF1029	01/31/91	12 35
31	9012108-11	S	ICP	PF1030	01/31/91	12 37
32	9012108-12	S	ICP	PF1031	01/31/91	12 40
33	9012108-13	S	ICP	PF1032	01/31/91	12 43
34	9012108-14	S	ICP	PF1033	01/31/91	12 46
35	9012108-15	S	ICP	PF1034	01/31/91	12 49
36	HALFSTD	CCV		CCV	01/31/91	12 51
37	STDB	CCB		CCB	01/31/91	12 54
38	9012108-16	S	ICP	PF1035	01/31/91	12 57
39	9012108-17	S	ICP	PF1036	01/31/91	13 00
40	9012108-18	S	ICP	PF1037	01/31/91	13 03
41	9012108-19	S	ICP	PF1038	01/31/91	13 06
42	9012108-01	PS	ICP	PF1020A	01/31/91	13 08
43	HALFSTD	CCV		CCV	01/31/91	13 11
44	STDB	CCB		CCB	01/31/91	13 14
45	ICSAA	ICSA1		ICSA	01/31/91	13 17
46	ICSABB	ICSAB1		ICSAB	01/31/91	13 20
[illegible]	2XCRDL	CRI1		CRI	01/31/91	[illegible]23

000082

Standard: STIB

#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	[illegible]	Co2286	Cu2247	Fe2599	Pb2203	Mg2790	Mn.57[illegible]
Avge	[illegible]	.00000	-.00007	.00000	.00120	.00027	.00140
=Dev	.00020	.00000	.00012	.00000	.00171	.00022	.00020
RSD	50.000	.00000	-172.21	.00000	109.29	86.607	14.286
#1	.00040	.00000	.00000	.00000	.00140	.00000	.00140
#2	.00060	.00000	.00000	.00000	-.00020	.00040	.00120
#3	.00020	.00000	-.00020	.00000	.00240	.00040	.00160
Elem	[illegible]	[illegible]	As2280	Na5889	V.2924	Zn2128	
Avge	[illegible]	-.00167	.00277	.08157	.00012	.00040	
=De	[illegible]	[illegible]	.00012	[illegible]	.00022	.00000	
%RSD	[illegible]	-33.407	4.2245	[illegible]	172.21	.00000	
#1	[illegible]	-.00220	.00260	.09100	.00000	.00040	
#2	[illegible]	-.00280	.00280	.07940	.00040	.00040	
#3	[illegible]	.00000	.00280	.08420	.00000	.00040	

[illegible]

[illegible] Standard [illegible]

#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	Cr[illegible]	Co[illegible]	Cu[illegible]	Fe[illegible]	Pb[illegible]	Mo[illegible]	Mn[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	Ni[illegible]	[illegible]	Ag[illegible]	Na[illegible]	V[illegible]	Zn[illegible]	
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

[illegible]

Method [illegible] Standard [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	[illegible]	Co2286	[illegible]	Fe2599	Pb2203	Mg2790	[illegible]
Avge	[illegible]	[illegible]	[illegible]	.00567	1.0196	.00060	[illegible]
SDev	[illegible]	.00252	[illegible]	.00252	.0011	.00020	[illegible]
RSD	54561	44406	[illegible]	44.690	.10380	[illegible]	46291
#1	57140	[illegible]	.49500	.00760	1.0204	.00080	1.3602
#2	56520	.56440	48840	.00660	1.0184	.00060	1.3484
#3	56820	[illegible]	.49280	.00280	1.0200	.00040	1.3580
Elem	Ni2316	[illegible]	Ag3280	Na5889	V2924	Zn2138	
Avge	[illegible]	-.00007	[illegible]	.09653	.58713	.80292	
SDev	[illegible]	[illegible]	[illegible]	.00241	.00360	.00250	
RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#1	[illegible]	[illegible]	[illegible]	.09680	.58560	.80540	
#2	[illegible]	.00100	.00180	.09880	.57900	.80040	
#3	.99560	.00100	.00120	.09400	.58480	.80300	

000086

[illegible]

[illegible] Brenner 5101

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	0.050	-0.0040	0.0020	0.0020	0.000	0.0000	[illegible]
#2	1.290	[illegible]	0.0000	0.0000	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	[illegible]	Co2236	Cu2147	Fe2599	Pb2203	Mo2790	Mn2576
Avge	0.0017	.00007	0.0007	0.0000	.00090	.00027	.00157
%Dev	0.0022	0.0071	0.0012	.00000	.00140	.00022	.00016
PPD	6.2 [illegible]	458.26	74.641	.00000	175.00	96.602	7.5207
#1	.00060	-.00020	0.0020	.00000	.00180	.00040	.00160
#2	.00020	.00040	.00040	.00000	.00140	.00000	.00140
#3	[illegible]	.00000	.0040	.00000	-.00080	.00040	.00160
Elem	[illegible]	[illegible]	Ag2280	Na5889	V 2974	Zn2138	
Avge	-.0057	0.0007	1.2100	.09207	.00007	.00060	
%Dev	0.0050	0.0110	0.0246	.00769	.00021	.00020	
PPD	[illegible]	1652.2	1.9761	2.9172	458.26	22.227	
#1	-0.0100	0.0120	1.2520	.09400	.00040	.00060	
#2	-0.0050	0.0000	1.2200	.09220	.00000	.00090	
#3	0.0000	-.00100	1.2280	.05900	-.00020	.00040	

[illegible]

[illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	.01595	[illegible]	.45575	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	.0169	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	45575	.48044	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	48947	48570	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.47211	[illegible]
Errors	OC Pass	NOCHECK	NOCHECK	OC Pass	OC Pass	OC Pass	OC Pass
Value	[illegible]			2.0410	.51000	.49800	51.519
Range	10.000			10.000	10.000	10.000	10.000
Elem	[illegible]	[illegible]	[illegible]	Fe2599	[illegible]	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	.49261	[illegible]	4.8980	24.238	49026
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	164	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	67794	[illegible]
#1	[illegible]	[illegible]	49056	1.9959	4.8895	24.169	.47927
#2	[illegible]	[illegible]	49668	1.9959	4.9307	24.425	.48444
#3	.46846	48349	.49056	[illegible]	4.8738	24.118	.47706
Errors	OC Pass	OC Pass	OC Pass	OC Pass	OC Pass	OC Pass	OC Pass
Value	.51000	52000	51900	2.0440	5.1400	25.745	51600
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	.47687	49.867	.49793	49.982	.48916	3.1897	
SDev	.00459	512	00156	.465	.00344	.0197	
%RSD	.96340	1.0272	.31315	.93116	.70275	.61690	
#1	.47587	49.712	.49949	49.856	.48915	3.1830	
#2	.48189	50.439	.49793	50.498	.49260	3.2118	
#3	.47286	49.451	.49637	49.593	.48573	3.1742	
Errors	OC Pass	OC Pass	OC Pass	OC Pass	OC Pass	OC Pass	
Value	.49700	52.068	.49800	51.368	.50700	3.3160	
Range	10.000	10.000	10.000	10.000	10.000	10.000	

[illegible]

[illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
[illegible]	01414	- 01417	0 17065	00049	00000	- 00026	[illegible]
SDev	00240	[illegible]	01925	[illegible]	00000	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	00000	[illegible]	[illegible]
#1	01361	- 02616	17719	00147	00000	- 00041	[illegible]
#2	01575	- 02978	0 15076	00000	00000	00006	[illegible]
#3	01204	01304	18849	.00000	00000	-.00041	[illegible]
Errors	NOCHECK	NOCHECK	OC Fail	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value			.19000				
Range			10.000				

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00176	- 00059	00136	03010	00326	.02556	00025
SDev	.00305	00102	00117	00162	00788	.01476	00047
%RSD	173 15	- 77 70	86 400	[illegible]	241 58	57.735	173 20
#1	00525	00000	.00048	03208	01079	.04260	.00000
#2	00000	00000	00068	02970	00391	.01704	00074
#3	00000	- 00175	00271	02852	-.00492	.01704	.00000
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	- 00201	11897	.00780	.21009	.00171	.01088
SDev	.00153	06190	.00090	.01071	.00099	.00074
%RSD	-76.376	52.030	11 544	5.0952	57.931	6.7550
#1	-.00334	.05949	.00676	.21396	.00229	.01131
#2	-.00234	18303	.00832	.21832	.00057	.01130
#3	-.00033	.11440	.00832	19799	.00228	.01003
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

Method [illegible] Sample Name [illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	[illegible]	ppm	ppm	[illegible]	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Errors	NOCHECK	OC Fail	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value		[illegible]					
Range		[illegible]					

Elem	Cr2677	Co2786	Cu3247	Fe2599	Pb2203	Mo2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	-.00920	-.01704	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	.00117	[illegible]	-.00852	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value							
Range							

Elem	Ni2316	[illegible]	Ag3280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00401	.35691	-.00260	.02808	.00115	.00503
SDev	.00058	.02097	.00413	.00384	.00199	.00126
%RSD	-14.434	5.8751	-158.74	13.685	173.59	25.062
#1	-.00434	.33403	-.00104	.02953	.00229	.00629
#2	-.00434	.37522	-.00728	.02372	-.00115	.00505
#3	-.00334	.36149	.00052	.03098	.00230	.00376
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
Value						
Range						

[illegible]

Method [illegible] Name STLB.TLB Operator [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	.00147	.00000	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	.00147	.00000	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	.00000	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	.00000	.00000	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	.00147	.00000	[illegible]	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	[illegible]	[illegible]	.01800	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01800	-.20000	-.00500	-.00500	-5.0000
Elem	[illegible]	[illegible]	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	.00065	.00119	-.00328	.00000	[illegible]
SDev	[illegible]	[illegible]	.00000	.00119	.00464	.01476	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	-141.53	.00000	[illegible]
#1	[illegible]	[illegible]	[illegible]	.00238	-.00491	[illegible]	-.00074
#2	[illegible]	[illegible]	[illegible]	.00000	.00196	-.00852	-.00148
#3	[illegible]	[illegible]	.00068	.00118	-.00688	.01704	-.00148
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02000	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02000	-5.0000	-.01500
Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
Avge	-.00334	.00915	-.00156	.00242	.00000	.00085	
SDev	.00174	.12975	.00501	.01128	.00099	.00073	
%RSD	-51.962	1417.7	-321.49	466.05	1406700.	85.905	
#1	-.00535	.15558	.00208	-.00097	.00057	.00127	
#2	-.00234	-.03661	.00052	.01501	-.00114	.00001	
#3	-.00234	-.09152	-.00728	-.00678	.00057	.00126	
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	

Method [illegible] Error Name [illegible] Operator [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	540.79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	469.45
#2	546.47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	475.59
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	475.97
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	643.07						592.85
Low	472.04						395.27
Elem	[illegible]	[illegible]	[illegible]	Fe2599	Pb2203	Mo2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	197.55	[illegible]	497.81	[illegible]
SDev	[illegible]	[illegible]	[illegible]	1.46	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	195.69	[illegible]	494.16	[illegible]
#2	[illegible]	[illegible]	[illegible]	198.64	[illegible]	500.57	[illegible]
#3	[illegible]	[illegible]	[illegible]	198.13	[illegible]	498.71	[illegible]
Errors	NOCHECK	NOCHECK	NOCHECK	LC Pass	NOCHECK	LC Pass	NOCHECK
High				247.48		627.62	
Low				164.99		425.09	
Elem	Ni2316	[illegible] 7664	Ag2280	Na5889	V_2924	Zn2138	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
Avge	.00825	.02745	-.01953	1.6914	-.02482	.18760	
SDev	.00405	.05715	.00278	.0299	.00096	.00118	
%RSD	48.497	208.17	-12.202	1.7687	-2.7618	.62765	
#1	.00268	-.02661	-.02012	1.6575	-.02525	.18624	
#2	.01069	.04576	-.02157	1.7025	-.02552	.18823	
#3	.01069	.02221	-.01691	1.7141	-.02372	.18832	
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	
High							
Low							

Sample Name: ILSABP ILEHR Operator

Avge	544.52	-.02178	-.69420	.49228	.45786	859.50	474.34
SDev	2.47	.01771	.01222	.01224	.01279	.0042	2.5
%RSD	.45774	-32.555	1.7047	.47307	2.822	.7241	.4157
#1	544.01	-.00802	-.70257	.48982	.45458	855.9	471.9
#2	547.95	-.02454	-.70021	.49422	.47212	856.5	473.75
#3	544.59	-.02117	-.67915	.49275	.46716	.85665	471.85
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	547.77			.60240	.57600	1.0884	614.67
Low	429.19			.40150	.28400	.72560	409.78

Elem	[illegible]	[illegible]	[illegible]	Fe2599	Fe2714	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	42041	47771	.51055	188.15	4.4954	497.25	.47217
SDev	.00202	.00453	.00016	1.15	.0294	2.77	.00222
%RSD	4125	1.0485	.51251	.61771	.65227	.55701	.70521
#1	42277	47594	.51707	187.19	4.4515	494.87	.46892
#2	42975	.47202	.51126	189.42	4.5127	500.24	.47558
#3	42922	47418	.51222	187.82	4.5124	496.84	.47189
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.62480	.57240	.65160	229.81	5.6690	622.04	.59520
Low	.42220	.28160	.42440	159.88	3.7790	422.02	.29680

Elem	Ni2216	[illegible] 7664	Ag2280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.85582	.00000	.92886	1.7011	.42266	1.1809
SDev	.00702	.0159	.00682	.0202	.00418	.0056
%RSD	.81999	-.26526	.72779	1.1952	.98689	.47220
#1	.84781	.01820	.92102	1.7011	.41921	1.1778
#2	.85864	-.00915	.94259	1.7214	.42750	1.1874
#3	.86085	-.00915	.94196	1.6807	.42426	1.1776
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass
High	1.1280		1.1520		.61080	1.4496
Low	.75200		.76800		.40720	.96640

[illegible]

[illegible] Sample Name [illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	.0879	.0181	[illegible]	.0991	[illegible]	[illegible]
SDev	[illegible]	.1540	.0440	.0000	.0000	[illegible]	[illegible]
%RSD	[illegible]	14.152	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	.1143	.0392	.0000	.0991	.0129	.3839[illegible]
#2	.0099	.1075	.0676	.0000	.0991	.0143	[illegible]
#3	.1146	.0941	.0476	.0000	.0991	.0100	.1996[illegible]

Elem	Cr[illegible]	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0644	.0964[illegible]	.0517	.1461	.0410[illegible]	.6410	.0281
SDev	[illegible]	.0020[illegible]	.0011	.0452	.0122[illegible]	.1032[illegible]	.0004[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	.0952[illegible]	.0555[illegible]	.1864[illegible]	.0508[illegible]	.7485	.0288[illegible]
#2	[illegible]	.0951	.0514[illegible]	.1140[illegible]	.0273[illegible]	.2470[illegible]	.0280[illegible]
#3	[illegible]	[illegible]	.0494[illegible]	[illegible]	.4504	.1707[illegible]	.0280[illegible]

Elem	Ni[illegible]	K [illegible]664	Ag3280	Na5889	V [illegible]924	Zn2178
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	.0045[illegible]	.0197[illegible]	.0213[illegible]	.0952[illegible]	.0405[illegible]
SDev	.0035[illegible]	.0629[illegible]	.0023[illegible]	.0138[illegible]	.0009[illegible]	.0007[illegible]
%RSD	4.7245	1374.8	12.067	64.803	1.0418	1.7248
#1	.0746[illegible]	.0183[illegible]	.0223[illegible]	.0208[illegible]	.0946[illegible]	.0409[illegible]
#2	.0778[illegible]	.0594[illegible]	.0192[illegible]	.0353[illegible]	.0964[illegible]	.0409[illegible]
#3	.0708[illegible]	-.0640[illegible]	.0176[illegible]	.0077[illegible]	.0946[illegible]	.0396[illegible]

[illegible]

Method [illegible] Sample Name [illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	2.4172	2.4008	2.4570	.49318	2.4[illegible]	[illegible]
SDev	[illegible]	.0195	.0052	.0273	.00447	.0152	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	24.[illegible]	2.3978	2.4045	2.4257	.48823	2.4057	24.[illegible]
#2	24.[illegible]	2.4172	2.3949	2.4756	.49442	2.4309	24.647
#3	24.542	2.4367	2.4029	2.4697	.49690	2.4347	24.631
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	[illegible]	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.44[illegible]	2.4169	2.4285	9.8643	2.4265	24.323	2.4323
SDev	[illegible]	.0179	.0288	.0861	.0215	.223	.0215
%RSD	[illegible]	[illegible]	1.1846	.87330	.88703	.91506	.89535
#1	[illegible]	2.3963	2.3953	9.7649	2.4084	24.067	2.4074
#2	2.4515	2.4263	2.4441	9.9099	2.4503	24.425	2.4444
#3	2.4515	2.4280	2.4461	9.9181	2.4209	24.476	2.4451
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	2.4111	24.197	.50265	24.468	2.4443	2.4377	
SDev	.0216	.206	.00540	.272	.0243	.0168	
%RSD	89598	85161	1.0747	1.1112	.99231	69086	
#1	2.3867	23.986	.49642	24.157	2.4163	2.4183	
#2	2.4278	24.206	.50577	24.659	2.4574	2.4468	
#3	2.4198	24.398	.50577	24.588	2.4591	2.4481	
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	

[illegible]

[illegible] Sample Name [illegible] Operator: [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Low	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Low	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Low	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00568	.00000	-.00676	.02808	.00057	.01088
SDev	.00153	.0345	.00090	.01006	.00001	.00070
%RSD	-26.956	-518e6	-13.325	35.836	.90292	6.4202
#1	-.00434	-.03661	-.00728	.03389	.00058	.01130
#2	-.00535	.00458	-.00728	.03389	.00057	.01128
#3	-.00735	.03203	-.00572	.01646	.00057	.01008
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

[illegible]

[illegible] Sample Name [illegible] Operator: [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.00971	-.01540	-.00049	.00000	-.00085	[illegible]
SDev	[illegible]	.00190	[illegible]	.00095	.00000	[illegible]	[illegible]
%RSD	[illegible]	-1.[illegible]	-75.911	[illegible]	.00000	[illegible]	[illegible]
#1	[illegible]	-.00552	-.00256	.00000	.00000	-.00152	[illegible]
#2	.01204	-.00982	-.01789	.00000	.00000	-.00050	[illegible]
#3	[illegible]	-.00975	L-.02564	-.00147	.00000	-.00041	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.05000	.01800	.20000	.00500	.00500	5.0000
Low	-.20000	-.05000	-.01800	-.20000	-.00500	-.00500	-5.0000

Elem	[illegible]	Co2236	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00117	.00000	.00203	.02891	-.00624	.01704	.00000
SDev	[illegible]	.00000	.00117	.00069	.00985	.00000	.00000
%RSD	[illegible]	[illegible]	57.455	[illegible]	-157.77	.00000	.00000
#1	-.00352	.00000	.00271	.02851	-.00984	.01704	.00000
#2	.00176	.00000	.00271	.02970	.00490	.01704	.00000
#3	-.00176	.00000	.00068	.02851	-.01378	.01704	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02000	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02000	-5.0000	-.01500

Elem	Ni2316	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00368	.07779	-.00987	.02033	-.00115	.00419
SDev	.00289	.03963	.00325	.00510	.00171	.00073
%RSD	-78.730	50.943	-32.872	25.085	-149.38	17.396
#1	-.00535	.03203	L-.01351	.02517	-.00286	.00377
#2	-.00535	.10067	-.00883	.01501	-.00114	.00503
#3	-.00033	.10067	-.00728	.02082	.00056	.00376
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

Elem	[illegible]	[illegible]	[illegible]	Fe[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	[illegible]	[illegible]	ppm	[illegible]	[illegible]	[illegible]
Avge	[illegible]	[illegible]	[illegible]	1.9505	.42575	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	.0155	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	-.[illegible]445	1.9740	.48079	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	.48947	[illegible]	[illegible]
#3	[illegible]	[illegible]	-.00440	1.9971	.48699	[illegible]	[illegible]
Errors	LC Pass	LC Pass	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	[illegible]	1.1740		[illegible]	.61200	.59580	[illegible]
Low	[illegible]	[illegible]		[illegible]	.40800	.40020	41.215

Elem	[illegible]	[illegible]	[illegible]	Fe[illegible]	Pb[illegible]	Mg[illegible]	Mn[illegible]
Units	[illegible]	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	48449	1.9[illegible]	4.6950	[illegible]	.46697
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	1.1[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	1.9[illegible]	4.6[illegible]	[illegible]	.46229
#2	[illegible]	[illegible]	[illegible]	1.9852	4.7[illegible]	[illegible]	[illegible]
#3	.45769	[illegible]	.48448	1.9769	4.7097	[illegible]	.46820
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.61200	.62400	.62280	2.4570	6.1680	20.890	.61920
Low	.40800	.41600	.41520	1.6750	4.1120	20.600	.41280

Elem	Ni2316	[illegible]7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.45916	48.696	.48390	48.740	.47315	3.0613
SDev	.00209	.218	.00156	.420	.00357	.0214
%RSD	.45451	.44750	.32222	.86122	.75432	.69919
#1	.45983	48.531	.48234	48.325	.47028	3.0374
#2	.46083	48.943	.48546	49.164	.47714	3.0788
#3	.45682	48.614	.48390	48.732	.47201	3.0675
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.59640	62.480	.59760	61.640	.60940	3.9800
Low	.39760	41.650	.39840	41.090	.40560	2.6530

[illegible]

[illegible] Battle [illegible] Operator: [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	[illegible]	ppm	[illegible]	[illegible]	[illegible]	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	114.57
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	15009	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	114.44
#2	14[illegible]8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	114.[illegible]
#3	14367	[illegible]	[illegible]	[illegible]	.00000	[illegible]	114.9[illegible]

Elem	[illegible]	[illegible]	Cu[illegible]47	Fe2599	Pb[illegible]	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.01206
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.00597	[illegible]	[illegible]
RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	-.00112	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	[illegible]	[illegible]	[illegible]	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	57.42[illegible]	.00168	.15[illegible]54
SDev	.00201	[illegible]45	.00000	14[illegible]	.00197	.00072
RSD	120.00	1.2[illegible]2	-.00154	2490[illegible]	117.60	.46786
#1	.00268	2.7501	-.00882	57.502	.00054	.15[illegible]12
#2	-.00022	2.7089	-.00882	57.258	.00054	.15[illegible]14
#3	.00157	2.6814	-.00883	57.509	.00196	.15437

Method [illegible] Sample Name [illegible] Operator SFF

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	19799	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	19652	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	19799	[illegible]	[illegible]	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00235	-.00059	.00474	.03723	.00522	29.511	.01083
SDev	[illegible]	[illegible]	.00203	.00069	.00750	.117	.00043
%RSD	[illegible]	[illegible]	42.824	1.8414	143.70	.39687	[illegible]
#1	[illegible]	.00176	.00475	.03802	-.00296	29.485	.01108
#2	[illegible]	[illegible]	[illegible]	.03683	.00636	29.409	.01108
#3	[illegible]	[illegible]	[illegible]	.03634	[illegible]	[illegible]	[illegible]

Elem	[illegible]	[illegible]	Ag3280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	2.5853	-.01091	55.530	.00057	.13853
SDev	.00116	.0363	.00325	.319	.00172	.00072
%RSD	-173.21	1.4048	-29.737	.57410	300.62	.52032
#1	-.00134	2.6265	-.01351	55.662	-.00115	.13811
#2	-.00134	2.5579	-.00728	55.167	.00058	.13936
#3	.00067	2.5716	-.01195	55.762	.00229	.13811

Method [illegible] Operator [illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	.05091	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	.05091	.04915	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	.05091	.04097	[illegible]

Elem	Cr[illegible]	Co[illegible]	Cu[illegible]	Fe[illegible]	Pb[illegible]	Mo[illegible]	Mn[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	.99257	[illegible]	29.690	.48789
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.00687	[illegible]	.00154
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.[illegible]	.[illegible]
#1	[illegible]	[illegible]	[illegible]	99415	.49[illegible]	29.690	.48740
#2	[illegible]	[illegible]	[illegible]	99178	[illegible]	29.792	.48961
#3	[illegible]	[illegible]	.24554	.99173	[illegible]	29.588	.49666

Elem	Ni[illegible]	[illegible]	[illegible]	Na[illegible]	V [illegible]	Zn[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.47[illegible]	[illegible]	04051	55 947	48[illegible]	.61816
SDev	.00[illegible]	0764	.00090	.[illegible]19	00100	.00145
%RSD	[illegible]	[illegible]	[illegible]	57[illegible]	[illegible]	.[illegible]
#1	.47487	[illegible]	.04107	56.066	.48504	.61722
#2	.47[illegible]87	[illegible]	.04103	56.190	.48[illegible]2	.61983
#3	47186	[illegible]	.0[illegible]947	55.586	.48[illegible]2	.61734

[illegible]

[illegible] Sample Name: [illegible] Operator: [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	-.00655	[illegible]	.04057	.00000	-.00064	[illegible]
SDev	[illegible]	[illegible]	.01595	.00085	.00000	.00075	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	.00000	-55.529	[illegible]
#1	[illegible]	-.00[illegible]	-.01048	.04106	.00000	-.00088	[illegible]
#2	[illegible]	-.00652	-.00277	.07960	.00000	-.00079	[illegible]
#3	.04502	-.00962	.02019	.04106	.00000	-.00023	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00000	.00000	.00475	.05861	.00290	5.9976	.00295
SDev	.00305	.00175	.00203	.00069	.00197	.0256	.00000
%RSD	[illegible]	[illegible]	42.804	1.1741	67.865	.42614	.00000
#1	[illegible]	.00000	.00678	.05821	.00093	5.9976	.00295
#2	-.00332	.00177	[illegible]	.05822	.00291	5.9721	.00295
#3	[illegible]	-.00176	.00475	.05941	.00487	6.0232	.00295

Elem	Ni2[illegible]	K 7664	Ag2280	Na3889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00201	.59486	-.00727	11.163	-.00058	.05147
SDev	.00058	.08573	.00156	.064	.00356	.00126
%RSD	-28.868	14.412	-21.434	.57435	-617.03	2.4512
#1	-.00134	.56740	-.00572	11.159	.00228	.05020
#2	-.00234	.52622	-.00727	11.133	.00055	.05147
#3	-.00234	.69095	-.00883	11.255	-.00456	.05272

Method [illegible] Sample [illegible] Operator [illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00120	.00001	.00688	1.0695	.00499	29.596	.01083
SDev	.00103	.00753	.00000	.0041	.00928	.106	.00047
[illegible]	[illegible]	[illegible]	[illegible]	.38505	185.97	3595	[illegible]
#1	[illegible]	-.00752	.00688	1.0719	-.00221	29.715	.01074
#2	[illegible]	.00754	.00688	1.0647	.01546	29.511	.01108
#3	[illegible]	[illegible]	[illegible]	[illegible]	.00172	29.562	.01106

Elem	[illegible]	[illegible]	Ag3280	Na5889	V 3124	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	1.6510	-.01191	59.307	.00103	.26433
SDev	.00000	.0974	.00156	.480	.00099	.00073
%RSD	.00000	5.8633	-13.090	.80861	96.114	.27443
#1	-.00033	1.7480	-.01191	59.653	.00046	.26349
#2	-.00033	1.6793	-.01347	58.759	.00216	.26475
#3	-.00033	1.5558	-.01035	59.509	.00046	.26475

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	ppm	ppm	[illegible]	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	[illegible]	[illegible]	Ag3280	[illegible]	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible] 3-04.5 [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	ppm	ppm	ppm	ppm	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	[illegible]	[illegible]	[illegible]	Fe2599	[illegible]	Mg2790	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Zn2138	
Units	ppm	ppm	ppm	ppm	ppm	ppm	
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Method [illegible] Sample Name [illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	-.01[illegible]7	-.00512	.20679	.00000	-.00072	115.[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	.01[illegible]	-.00978	-.00259	.20239	.00000	-.00105	11[illegible]
#2	-.[illegible]997	-.01960	-.01015	.20825	.00000	-.00078	115.57
#3	[illegible]	-.00981	-.00261	.20972	.00000	-.00031	115.84

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00117	.00000	.00406	.00000	.01178	30.678	.01083
SDev	.[illegible]	.0000	.00117	.0000	.00353	.295	.00043
%RSD	[illegible]	-227.60	28.869	-227.60	30.001	.92895	3.9365
#1	.00000	.00000	.00474	.00000	.01472	30.354	.01034
#2	[illegible]	.00000	.00271	.00000	.00786	30.891	.01108
#3	[illegible]	.00000	.00474	.00000	.01275	30.789	.01108

Elem	Ni2216	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00234	1.6685	-.01092	62.391	.00000	.13813
SDev	.00361	.1354	.00090	.543	.00099	.00002
%RSD	-154.52	8.0209	-8.2471	.86978	47509.	.01301
#1	.00167	1.5970	-.01040	61.766	.00057	.13811
#2	-.00535	1.8441	-.01196	62.670	-.00114	.13814
#3	-.00334	1.6244	-.01040	62.737	.00057	.13813

Method [illegible] Sample Name HALFSTD.CDV Operator [illegible]
[illegible] Time [illegible]
[illegible]
[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	24.[illegible]	2.3936	2.3406	2.4218	.48740	2.3969	24.[illegible]
SDev	.139	[illegible]	.0160	.0238	.00469	.0143	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	24.254	2.3815	2.3583	2.4301	.48947	2.3955	24.253
#2	24.397	2.4173	2.3271	2.4404	.49071	2.4151	24.402
#3	24.022	2.3819	2.3363	2.3949	.48203	2.3862	24.081
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	2.4069	2.3969	2.4041	9.7102	2.3969	24.033	2.4035
SDev	.0306	.0132	.0164	.0621	.0183	.207	.0174
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	.76216	.85958	.72340
#1	2.4180	2.3963	2.4116	9.7031	2.4044	24.067	2.4023
#2	2.4303	2.4104	2.4177	9.7755	2.4102	24.220	2.4215
#3	2.3722	2.3839	2.3831	9.6520	2.3761	23.812	2.3868
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	2.3880	24.005	.49641	24.263	2.4146	2.4099	
SDev	.0131	.042	.00312	.187	.0181	.0106	
%RSD	54791	17471	62821	.77035	.74930	.43843	
#1	2.3867	24.041	.49641	24.331	2.4129	2.4057	
#2	2.4018	24.014	.49953	24.405	2.4334	2.4219	
#3	2.3757	23.959	.49330	24.051	2.3974	2.4021	
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	

Method [illegible] Sample Name S DP LCP Operator: [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	[illegible]	[illegible]	[illegible]	.00500	.00500	5.0000
Low	[illegible]	[illegible]	-.01800	[illegible]	-.00500	-.00500	[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.01704	.00049
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00074
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.01704	.00074
#3	[illegible]	[illegible]	[illegible]	[illegible]	H.02258	.01704	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	[illegible]	.05000	.02500	.10000	.02000	5.0000	[illegible]
Low	-.01000	-.05000	-.02500	-.10000	-.02000	-5.0000	-.01500

Elem	Ni2316	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00134	.03661	-.00832	.03969	.00228	.00335
SDev	.00265	.02097	.00090	.01134	.00000	.00072
%RSD	-198.43	57.282	-10.825	28.574	.13338	21.496
#1	-.00033	.01830	-.00728	.03243	.00228	.00252
#2	-.00434	.05949	-.00884	.03389	.00228	.00378
#3	.00067	.03203	-.00884	.05276	.00228	.00375
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

[illegible] Report [illegible]

[illegible] Sample Name [illegible] Operator [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	1.0417	.00179	.00425	.20972	.00000	.00026	115.47
Dev	.0140	.0495	.0527	.00000	.00000	.00026	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	1.0876	.00611	.01957	.20972	.00000	-.00061	115.27
#2	1.0155	.00287	-.01102	.20972	.00000	.00061	115.44
#3	.10429	-.00357	.00425	.20972	.00000	.00080	115.62

Elem	Cr267	Co2296	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.02174	.00177	.00619	.97487	.00141	30.653	.01083
SDev	[illegible]	[illegible]	.00117	.01408	.00984	.082	[illegible]
%RSD	4.6765	[illegible]	18.975	1.5220	68.344	.26903	3.9765
#1	.02191	.00177	.00484	.94111	-.00416	30.697	.01108
#2	.02115	.00177	.00695	.91515	.01254	30.559	.01074
#3	.02175	.00177	.00496	.97775	-.00415	30.712	.01109

Elem	Ni2316	[illegible]	Pb3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.1136	1.7068	-.00880	39.970	.00167	.27687
SDev	.00463	.0726	.00312	.043	.00099	.00071
%RSD	40.754	4.2559	-35.471	.10713	59.257	.25788
#1	.00869	1.6793	-.01192	40.018	.00224	.27604
#2	.00869	1.6519	-.00880	39.954	.00224	.27729
#3	.01671	1.7891	-.00568	39.937	.00053	.27726

Method [illegible] Sample Name 9[illegible]-17.5 Operator SPC

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	-.00053	.00471	.00525	.00000	-.00011	[illegible]
SDev	[illegible]	[illegible]	[illegible]	.00147	.00000	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	.08478	-.00235	.00768	.00825	.00000	.00175	[illegible]
#2	.09841	-.01959	-.01059	.00972	.00000	-.00257	[illegible]
#3	.09517	-.01960	-.00295	.00679	.00000	.00089	[illegible]

Elem	Cr[illegible]	Co[illegible]	Cu[illegible]	Fe[illegible]	Pb[illegible]	Mg[illegible]	Mn[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00059	.00177	.00678	.07603	-.00007	10.840	.00886
SDev	[illegible]	[illegible]	[illegible]	.00000	[illegible]	.184	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	.00215	-1[illegible]1.	.39761	[illegible]
#1	[illegible]	.00177	.00678	.07603	-.00694	10.891	.00886
#2	[illegible]	.00177	.00881	.07603	.00975	10.993	.00886
#3	[illegible]	.00177	[illegible]	.07607	[illegible]	[illegible]	.00886

Elem	Ni[illegible]	K [illegible]	Mg[illegible]	Na5889	V [illegible]	Zn[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00100	1.7397	-.01079	40.780	-.00001	.28418
SDev	.00452	.0159	.00156	.365	.00099	.00073
%RSD	-450.92	.91643	-15.003	.90476	-9275.5	.25812
#1	-.00174	1.7205	-.01079	40.543	-.00115	.28377
#2	-.00575	1.7205	-.01195	40.675	.00056	.28503
#3	.00768	1.7480	-.00883	39.962	.00057	.28375

Method [illegible] Sample Name: 90121 S-02.S Operator: [illegible]
[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.01950	-.00084	.21412	.00000	-.00084	117.59
SDev	.01414	.01[illegible]	.01334	.00147	.00000	[illegible]	[illegible]
RSD	[illegible]	[illegible]	-122.15	[illegible]	[illegible]	[illegible]	[illegible]
#1	.08429	-.01655	-.00325	.21559	.00000	-.00087	117.[illegible]
#2	.05601	-.03226	-.00714	.21412	.00000	-.00106	117.12
#3	.07014	-.00999	-.02612	.21265	.00000	-.00059	117.84

Elem	Cr 677	Cs2296	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00000	.00001	.01160	.64249	.00014	31.249	.00812
SDev	.00207	.00000	.00117	.00119	.00465	.051	.00000
RSD	[illegible]	[illegible]	10.[illegible]14	.14068	3431.1	16359	.00000
#1	.00178	.0001	.01092	.34368	-.00511	31.249	.00812
#2	[illegible]	.0001	[illegible]295	.84131	.00178	31.198	.00812
#3	[illegible]	[illegible]	[illegible]	.4249	.00374	31.300	.00812

Elem	[illegible]	K 7664	Au3280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00033	1.2610	-.00984	40.965	-.00009	.27816
SDev	.00100	.0482	.00325	.100	.00099	.00192
RSD	-300.00	2.9024	-32.977	.24294	-1078.1	.69009
#1	.00067	1.6656	-.00880	41.062	-.00123	.27858
#2	-.00134	1.7068	-.01348	40.968	.00048	.27607
#3	-.00033	1.6107	-.00724	40.863	.00047	.27984

[illegible] Thu [illegible]-71-91 [illegible] Page [illegible]

Method [illegible] Sample Name 90[illegible]-09.S Operator [illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.00752	.00501	.20239	.00000	.00016	113.[illegible]
SDev	[illegible]	[illegible]	.00745	.00147	.00000	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	152.55	.72464	[illegible]	[illegible]	[illegible]
#1	.01350	.00001	.01268	.20239	.00000	-.00004	112.84
#2	[illegible]	-.1307	.00497	.20092	.00000	.00089	112.94
#3	.01517	-.00981	-.00261	.20385	.00000	.00024	113.72

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mo2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00176	.00118	.01152	.03763	.00162	30.082	.00862
SDev	[illegible]	.00102	.00117	.00069	.00912	.150	.00043
%RSD	[illegible]	[illegible]	10.185	1.8205	564.03	.49787	4.9487
#	-.00352	.00000	.01297	.03683	.00794	30.022	.00886
#2	[illegible]	.00176	.01094	.03802	.00587	29.971	.00886
#3	[illegible]	[illegible]	[illegible]	[illegible]	-.00886	30.252	.00812

Elem	Ni2316	[illegible]7664	Ag3280	Na5889	V 2924	Zn2178
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00635	4.2509	-.00988	39.250	.00113	.28294
SDev	.00361	.0634	.00238	.291	.00099	.00193
%RSD	-56.930	1.4915	-24.119	.74230	87.688	.68329
#1	-.00535	4.1777	-.01039	39.304	.00056	.28125
#2	-.00334	4.2875	-.00728	38.935	.00228	.28251
#3	-.01036	4.2875	-.01195	39.510	.00056	.28505

[illegible] Thu [illegible] 12 [illegible] 45 PM [illegible]

Method [illegible] Sample Name: 9012108-10.S Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.02230	-.00782	-.00509	.20972	.00000	-.00071	115.[illegible]
SDe	.1045	.00187	.00892	.00000	.00000	.00012	[illegible]
%RSD	[illegible]	[illegible]	-109.02	.00000	.00000	-30.55[illegible]	[illegible]
#1	.01988	-.00574	-.01827	.20972	.00000	-.00096	115.5[illegible]
#2	.02401	-.00999	-.00304	.20972	.00000	-.00058	114.58
#3	.01360	-.00675	-.00296	.20972	.00000	-.00058	114.95

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00057	.00060	.00753	.80566	.00704	30.567	.00812
SDe	.00102	.00102	.00275	.00119	.00253	.103	.00074
%RSD	[illegible]	[illegible]	31.156	.14741	40.189	.33792	9.0909
#1	.00002	.00001	.00889	.80685	.00868	30.687	.00812
#2	-.00174	.001	.00889	.80566	.00867	30.509	.00886
#3	.00002	.00177	.00492	.80448	.00377	30.508	.00738

Elem	Ni3316	K7664	Ag3280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00267	1.6198	-.01192	40.014	.00048	.27359
SDev	.00209	.0934	.00000	.353	.00000	.00002
%RSD	-78.062	5.7685	-.00064	.88218	.58804	.00584
#1	-.00334	1.6519	-.01192	40.422	.00048	.27359
#2	-.00033	1.6931	-.01192	39.808	.00048	.27358
#3	-.00434	1.5146	-.01192	39.814	.00048	.27361

Method [illegible] Sample Name: [illegible]-11.5 Operator: [illegible]
Run Time [illegible]
[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	[illegible]	ppm	[illegible]	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	-.01797	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	-.02567	[illegible]	[illegible]	[illegible]	114.51
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	114.62
#3	[illegible]	[illegible]	-.02564	.20672	.00000	-.00022	114.47

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	.00059	.01016	[illegible]	.00391	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.00295	[illegible]	.00085
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	75.587	.19342	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	.00095	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	.00000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	[illegible]	[illegible]	[illegible]	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	1.8029	[illegible]	39.806	-.00057	.29882
SDev	.00059	[illegible]	.00156	.090	.00261	.00000
%RSD	[illegible]	76142	[illegible]	22616	-459.43	.00128
#1	.00067	1.8166	-.01351	39.902	.00227	.29882
#2	[illegible]	1.7891	-.01195	39.723	-.00285	.29882
#3	.00067	1.8029	-.01040	39.793	-.00112	.29883

[illegible] Report Thu [illegible] Date

Method [illegible] Sample Name 901[illegible]108-1[illegible]:[illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]45	[illegible]	-.00206	[illegible]0531	[illegible]	[illegible]	114.[illegible]
SDev	[illegible]	[illegible]	.00440	[illegible]224	[illegible]	[illegible]	[illegible]
%FSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	-.00995	-.00299	[illegible]0385	.00000	-.00057	[illegible]
#2	[illegible]	-.00346	-.01038	[illegible]0532	.00000	-.00216	[illegible]
#3	[illegible]2459	.00309	-.01052	[illegible]0825	.00000	-.00029	115.[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00351	.00118	.00956	.76407	-.00834	30.371	.00837
SDev	[illegible]	[illegible]	[illegible]	.00428	.00283	[illegible]	[illegible]
%FSD	[illegible]	[illegible]	[illegible]	[illegible]	-33.993	[illegible]	[illegible]
#1	[illegible]	[illegible]	.01295	.76051	-.00506	30.048	.00812
#2	[illegible]	.00177	.00685	.76289	-.00997	30.354	.00812
#3	[illegible]	.00177	[illegible]	[illegible]	-.00998	[illegible]	[illegible]

Elem	Ni2316	K_7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00301	1.6244	-.01192	39.655	.00048	.27192
SDev	.00058	.0764	.00000	.407	.00001	.00193
%FSD	-19.245	4.7052	-.00090	1.0257	.96201	.70936
#1	-.00234	1.5421	-.01193	39.243	.00047	.26981
#2	-.00334	1.6381	-.01192	39.667	.00048	.27235
#3	-.00334	1.6931	-.01192	40.056	.00048	.27359

Method [illegible] Sample Name [illegible] Operator [illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.01525	-.01032	.20972	.00000	.0055	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.00000	[illegible]	
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	.00000	[illegible]	[illegible]
#1	.03559	-.01634	-.01034	.20972	.00000	.00071	[illegible]
#2	.02970	-.01307	-.01796	.20972	.00000	.00024	[illegible]
#3	[illegible]	-.01633	-.00267	.20972	.00000	.00071	[illegible]

Elem	Cr2677	Cd2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn3576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00117	.00118	.02100	.02138	.00521	31.053	.00886
SDev	[illegible]	[illegible]	.00000	.00119	.00744	.053	.00000
%RSD	[illegible]	[illegible]	.00056	5.5582	142.67	17133	.00000
#1	[illegible]	[illegible]	.02100	.02138	-.00003	30.993	.00886
#2	[illegible]	[illegible]	[illegible]	.02257	.01377	31.070	.00886
#3	[illegible]	[illegible]	[illegible]	.02019	.00194	31.096	[illegible]

Elem	Ni2316	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00167	2.8828	-.01092	40.713	.00228	.26363
SDev	.00289	.0839	.00238	.052	.00171	.00126
%RSD	-173.21	2.9096	-21.821	.12713	75.068	47631
#1	-.00334	2.9560	-.00884	40.756	.00228	.26489
#2	.00167	2.9011	-.01040	40.728	.00399	.26362
#3	-.00334	2.7913	-.01351	40.656	.00057	.26238

Method [illegible] Sample Name [illegible] Operator [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	[illegible]
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	.00685	[illegible]	.00246	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.00818	[illegible]	[illegible]
%RSD	[illegible]	170.87	[illegible]	[illegible]	332.70	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Elem	Ni2316	[illegible]	[illegible]	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	1.9630	-.01036	63.192	.00162	.28070
SDev	.00305	.1506	.00270	.229	.00198	.00074
%RSD	225.6	7.6711	-26.058	.37765	121.81	.26176
#1	[illegible]	2.1322	-.00880	63.247	.00048	.27985
#2	.00067	1.8441	-.01348	63.398	.00390	.28111
#3	-.00334	1.9127	-.00881	62.930	.00048	.28113

[illegible]

[illegible] Name [illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	-.00522	.20237	.00000	[illegible]	114.54
SDev	[illegible]	[illegible]	[illegible]	.00085	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	.02087	[illegible]	-.01072	.20239	.00000	-.00125	[illegible]
#2	[illegible]	-.00985	-.01035	.20239	.00000	[illegible]	114.78
#3	.02302	[illegible]	.00500	.20385	.00000	.00080	115.09

Elem	Cr3577	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00411	.00176	.00678	.02218	-.00592	30.619	.00886
SDev	[illegible]	[illegible]	[illegible]	.00182	.00099	.220	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	8.1844	-16.664	.71967	[illegible]
#1	.00000	.00176	[illegible]	.02019	-.00592	30.780	.00886
#2	[illegible]	[illegible]	[illegible]	[illegible]	-.00690	30.661	.00886
#3	[illegible]	[illegible]	[illegible]	.02257	[illegible]	30.814	.00886

Elem	Ni3310	K 7664	Ag2280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00201	2.0454	-.00884	62.918	.00115	.10128
SDev	.00153	.1039	.00000	.373	.00098	.00073
%RSD	-76.376	5.0818	-.00092	59319	85.149	.72186
#1	-.00234	2.0912	-.00884	62.545	.00228	.10170
#2	-.00033	2.1186	-.00884	62.917	.00059	.10043
#3	-.00334	1.9264	-.00884	63.292	.00058	.10170

[illegible] Thu 1-[illegible] [illegible] [illegible]

Method. [illegible] Sample Name HALFSTD [illegible] Operator [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	2.3688	2.3347	2.3758	.48203	2.3622	[illegible]
SDev	[illegible]	[illegible]	.0152	.0199	.00215	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	.78271	.83304	[illegible]	[illegible]	[illegible]
#1	[illegible]	2.3754	2.3457	2.3568	.47955	2.3492	[illegible]
#2	[illegible]	2.3524	2.3141	2.3964	.48327	2.3648	[illegible]
#3	[illegible]	2.3785	2.3143	2.3744	.48327	2.3727	23.960
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	Cu2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.3699	2.3575	2.3689	9.6034	2.3644	23.786	2.3750
SDev	[illegible]	.0077	.0153	.0548	.0211	.133	.0141
%RSD	[illegible]	[illegible]	.64780	.57036	.89096	.55833	.59568
#1	2.3617	2.3486	2.3547	9.5404	2.3439	23.633	2.3587
#2	2.3740	2.3610	2.3851	9.6402	2.3634	23.863	2.3846
#3	2.3740	2.3628	2.3669	9.6295	2.3860	23.863	2.3816
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	2.3543	23.680	.49433	23.785	2.3774	2.3834	
SDev	.0042	.084	.00090	.155	.0137	.0119	
%RSD	.17729	.35421	.18210	.65285	.57760	.50055	
#1	2.3496	23.588	.49485	23.639	2.3632	2.3709	
#2	2.3576	23.753	.49329	23.948	2.3905	2.3846	
#3	2.3556	23.698	.49485	23.769	2.3786	2.3947	
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	

[illegible] Thu [illegible] Page [illegible]

Method [illegible] Sample Name STDB [illegible] Operator [illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.01413	-.01280	-.00095	.00000	.00024	[illegible]
SDev	[illegible]	[illegible]	.00441	[illegible]	.00000	.00171	[illegible]
%RSD	[illegible]	[illegible]	-4.487	[illegible]	.00000	[illegible]	[illegible]
#1	.02450	-.00979	-.01028	.00000	.00000	.00155	.03547
#2	[illegible]	-.01705	-.01022	-.00147	.00000	.00109	.02359
#3	.01575	-.01955	-.01789	-.00147	.00000	-.00162	.01730
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01800	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01800	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	.00000	.00203	.00000	.00163	.01704	.00049
SDev	[illegible]	.018	.00310	.0000	.00928	.00000	.00095
%RSD	[illegible]	[illegible]	52.75	-46.859	570.40	.00000	173.21
#1	[illegible]	.00176	.00271	-.00001	.00490	.01704	.00148
#2	[illegible]	.00000	-.00135	.00000	.00883	.01704	.00000
#3	-.00352	-.00176	.00474	.00000	-.00885	.01704	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02000	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02000	-5.0000	-.01500

Elem	Ni2316	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00434	-.04576	-.00988	.00387	.00170	.00127
SDev	.00201	.12304	.00180	.00302	.00262	.00127
%RSD	-46.154	-268.89	-18.231	78.063	153.47	100.17
#1	-.00635	.03203	-.00884	.00629	.00399	.00253
#2	-.00434	-.18761	-.00884	.00048	.00228	.00128
#3	-.00234	.01830	L-.01195	.00484	-.00115	-.00001
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

[illegible]

[illegible] Sample Name: [illegible] Operator [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.01219	[illegible]	[illegible]	.00000	-.00058	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	-.00578	-.00209	[illegible]	.00000	-.00058	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	.00000	-.00058	[illegible]
#3	[illegible]	-.01327	[illegible]	21265	.00000	-.00058	[illegible]

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	.01159	80091	.00671	30.661	.00911
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.01416	.259	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.84598	[illegible]
#1	[illegible]	[illegible]	.01295	[illegible]	.02242	30.712	[illegible]
#2	[illegible]	[illegible]	[illegible]	[illegible]	.00279	30.380	.00886
#3	[illegible]	[illegible]	[illegible]	[illegible]	-.00508	30.891	[illegible]

Elem	Ni2316	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00067	1.8258	-.00725	59.715	.00220	.27524
SDev	.00362	.0396	.00156	.427	.00170	.00193
%RSD	[illegible]	2.1705	-21.521	.71430	77.348	.70275
#1	.00468	1.8029	-.00569	59.547	.00050	.27354
#2	-.00033	1.8715	-.00881	59.398	.00219	.27483
#3	-.00234	1.8029	-.00725	60.200	.00390	.27734

[illegible] Name [illegible] Operator [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	-.00325	.00476	20092	00000	00174	115 34
#2	[illegible]	[illegible]	[illegible]	20239	00000	- 00162	115 95
#3	02459	- 00328	- [illegible]	20092	.00000	00052	116 30

Elem	[illegible]	Co3386	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	00059	00176	00271	.02653	.00358	30.627	00837
SDev	[illegible]	[illegible]	[illegible]	00177	00697	126	[illegible]
RSD	[illegible]	[illegible]	74.922	5 1773	194 66	41165	13.478
#1	[illegible]	.00353	.00271	.02732	- 00395	30.462	.00960
#2	[illegible]	[illegible]	00474	2495	00488	30.667	00812
#3	[illegible]	[illegible]	[illegible]	[illegible]	00980	30 712	.00738

Elem	[illegible]	[illegible]	Hg3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00067	1 8259	- 00884	59.400	.00285	.09542
SDev	00322	.0827	.00156	207	.00099	.00001
RSD	-482 18	4 5321	-17.648	.34767	34.765	.00700
#1	00067	1.9127	-.00884	59.207	.00227	.09542
#2	- 00434	1 8166	- 01040	59 618	00228	09543
#3	.00167	1 7480	-.00728	59.377	.00399	.09542

[illegible] Report [illegible] Page

Method [illegible] Sample Name [illegible] Operator [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]2459	-.01545	-.00554	20825	.00000	-.00023	11[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]3559	-.00677	.00461	20679	.00000	-.00020	11[illegible]
#2	[illegible]	-.01979	-.00300	20679	.00000	.00053	11[illegible]
#3	.00382	-.01978	-.01821	21118	.00000	-.00132	118.65

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00236	.00118	.00143	.76407	.00967	30.831	.00862
SDev	[illegible]	[illegible]	.00117	.00412	.01276	.431	.00043
%RSD	113.82	86.045	82.007	53914	131.99	1.3978	4.9487
#1	[illegible]	.00177	.00075	.76169	.02243	30.573	.00886
#2	.00178	.00001	.00075	.76169	.00967	30.636	.00866
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.325	[illegible]

Elem	Ni2316	K 7664	Ag3280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00067	1.7022	-.00829	60.829	.00220	.28450
SDev	.00153	.0804	.00090	1.068	.00001	.00384
%RSD	-229.13	4.7254	-10.862	1.7551	.34848	1.3485
#1	-.00033	1.7342	-.00881	60.165	.00221	.28115
#2	.00067	1.6107	-.00725	60.261	.00220	.28366
#3	-.00234	1.7617	-.00881	62.060	.00220	.28868

[illegible] Thu 1-[illegible]-91 [illegible] 41 PM [illegible]

Method [illegible] Sample Name [illegible] Operator [illegible]

[illegible] Time [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.00545	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	.06543	[illegible]	[illegible]	.20239	.00000	-.00014	[illegible]
#2	.05447	[illegible]	[illegible]	.20385	.00000	-.00042	[illegible]
#3	.04815	.00339	.00490	.20679	.00000	-.00005	118.22

Elem	Cr2677	Co2285	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00235	.00059	.00068	.06416	-.00692	31.053	.00837
SDev	.00443	[illegible]	[illegible]	.00119	.00884	205	.00047
%RSD	[illegible]	[illegible]	.01736	[illegible]	-127.73	.66015	[illegible]
#1	[illegible]	[illegible]	[illegible]	.06534	-.00692	30.940	.00886
#2	[illegible]	[illegible]	[illegible]	[illegible]	.00192	31.070	.00512
#3	-.00704	[illegible]	[illegible]	.06416	-.01575	31.249	.00817

Elem	Ni2716	[illegible]	Ag3280	Ne5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00501	2.1323	-.01247	61.356	.00056	.11009
SDev	.00058	.0900	.00090	.395	.00172	.00192
%RSD	-11.547	4.2215	-7.2177	64352	309.20	1.7405
#1	-.00434	2.2147	-.01195	60.912	.00057	.11176
#2	-.00535	2.0362	-.01351	61.493	.00227	.10800
#3	-.00535	2.1461	-.01195	61.665	-.00117	.11051

[illegible] Operator [illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDe	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	.19652	.00000	.00077	[illegible]
#2	[illegible]	[illegible]	[illegible]	19505	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	[illegible]	.19652	.00000	.00075	112.52

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00412	00177	01024	.80047	00275	29 902	.01206
SDe	[illegible]	[illegible]	[illegible]	00127	.01022	090	.00047
%RSD	[illegible]	[illegible]	[illegible]	17114	4274 27	30016	3.5348
#1	[illegible]	[illegible]	.01092	79968	-.00910	29 894	.01255
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29 818	.01182
#3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29 997	.01132

Elem	Ni2316	[illegible]	Ag3280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	- 00167	2.6357	- 00985	55.580	.00277	.15554
SDev	.00252	1319	.00090	.278	.00098	.00127
%RSD	-151 00	5 0047	-9.1441	42911	35.410	.81359
#1	00067	2.5167	-.01036	55.595	.00391	.15553
#2	-.00134	2.7775	-.00881	55.335	.00221	.15428
#3	- 00474	2.6128	-.01036	55.811	.00221	.15681

[illegible] [illegible] 14 [illegible] [illegible]

Method [illegible] Sample Name HALFSTD.[illegible] Operator. [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	2.2905	2.4052	.48947	2.4102	24.38
#2	[illegible]	[illegible]	[illegible]	2.3436	.48079	[illegible]	[illegible]
#3	[illegible]	[illegible]	2.4135	2.3729	.48823	2.4174	24.416
Errors	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass
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	[illegible]	[illegible]	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.4057	2.3916	2.3648	[illegible]	2.4037	23.888	2.3954
SDev	[illegible]	.0219	.0224	[illegible]	.0295	.244	.0230
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	2.4037	2.3872	9.7364	2.4075	24.016	2.4111
#2	[illegible]	[illegible]	2.3425	9.5642	2.3724	23.607	2.3690
#3	2.4339	2.4051	2.3648	9.7270	2.4312	24.042	2.4060
Errors	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass
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	2.3884	23.607	.49018	23.787	2.3952	2.4025	
SDev	.0239	.304	.00562	.203	.0237	.0197	
%RSD	1.0016	1.2863	1.1470	.85519	.98882	.81999	
#1	2.3957	23.890	.49485	23.974	2.4129	2.4070	
#2	2.3616	23.286	.48394	23.570	2.3683	2.3810	
#3	2.4078	23.643	.49174	23.816	2.4044	2.4196	
Errors	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass	LC Fass	
High	2.7500	27.500	55000	27.500	2.7500	2.7500	
Low	2.2500	22.500	45000	22.500	2.2500	2.2500	

Method [illegible] Sample Name S DF [illegible] Operator. [illegible]

[illegible] 14 [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	-.00547	-.00004	-.00049	.00000	.00059	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	.00000	.00164	[illegible]
%RSD	[illegible]	-174.15	-1[illegible]14	-17[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	-.00331	-.00262	.00000	.00000	.00109	.00085
#2	[illegible]	-.01309	[illegible]	.00000	.00000	.00193	.00016
#3	.00576	-.00002	-.00256	-.00147	.00000	-.00124	.00026
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.20000	.06000	.01800	.20000	.00500	.00500	5.0000
Low	-.20000	-.06000	-.01800	-.20000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	Cu3247	Fe2599	Pb22[illegible]	Mg279[illegible]	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00235	.00059	.00000	.00000	-.00492	.00000	.00000
SDev	[illegible]	[illegible]04	.00117	.0000	.00850	.01475	.00000
%RSD	[illegible]	345.41	.00000	-95.962	-172.92	.0000	.00000
#1	.0352	-.00176	.00068	.00000	.00490	-.00852	.00000
#2	.00352	.00176	-.00135	.00000	-.00982	.01704	.00000
#3	.00000	.00176	.00068	.00000	-.00982	-.00852	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02000	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02000	-5.0000	-.01500

Elem	Ni2316	K 7664	Ag3280	Na5889	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00602	.00915	-.00728	.01452	.00001	.00002
SDev	.00232	.04821	.00156	.00671	.00198	.00001
%RSD	-38.490	526.78	-21.428	46.188	30524.	20.249
#1	-.00735	.05949	-.00572	.01065	.00229	.00003
#2	-.00334	.00458	-.00728	.02227	-.00113	.00002
#3	-.00735	-.03661	-.00884	.01065	-.00114	.00003
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

[illegible] Thu 01-[illegible] [illegible] PM [illegible]

Method [illegible] Sample Name [illegible] CSA Operator [illegible]

[illegible]

Elem	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-.00385	[illegible]
SDev	[illegible]	[illegible]	.05250	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	529.42	-.03262	-.35782	.01027	.00000	-.00328	476.39
#2	534.72	-.04207	-.77026	.01027	.00000	-.00485	472.02
#3	543.33	-.00682	-.67374	.01027	.00000	-.00344	473.39
Errors	LC Pass	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	LC Pass
High	548.07						592.95
Low	432.04						395.23

Elem	Cr2[illegible]	Co2286	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	.00247	.00929	187.72	.04057	496.99	.03742
SDev	[illegible]	[illegible]	[illegible]	1.25	.01472	3.32	.00043
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.66716	1.1395
#1	[illegible]	.00354	.01133	187.79	.05058	497.22	.03766
#2	[illegible]	.00186	.00713	18[illegible].43	.04748	493.57	.03692
#3	.01434	.00189	.00941	188.93	.02367	500.19	.03766
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	.00434	.05073	-.02368	1.6841	-.04000	.18843
SDev	.00116	.05197	.00180	.0103	.00209	.00103
%RSD	26.647	103.25	-7.6154	.61178	-5.2348	.54697
#1	.00368	.08694	-.02160	1.6822	-.03887	.18841
#2	.00568	.07321	-.02477	1.6749	-.03871	.18740
#3	.00368	-.00915	-.02467	1.6952	-.04242	.18947
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High						
Low						

[illegible] [illegible]-91 [illegible] [illegible]

Method [illegible] D Sample Name [illegible] ICSAP Operator [illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible] 91	- 01685	- 75955	48494	46716	86747	474 42
SDev	[illegible]	[illegible]	[illegible]	00169	00124	.0[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	42[illegible]	[illegible]
#1	[illegible] 98	- 01791	-.74547	48397	.46592	85993	473.2[illegible]
#2	540 91	- 01790	- 85646	48690	46716	.86330	474 55
#3	577 95	- 01474	-.67702	.48397	.46840	.86718	475.1[illegible]
Errors	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	LC Pass	LC Pass
High	643 77			60240	.57600	1.0984	614.57
Low	429 18			.40160	38400	.72560	409.78
Elem	Cr2677	Cu2236	Cu3247	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	478 5	44124	50376	187.93	4.4848	496 11	47217
SDev	[illegible]	00177	00276	.19	0270	53	00085
%RSD	1 [illegible]	40004	46965	09975	60173	10712	18061
#1	47922	43947	.50103	187.77	4.4582	495.71	.47115
#2	46566	44124	50513	188 14	4.4840	496.71	.47263
#3	48627	.44300	50511	187.90	4.5122	495.89	.47263
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	.85717	.07321	.94457	1.7374	.42310	1.1777	
SDev	.00252	02378	.00325	.0029	.00101	.0013	
%RSD	.29434	32.476	.34370	.16718	.23899	.11097	
#1	.85483	08694	.94196	1.7403	.42256	1.1790	
#2	.85964	.04576	.94353	1.7345	.42249	1.1763	
#3	.85684	.08694	.94820	1.7374	.42427	1.1777	
Errors	LC Pass	NOCHECK	LC Pass	NOCHECK	LC Pass	LC Pass	
High	1.1280		1.1520		.61080	1.4496	
Low	75200		76800		.40720	.96640	

[illegible] Sample [illegible] ICP [illegible] Sheet [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	.00991	.01056	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	.19725	[illegible]	.04959	.00000	.00991	.01151	[illegible]
#2	.18790	.10952	.02701	.00000	.00991	.00864	[illegible]
#3	.10780	.02492	.04281	.00000	.00991	.01157	.11749

Elem	CrI577	CoI228	CuI247	FeI599	PbI220	MgI279	MnI257
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01996	.09646	.04878	.09462	.05258	.17079	.02806
SDev	[illegible]	.00102	.00117	.04777	.00856	.05762	.00074
%RSD	[illegible]	1.0564	2.3956	50.059	16.274	39.686	2.6316
#1	[illegible]	.09705	.04743	.14847	.05971	.24706	.02772
#2	.02117	.09705	[illegible]	.07601	.04709	.11927	.02806
#3	.02117	[illegible]	.04945	.05979	.05492	.14497	.02880

Elem	[illegible]	[illegible]	AgI328	Na5889	V_I924	ZnI138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	.07207	.01299	.04792	.09641	.04246
SDev	.00722	.04950	.00712	.00467	.00171	.00127
%RSD	4.4035	154.52	27.996	9.7411	1.7757	2.9192
#1	.07686	-.00915	.01700	.04986	.09640	.04218
#2	.07185	.08694	.00987	.04260	.09471	.04472
#3	.07085	.01870	.01611	.05171	.09813	.04347

Method [illegible] Sample Name HALFSTD.CIV Operator: SPP

Elem	[illegible]	[illegible]	[illegible]	[illegible]	Be[illegible]	[illegible]	[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	2.3773	2.3443	2.3890	48656	2.3891	24.129
SDev	.145	.0212	.0207	.0170	.00258	.0045	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	54563	[illegible]	18821	[illegible]
#1	24.[illegible]50	2.3978	2.3284	2.4037	48947	2.3927	24.[illegible]
#2	23.899	2.3554	2.3673	2.3846	48575	2.3905	24.091
#3	23.759	2.3786	2.3373	2.3758	48451	2.3840	24.[illegible]91
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	Cr2[illegible]	Co2286	[illegible]3247	Fe2[illegible]	Pb2203	Mn2790	Mn257[illegible]
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	2.3951	2.3822	2.3791	9.7107	2.4128	23.914	2.3946
SDev	.235	.0141	.0163	.0423	.0130	.051	.0102
%RSD	[illegible]1894	59258	.68347	43532	53736	21375	.42759
#1	2.4163	2.3963	2.3953	9.7507	2.4202	23.965	2.4060
#2	2.4127	2.3822	2.3791	9.7150	2.4203	23.914	2.3919
#3	2.3652	2.3681	2.3629	9.6664	2.3978	23.863	2.3860
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	2.3794	23.776	.49538	23.842	2.3992	2.3987
SDev	.0104	.091	.00392	.152	.0124	.0063
%RSD	43856	38443	.79218	63736	.51647	26433
#1	2.3877	23.877	.49953	24.003	2.4129	2.4057
#2	2.3827	23.698	.49486	23.823	2.3958	2.3970
#3	2.3677	23.753	.49174	23.701	2.3888	2.3934
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

Method [illegible] Sample Temp [illegible] Operator: [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Units	[illegible]	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	-.01046	.00147	.00000	.00229	.02849
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#3	[illegible]	[illegible]	L-.02587	-.00147	.00000	[illegible]	[illegible]
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.10000	[illegible]	.01800	[illegible]	[illegible]	.00500	5.0000
Low	-.10000	[illegible]	-.01800	-.10000	-.00500	-.00500	-5.0000

Elem	Cr2677	Co2286	[illegible]	Fe2599	Pb2203	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SDev	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%RSD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
#1	[illegible]	[illegible]	[illegible]	[illegible]	.00781	[illegible]	.00148
#2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00074
#3	-.00252	.00000	.00271	.02020	-.00590	.01704	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.05000	.02500	.10000	.02000	5.0000	.01500
Low	-.01000	-.05000	-.02500	-.10000	-.02000	-5.0000	-.01500

Elem	Ni2316	[illegible] 7664	Ag2280	Na5889	V 2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00174	-.01273	-.00887	.01985	-.00058	.01087
SDev	.00201	.07044	.00156	.01187	.00198	.00072
%RSD	-150.00	-517.16	-17.650	59.594	-342.77	6.5775
#1	-.00174	.04576	-.00728	.02517	.00057	.01129
#2	.00067	.00458	-.00887	.02808	.00056	.01128
#3	-.00234	-.09152	L-.01029	.00629	-.00286	.01005
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

Run id F6 9103004
HERMO JARRELL-ASH VIDEO 21
Element As

Acquired 01/30/91 by SLN
Crunched 02/01/91 by SLN
Time 1250
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	01/30/91	20 42
2	CAL BLK	ICB		ICB	01/30/91	20 46
3	CRA	CRA0		CRA	01/30/91	20 50
4	50 PPB	CCV		CCV	01/30/91	20 54
5	CAL BLK	CCB		CCB	01/30/91	20 58
6	PB	PBW	Furnace	PBW	01/30/91	21 02
7	PB	ASPBW	Furnace	PBWA	01/30/91	21 06
8	LCSFW	LCSW	Furnace	LCSW	01/30/91	21 11
9	LCSFW	ASLCSW	Furnace	LCSWA	01/30/91	21 15
10	9012108-01	S	Furnace	PF1020	01/30/91	21.19
11	9012108-01	AS	Furnace	PF1020A	01/30/91	21 23
12	9012108-01	S2	Furnace	PF1020D	01/30/91	21.27
13	9012108-01	ASS2	Furnace	PF1020DA	01/30/91	21 31
14	9012108-01	DS	Furnace	PF1020S	01/30/91	21 35
15	X	X		ZZZZZ	01/30/91	21 39
16	50 PPB	CCV		CCV	01/30/91	21 44
17	CAL BLK	CCB		CCB	01/30/91	21 48
18	9012108-0	S	Furnace	PF1021	01/30/91	21 52
19	9012108-02	AS	Furnace	PF1021A	01/30/91	21 56
20	9012108-03	S	Furnace	PF1022	01/30/91	22 00
21	9012108-0	AS	Furnace	PF1022A	01/30/91	22 04
22	9012108-04	S	Furnace	PF1023	01/30/91	22 08
23	9012108-04	AS	Furnace	PF1023A	01/30/91	22 12
24	9012108-05	S	Furnace	PF1024	01/30/91	22 17
25	9012108-05	AS	Furnace	PF1024A	01/30/91	22 21
26	9012108-06	S	Furnace	PF1025	01/30/91	22 25
27	9012108-06	AS	Furnace	PF1025A	01/30/91	22 29
28	50 PPB	CCV		CCV	01/30/91	22 33
29	CAL BLK	CCB		CCB	01/30/91	22 37
30	0 PPB	WS0		S0	01/30/91	20 26
31	10 PPB	WS1		S10	01/30/91	20 30
32	50 PPB	WS2		S50	01/30/91	20 34
33	100 PPB	WS3		S100	01/30/91	20 38

Run id FS 9103054
THERMO JARRELL-ASH VIDEO 21

Element Se

Acquired 01/30/91 by SLN
Crunched 02/01/91 by SLN
Time 1253
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	01/30/91	20 42
2	CAL BLK	ICB		ICB	01/30/91	20 46
3	CRA	CRA0		CRA	01/30/91	20 50
4	50 PPB	CCV		CCV	01/30/91	20 54
5	CAL BLK	CCB		CCB	01/30/91	20 58
6	PB	PBW	Furnace	PBW	01/30/91	21 02
7	PB	ASPBW	Furnace	PBWA	01/30/91	21 06
8	LCSFW	LCSW	Furnace	LCSW	01/30/91	21 11
9	LCSFW	ASLCSW	Furnace	LCSWA	01/30/91	21 15
10	9012108-01	S	Furnace	PF1020	01/30/91	21 19
11	9012108-01	AS	Furnace	PF1020A	01/30/91	21 23
12	9012108-01	S2	Furnace	PF1020D	01/30/91	21 27
13	9012108-01	ASS2	Furnace	PF1020DA	01/30/91	21.31
14	9012108-01	DS	Furnace	PF1020S	01/30/91	21 35
15	X	X		ZZZZZ	01/30/91	21 39
16	50 PPB	CCV		CCV	01/30/91	21 44
17	CAL BLK	CCB		CCB	01/30/91	21 48
18	9012108-02	S	Furnace	PF1021	01/30/91	21 52
19	9012108-02	AS	Furnace	PF1021A	01/30/91	21 56
20	9012108-03	S	Furnace	PF1022	01/30/91	22 00
21	9012108-03	AS	Furnace	PF1022A	01/30/91	22 04
22	9012108-04	S	Furnace	PF1023	01/30/91	22 08
23	9012108-04	AS	Furnace	PF1023A	01/30/91	22 12
24	9012108-05	S	Furnace	PF1024	01/30/91	22 17
25	9012108-05	AS	Furnace	PF1024A	01/30/91	22 21
26	9012108-06	S	Furnace	PF1025	01/30/91	22 25
27	9012108-06	AS	Furnace	PF1025A	01/30/91	22 29
28	50 PPB	CCV		CCV	01/30/91	22 33
29	CAL BLK	CCB		CCB	01/30/91	22 37
30	0 PPB	WS0		S0	01/30/91	20 26
31	5 PPB	WS1		S5	01/30/91	20 30
32	50 PPB	WS2		S50	01/30/91	20 34
33	100 PPB	WS3		S100	01/30/91	20 38

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #. 924 Instrument ID F_1, F_2, F_3, F_4, F_5 Page 1 of 1

Date: 1/30/91 Reviewed by: SF 2/1/91 (F6) Instruments Method #: 152

Operator: KC Standards Prepared: 1/30/

Background: (BS) BD

Time Calibrated: 2026

Standards Source: 8.00

1. Calibration: 10 ppm
2. ICV: ~~50~~ ICV-2 (5:100)
3. CCV: 50 PPB

disc #

acq

9012108

SKINNER AND SHERMAN

A	B
Run ID: 9103004	Run ID: 9103054
Element: (As) Pb	Element: (Se) Tl
Wavelength (nm): 1972	Wavelength (nm): 1960
Slitwidth (nm): 2	Slitwidth (nm): 2
Integration Time (sec): 3	Integration Time (sec): 3
STD1: 0 STD2: 10	STD1: 0 STD2: 5
STD3: 50 STD4: 100	STD3: 50 STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CRA		
	4	CCV		
	5	CCB		
re (	6	PBW		re
	7	PBWA		
	8	LCSW		
	9	LCSWA		
	10	01		rerun RSD
	11	01A		
	12	01D		
	13	01DA		
	14	01S		
	15	01SA		
	16	CCV		
	17	CCB		
	18	02		
	19	02A		
	20	03		
	21	03A		
	22	04		rerun RSD
	23	04A		
	24	05		
	25	05A		
	26	06		
	27	06A		
	28	CCV		
	29	CCB		
	30	07		
	31	07A		
	32	08		
	33	08A		
	34	09		
	35	09A	CCV	
	36	10	CCV	
	37	10A		
	38	11		
	39	11A		

000135

[illegible] Calibration [illegible]

[illegible]

		As-S	Se-S	
Standard C				
Abs	1	[illegible]	[illegible]	STD1 0/0
Mean		[illegible]	[illegible]	
F/H		[illegible]	[illegible]	
Abs	2	[illegible]	[illegible]	
Mean		[illegible]	[illegible]	
F/H		[illegible]	[illegible]	
AUTO ZERO				
20 25 [illegible]				
Wed 3[illegible] JAN 1991				
		As-S	Se-S	
Standard C				
Abs	1	0.054	0.015	
Mean		0.054	0.015	STD2 10/5
F/H		0.1[illegible]5	0.030	
Abs	2	0.056	0.019	
Mean		0.055	0.017	
F/H		0.116	0.025	
		As-S	Se-S	
Mean		0.055	0.017	
SD		0.001	0.003	
RSD		02.54	16.47	
		As-S	Se-S	
Standard [illegible]				
Abs	1	[illegible]	[illegible]	
Mean		[illegible]	[illegible]	STD3 50/50
F[illegible]			[illegible]	
Abs	2	[illegible]	[illegible]	
Mean		[illegible]	[illegible]	
F/H		[illegible]	[illegible]	
		As-S	Se-S	
Mean		[illegible]	[illegible]	
SD		[illegible]	[illegible]	
RSD		[illegible]	[illegible]	
		As-S	Se-S	
Standard 2				
Abs	1	[illegible]	[illegible]	
Mean		[illegible]	[illegible]	STD4 100/100
F/H		[illegible]	[illegible]	
Abs	2	[illegible]	[illegible]	
Mean		[illegible]	[illegible]	
F/H		[illegible]	[illegible]	
		As-S	Se-S	
Mean		[illegible]	[illegible]	
[illegible]				

000136

Instrument Code Fe
Run ID 91 3 0

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001 ICV-2	ICV		1.00	30 JAN 91	2 48

	As-S	Se-S
Burn 1	50.65	52.95
Burn 2	47.77	49.59
Mean	49.21 =	51.26 =
RSD	04.13	04.64

002 CAL BLK	ICB		1.00	30 JAN 91 20 46

	As-S	Se-S
Burn 1	01.09	00.73
Burn 2	01.04	01.76
Mean	01.06 =	01.24 =
RSD	03.39	58.70
Check	OK	OK

003 CRA	CRA0		1.00	30 JAN 91 20:50

	As-S	Se-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
RSD	[illegible]	[illegible]

004 [illegible]	CCV		1.00	30 JAN 91 20:54

	As-S	Se-S
Burn 1	48.96	48.61
Burn 2	52.[illegible]	5[illegible].01
Mean	50.48 =	49.71 =
RSD	04.25	03.12
Check	OK	OK

[illegible]	ICB		1.00	30 JAN 91 [illegible]

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Instrument code [illegible]
Run ID [illegible]

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006 FB	FBW		1 00	30 JAN 91	21 02

	As-S	Se-S
Burn 1	00 68	00 28
Burn 2	00 31	00.68
Mean	00 49 =	00 48 =
RSD	53.26	58.75

007 FB	ASFBW		1 00	30 JAN 91	21:06

	As-S	Se-S
Burn 1	16.55	06.66
Burn 2	16.34	09.49
Mean	16.44 =	08.07 =
RSD	00 90	24 79 ***
Sample value	3.00U	4.00U
Spike added	20.00	10.00
Spike recovery, %	82.2	80.7

SF 1/31/91

008 LCSFW	LCSW		1 00	30 JAN 91	21:11

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	43 [illegible]
[illegible]	[illegible] 74 =	43 [illegible] =
[illegible]	[illegible].74	01 41

[illegible]	[illegible]		1	[illegible] JAN 91	21 15

	As-S	Se-S
Burn 1	63 96	57.2[illegible]
Burn 2	62 92	55 [illegible]
Mean	63 44 =	56.13 =
RSD	01 15	02 8[illegible]
[illegible]	[illegible]	43 44
[illegible]	[illegible]	1[illegible]
[illegible]	[illegible]	12[illegible]

[illegible]	[illegible]	[illegible]	1 [illegible]	[illegible] JAN 91	2[illegible] 1[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

SF 1/31/91 remn RSD

000139

Instrument code Fo
Run ID 91 3 3

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011 -01	AS	32CFF1020A	1 00	30 JAN 91	21 23

	As-S	Se-S
Burn 1	20 28	10.52
Burn 2	19.26	10.31
Mean	19 77 =	10.41 =
RSD	03 64	01.42
Sample value	3.65	7.12
Spike added	20 00	10.00
Spike recovery, %	80 6	32.9

S 1/31/91

012 -01	S2	32CFF1020D	1.00	30 JAN 91	21.27

	As-S	Se-S
Burn 1	02 38	04.29
Burn 2	01 37	03 06
Mean	01.87 =	03.67 =
RSD	38 18	23.67

013 -01	ASS2	32CFF1020A	1.00	30 JAN 91	21·31

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
RSD	[illegible]	08 37
Sample value	[illegible] U	4 [illegible] U
[illegible]	[illegible]	[illegible]
Spike recovery, %	97 5	95.4

[illegible]	DS	32CFF1020[illegible]	1 [illegible]	30 JAN 91	21 [illegible]

	As-S	Se-S
[illegible]	4[illegible] 65	08 15
[illegible]	[illegible]	[illegible].22
[illegible]	[illegible] =	[illegible] =
[illegible]	[illegible]	03 7

[illegible]	[illegible]		1 [illegible]	30 [illegible] 9[illegible]	21 [illegible]

	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

000140

Instrument Code [illegible]
Run ID [illegible]

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
016 50 PPB	CCV 2		1.00	30 JAN 91	21 44

	As-S	Se-S
Burn 1	50 87	49 85
Burn 2	51 60	46 33
Mean	51 23 =	48 09 =
RSD	01 00	05.17
Check	OK	OK

017 CAL BLK	CCB 2		1.00	30 JAN 91	21:48

	As-S	Se-S
Burn 1	01.42	01.33
Burn 2	00.85	-00.99
Mean	01 13 =	00.17 =
RSD	35.66	DIG HI
Check	OK	OK

018 -02	S	32CFF1021	1 00	30 JAN 91	21·52

	As-S	Se-S
Burn	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
RSD	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	1 [illegible]	30 JAN 91	21 5[illegible]

	As-S	Se-S
Burn 1	18 42	08 42
Burn 2	17 47	07.67
Mean	17 94 =	08.04 =
RSD	[illegible]	06.59
Sample value	[illegible]	4 [illegible] U
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]	S	[illegible]	1 [illegible]	30 JAN 91	22 [illegible]

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

000141

Instrument code: F5
Run ID: 91[illegible] 3

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
021 -03	AS	32CPF1022A	1 [illegible]	30 JAN 91	22 [illegible]4

	As-S	Se-S
Burn 1	19 06	06 78
Burn 2	19 37	08.47
Mean	18.71 =	07.62 =
RSD	04.94	15 68
Sample value	3 00U	4.00U
Spike added	20 00	10.00
Spike recovery, %	93 6	76 2

022 -04	S	32CPF1023	1.00x	30 JAN 91	22:08

	As-S	Se-S
Burn 1	02 16	02 68
Burn 2	01.51	02 95
Mean	01.83 =	02.81 =
RSD	25 08	06 79

023 -04	AS	32CPF1023A	1.00x	30 JAN 91	22:12

	As-S	Se-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible]	[illegible]
RSD	[illegible]	[illegible] ***
Sample value	[illegible]	[illegible]
Spike added	[illegible]	[illegible]
Spike recovery, %	87 6	73 0

SN 1/31/91 rerun RSD

024 - 5	S	32CPF102[illegible]	1 [illegible]	30 JAN 91	22 17

	As-S	Se-S
Burn 1	1 52	[illegible] 23
Burn 2	[illegible] 31	[illegible]
Mean	[illegible]	[illegible]
RSD	[illegible]	[illegible]

025 - 5	[illegible]	[illegible]	1 [illegible]	30 JAN 91	22 31

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

142

Instrument Code F6
Run ID 9103 03

FLS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
026 -06	S	34CFF1025	1.00	30 JAN 91	22:25

	As-S	Se-S
Burn 1	01.69	00.20
Burn 2	01.25	01.06
Mean	01.46 =	00.63 =
RSD	20.82	96.50

027 -06	AS	34CFF1025A	1.00	30 JAN 91	22:29

	As-S	Se-S
Burn 1	17.97	06.90
Burn 2	19.15	09.12
Mean	18.56 =	08.01 =
RSD	04.49	19.58
Sample value	3.00U	4.00U
Spike added	20.00	10.00
Spike recovery, %	92.8	80.1

028 [illegible]	CCV 3		1.00	30 JAN 91	22:33

	As-S	Se-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
RSD	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

029 CRI ILI	CCB 3		1.00	30 JAN 91	22:37

	As-S	Se-S
Burn 1	01.73	-02.38
Burn 2	[illegible].50	-01.22
Mean	01.12 =	-01.80 =
[illegible]	[illegible]	-05.55
[illegible]		[illegible]

CCV OOT S.-
1/31/91

000143

000142

Run id F6 9103151
THERMO JARRELL-ASH VIDEO 21

Element Se

Acquired 01/31/91 by SLN
Crunched 02/01/91 by SLN
Time 1258
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	01/31/91	09 24
2	CAL BLK	ICB		ICB	01/31/91	09 28
3	CRA	CRA02		CRA	01/31/91	09 32
4	50 PPB	CCV		CCV	01/31/91	09 36
5	CAL BLK	CCB		CCB	01/31/91	09 40
6	PB	PBW	Furnace	PBW	01/31/91	09 44
7	PB	ASPBW	Furnace	PBWA	01/31/91	09 49
8	9012108-07	S	Furnace	PF1026	01/31/91	09 53
9	9012108-07	AS	Furnace	PF1026A	01/31/91	09 57
10	9012108-08	S	Furnace	PF1027	01/31/91	10 01
11	9012108-08	AS	Furnace	PF1027A	01/31/91	10 05
12	9012108-09	S	Furnace	PF1028	01/31/91	10 09
13	9012108-09	AS	Furnace	PF1028A	01/31/91	10 14
14	9012108-10	S	Furnace	PF1029	01/31/91	10 18
15	9012108-10	AS	Furnace	PF1029A	01/31/91	10 22
16	50 PPB	CCV		CCV	01/31/91	10 26
17	CAL BLK	CCB		CCB	01/31/91	10 30
18	9012108-11	S	Furnace	PF1030	01/31/91	10 34
19	9012108-11	AS	Furnace	PF1030A	01/31/91	10 38
20	9012108-12	S	Furnace	PF1031	01/31/91	10 42
21	9012108-12	AS	Furnace	PF1031A	01/31/91	10 47
22	9012108-13	S	Furnace	PF1032	01/31/91	10 51
23	9012108-13	AS	Furnace	PF1032A	01/31/91	10 55
24	9012108-14	S	Furnace	PF1033	01/31/91	10 59
25	9012108-14	AS	Furnace	PF1033A	01/31/91	11 03
26	9012108-15	S	Furnace	PF1034	01/31/91	11 07
27	9012108-15	AS	Furnace	PF1034A	01/31/91	11 11
28	50 PPB	CCV		CCV	01/31/91	11 16
29	CAL BLK	CCB		CCB	01/31/91	11 20
30	9012108-16	S	Furnace	PF1035	01/31/91	11 24
31	9012108-16	AS	Furnace	PF1035A	01/31/91	11 28
32	9012108-17	S	Furnace	PF1036	01/31/91	11 32
33	9012108-17	AS	Furnace	PF1036A	01/31/91	11 36
34	9012108-18	S	Furnace	PF1037	01/31/91	11 40
35	9012108-18	AS	Furnace	PF1037A	01/31/91	11 44
36	9012108-19	S	Furnace	PF1038	01/31/91	11 49
37	9012108-19	AS	Furnace	PF1038A	01/31/91	11 53
38	9012103-04	S	Furnace	PF1023	01/31/91	11 57
39	9012103-04	AS	Furnace	PF1023A	01/31/91	12 01
40	50 PPB	CCV		CCV	01/31/91	12 05
41	CAL BLK	CCB		CCB	01/31/91	12 10
42	9012108-11	S	Furnace	PF1030	01/31/91	12 14
43	9012108-11	AS	Furnace	PF1030A	01/31/91	12 18

Pos	Sample	Code	Preparation Method	Client ID		
44	50 PPB	CCV		CCV	01/31/91	12 22
45	CAL BLK	CCB		CCB	01/31/91	12 27
46	9012108-07	M0S	Furnace	PF10260	01/31/91	12 35
47	9012108-07	M1S	Furnace	PF10261	01/31/91	12 38
48	9012108-07	M2S	Furnace	PF10262	01/31/91	12 40
49	9012108-07	M3S	Furnace	PF10263	01/31/91	12 42
50	9012108-08	M0S	Furnace	PF10270	01/31/91	12 45
51	9012108-08	M1S	Furnace	PF10271	01/31/91	12 47
52	9012108-08	M2S	Furnace	PF10272	01/31/91	12 49
53	9012108-08	M3S	Furnace	PF10273	01/31/91	12 52
54	9012108-09	M0S	Furnace	PF10280	01/31/91	12 54
55	9012108-09	M1S	Furnace	PF10281	01/31/91	12 56
56	9012108-09	M2S	Furnace	PF10282	01/31/91	12 59
57	9012108-09	M3S	Furnace	PF10283	01/31/91	13 01
58	X	X		ZZZZZ	01/31/91	13 03
59	X	X		ZZZZZ	01/31/91	13 06
60	X	X		ZZZZZ	01/31/91	13 08
61	X	X		ZZZZZ	01/31/91	13 10
62	9012108-07	M0S	Furnace	PF10260	01/31/91	13 13
63	9012108-07	M1S	Furnace	PF10261	01/31/91	13 15
64	9012108-07	M2S	Furnace	PF10262	01/31/91	13 22
65	9012108-07	M3S	Furnace	PF10263	01/31/91	13.24
66	50 PPB	CCV		CCV	01/31/91	13 27
67	CAL BLK	CCB		CCB	01/31/91	13 29
68	9012108-12	M0S	Furnace	PF10310	01/31/91	13 31
69	9012108-12	M1S	Furnace	PF10311	01/31/91	13 34
70	9012108-12	M2S	Furnace	PF10312	01/31/91	13 36
71	9012108-12	M3S	Furnace	PF10313	01/31/91	13 38
72	9012108-09	M0S	Furnace	PF10270	01/31/91	13 40
73	9012108-09	M1S	Furnace	PF10271	01/31/91	13 4
74	9012108-09	M2S	Furnace	PF10272	01/31/91	13 45
75	9012108-09	M3S	Furnace	PF10273	01/31/91	13 47
76	X	X		ZZZZZ	01/31/91	13 50
77	X	X		ZZZZZ	01/31/91	13 52
78	9012108-12	M0S	Furnace	PF10310	01/31/91	13 54
79	9012108-12	M1S	Furnace	PF10311	01/31/91	13 57
80	9012108-12	M2S	Furnace	PF10312	01/31/91	13 59
81	9012108-12	M3S	Furnace	PF10313	01/31/91	14 02
82	50 PPB	CCV		CCV	01/31/91	14 04
83	CAL BLK	CCB		CCB	01/31/91	14 06
84	0 PPB	WS0		S0	01/31/91	08 58
85	5 PPB	WS1		S5	01/31/91	09 02
86	50 PPB	WS2		S50	01/31/91	09 06
87	100 PPB	WS3		S100	01/31/91	09 10

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 225
Instrument ID: F_1, F_2, F_3, F_4, F_5 (F6)
Page 1 of 2

Date: 1-31-91
Reviewed by: SN 2/1/91
Instruments Method #: 150

Operator: SN
Standards Prepared: 8.00

Background: (BS) BD
Time Calibrated: 8:58
Standards Source: 1/31/91

1. Calibration: 10ppm
2. ICV: ICV-2
3. CCV: 50 ppb

disc # C:Drive F6

acq

SKINNER AND SHERMAN

9012108

A		B	
Run ID:	9103101	Run ID:	9103151
Element:	(As) Pb	Element:	(Se) Tl
Wavelength (nm):	1972	Wavelength (nm):	196.0
Slitwidth (nm):	2	Slitwidth (nm):	2
Integration Time (sec):	3	Integration Time (sec):	3
STD1: 0	STD2: 10	STD1: 0	STD2: 5
STD3: 50	STD4: 100	STD3: 50	STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CRA		
	4	CCV		
	5	CCB		
	6	PBW		
	7	PBWA		
	8	07		MSA 4
	9	07A		
	10	08		MSA (4)
	11	08A		
	12	09		MSA (4)
	13	09A		
	14	10		
	15	10A		
	16	CCV		
	17	CCB		
	18	11		Pe RSD
	19	11A		
	20	12		MSA (4)
	21	12A		
	22	13		
	23	13A		
	24	14		
	25	14A		
	26	15		
	27	15A		
	28	CCV		
	29	CCB		
	30	16		
	31	16A		
	32	17		
	33	17A		
	34	18		
	35	18A		
	36	19		
	37	19A		
	38	04		
	39	04A		

000148

GFAA RUN BENCH SHEET

AA SEQUENCE #: 225

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID		DILUTION	B COMMENTS
	40	CCV			
	41	CCB			
Se only	42	11			
	43	11A			
	44	CCV			
	45	CCB			
	46	07			
	47	+5			r=0.9928
	48	+10			Rerun
	49	+15			
X only	50	08			
	51	+5			
	52	+10			r=0.9913
	53	+15			rerun
	54	09			
	55	+5			
	56	+10			r=0.9947
	57	+15			Rerun
	58	~~12~~	X	KC	
	59	~~+5~~	X	1/31/91	
	60	~~+10~~	X	Rerun	
	61	~~+15~~	X	~~Dilu~~ Spike	
	62	KC ~~07~~			
	63	1/31/91 ~~+5~~			
	64	+10			
	65	+15			
	66	CCV			
	67	CCB			
	68	KC ~~07~~ 12			
	69	1/31/91 +5			
	70	+10			r=0.9758
	71	+15			
	72	08			
	73	+5			
	74	+10			
Se only	75	+15			
	76	09	X		
	77	+5	X		
	78	+10	13		
	79	KC +15	+5		
	80	1/31/91 12	+10		
	81	+5	+15		
	82	+10	CCV		
	83	+15	CCB		
	84	CCV	09		
	85	CCB	+5		

000149

Normal Calibration

[illegible]

		As-S	Se-S
Standard C		STD 1	0/0
Abs	1	-0.002	-0.003
Mean		-0.002	-0.003
F/H		-0.003	-0.004
Abs	2	0.001	-0.004
Mean		-0.001	-0.006
F/H		0.000	-0.001

AUTO ZERO
08:59 49
Thu 31 JAN 1991

		As-S	Se-S
Standard C		STD 2	10/5
Abs	1	0.035	0.018
Mean		0.035	0.018
F/H		0.077	0.026
Abs	2	0.041	0.022
Mean		0.038	0.020
F/H		0.071	0.022
		As-S	Se-S
Mean		0.038	0.020
SD		0.004	0.003
RSD		11.05	14.00

		As-S	Se-S
Standard 1		STD 3	50/50
Abs	1	[illegible]	[illegible]
[illegible]			[illegible]
[illegible]		[illegible]	[illegible]
Abs	2	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
F/H		[illegible]	[illegible]
		As-S	Se-S
Mean		[illegible]	[illegible]
SD		0.004	[illegible]
RSD		[illegible]	[illegible]
		As-S	Se-S
Standard 2		STD 4	100/100
Abs	1	0.335	[illegible]
Mean		[illegible]	[illegible]
F/H		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
		As-S	Se-S
[illegible]		[illegible]	[illegible]

000150

RAW DATA FROM ADS2[illegible] DATA SYSTEM

Instrument Code Fs
Run ID 9103101

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
1 ICV-2	ICV	2	1 00	31 JAN 91	09 24

	As-S	Se-S
Burn 1	51 87	57 00
Burn 2	51 69	53.02
Mean	51 79 =	55.01 =
RSD	00.24	05 11

0 2 CAL BL	ICB	2	1 00	31 JAN 91	09:28

	As-S	Se-S
Burn 1	03 94	04.74
Burn 2	02 27	03.45
Mean	03 1[illegible] =	04 09 =
RSD	38.06	22 29
Check	OK	OK

003 CRA	CRA0		1 00	31 JAN 91	09:32

	As-S	Se-S
[illegible]	12 [illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
[illegible]	1	[illegible]

[illegible]	[illegible]	\	1	31 JAN 91	[illegible]

	As-S	Se-S
Burn 1	52 39	42 73
Burn 2	55 76	55 44
Mean	54 07 =	52 08 =
RSD	4 4	9 1
Check	OK	OK

[illegible]	[illegible]	\	1	[illegible]	[illegible]

	As-S	Se-S
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

000152

[illegible] Fe
[illegible] ID 9103 01

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
[illegible]	FB	FFW		1.00	31 JAN 91	09 44

	As-S	Se-S
Burn 1	01 94	00 91
Burn 2	00 56	00.93
Mean	01 25 =	00.92 =
RSD	78 00	01.52

007	FB	ASFBW	1 00	31 JAN 91	09 49

	As-S	Se-S
Burn 1	19 13	09.78
Burn 2	19.51	11.34
Mean	19 32 =	10.56 =
RSD	01 38	10.44
Sample value	3.00U	4 00U
Spike added	20 00	10.00
Spike recovery, %	96 6	105 6

[illegible]	121 [illegible]	S	34[illegible]-F102[illegible]	1 00	31 J[illegible] 91 09:53

	[illegible]	[illegible]
[illegible]	[illegible]	04 13
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	04 31 =
[illegible]	11 [illegible]	05 [illegible]

009	[illegible]	AS	34CrF102[illegible]A	1.00	31 JAN 91 09 57

	As-S	Se-S
Burn 1	23.51	12 41
[illegible]	20 [illegible]	10 [illegible]
Mean	22 1[illegible] =	11 5[illegible] =
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1[illegible]
[illegible]	[illegible]	71 9

[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]

	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
[illegible]	[illegible]	[illegible]

000153

Instrument Code FS
Run ID 91031[illegible]1

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011 -08	AS	3-CFF1027A	1.00	31 JAN 91	10:05

	As-S	Se-S
Burn 1	20.14	10.31
Burn 2	20.76	12.37
Mean	20.45 =	11.34 =
RSD	02.14	12.83
Sample value	3.00U	4.33
Spike added	20.00	10.00
Spike recovery, %	102.2	70.1

012 -09	S	34CFF1028	1.00	31 JAN 91	10:09

	As-S	Se-S
Burn 1	02.03	02.48
Burn 2	01.79	06.10
Mean	01.91 =	04.29 =
RSD	08.84	59.65

013 -[illegible]	AS	34CFF1028A	1.[illegible]	31 JA[illegible] 91	10:14

	As-S	Se-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	21.1[illegible] =	[illegible] =
RSD	[illegible]	[illegible]
Sample value	[illegible]	[illegible]
Spike added	20.00	10.00
Spike recovery, %	105.8	5[illegible].8

014 -[illegible]	S	34CFF1029	1.00	31 JAN 91	10:18

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible] =
[illegible]	35.[illegible]4	4[illegible].93

[illegible]

[illegible]	[illegible]	1[illegible]
[illegible]	[illegible]	[illegible] =
[illegible]	[illegible]	[illegible]

000154

Instrument Code Fo
Run ID 91 31 1

FLS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
016	50 TFL	CCV	2	1.00	31 JAN 91	1 26

	As-S	Se-S
Burn 1	54 94	52 27
Burn 2	51 01	50.82
Mean	52 97 =	51.54 =
RSD	05 24	01.98
Check	OK	OK

017	CAL BLK	CCB	2	1.00	31 JAN 91 10:30

	As-S	Se-S
Burn 1	00.96	02.25
Burn 2	00 99	01.43
Mean	00 97 =	01.84 =
RSD	02.26	31 46
Check	OK	OK

018	-11	S	34CFF1030	1.00	31 JAN 91 10:34

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible]
RSD	31 72	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31 JAN 91 [illegible]

	As-S	Se-S
Burn 1	20.50	12 56
Burn 2	19 65	09 32
[illegible]	[illegible] =	[illegible] =
RSD	03 16	[illegible] *-*
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Rerun
RSD
MS 1/31/91

[illegible]	[illegible]	[illegible]	34C-71031	1 00	31 JAN 91 10.42

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Instrument Code 56
Run ID 91 01 1

RCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
021 -12	AS	34CFF1031A	1.00	31 JAN 91	10 47

	As-S	Se-S
Burn 1	20 66	10.95
Burn 2	19.94	09.97
Mean	20 30 =	10 46 =
RSD	02 50	06 69
Sample value	3.00U	4.03
Spike added	20 00	10.00
Spike recovery, %	101 5	64 3

022 -13	S	34CFF1032	1.00	31 JAN 91	10:51

	As-S	Se-S
Burn 1	01.95	02.07
Burn 2	00.79	02.83
Mean	01 37 =	02.45 =
RSD	59.85	21 91

023 -10	AS	34CFF1032A	1.00	31 JAN 91	10 55

	As-S	Se-S
[illegible]	[illegible]	12.16
[illegible]	[illegible]	09 21
Mean	[illegible] =	10.66 =
[illegible]	[illegible]	19 52
Sample value	[illegible]	4 [illegible]
Spike added	20 00	10.[illegible]
Spike recovery, %	100 6	106 8

024 -14	S	34CFF1033	1 00	31 JAN 91	10:59

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
RSD	25 23	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

000156

[illegible] code [illegible]
[illegible] ID 91[illegible]31[illegible]1

[illegible] SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
[illegible]26 -15	S	34[illegible]FF1[illegible]34	1.00	31 JAN 91	11 [illegible]7

	As-S	Se-S
Burn 1	[illegible]1 14	[illegible]4 05
Burn 2	02 3[illegible]	03.18
Mean	01.72 =	03 61 =
RSD	47 67	17.03

[illegible]27 -15	AS	34[illegible]FF1[illegible]34A	1.00	31 JAN 91	11.11

	As-S	Se-S
Burn 1	20.96	09.28
Burn 2	19.77	08.05
Mean	20 36 =	08.66 =
RSD	04 13	10.03
Sample value	3.[illegible]U	4.00U
Spike added	20 00	10 00
Spike recovery, %	101 8	86 6

[illegible]8 5 [illegible]	[illegible]	3	1 [illegible]	31 JAN 91	11·1[illegible]

	As-S	Se-S
[illegible]	5[illegible] [illegible]	5[illegible] [illegible]
[illegible]	[illegible]	5[illegible] [illegible]
Mean	5[illegible] 2 =	54 11 =
RSD	[illegible]	[illegible] 9[illegible]
[illegible]	[illegible]	[illegible]

[illegible] CAL [illegible]	[illegible]	3	1 [illegible]	31 JAN 91	11·2[illegible]

	As-S	Se-S
[illegible]	[illegible]1 [illegible]	1 3
[illegible]	[illegible] 55	[illegible]3 3[illegible]
[illegible]	[illegible] =	2 [illegible] =
[illegible]	[illegible]	6[illegible] [illegible]
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	1 [illegible]	31 JAN 91	11·24

	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

000157

Instrument code F[illegible]
Run ID 91[illegible]3101

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
031 -16	AS	34CPF1035A	1.00	31 JAN 91	11 28

	As-S	Se-S
Burn 1	20 63	09 50
Burn 2	20 24	08 51
Mean	20 43 =	09 00 =
RSD	01 34	07.77
Sample value	3.00U	4.00U
Spike added	20.00	10 00
Spike recovery, %	102 2	90 0

032 -17	S	34CPF1036	1.00	31 JAN 91	11:32

	As-S	Se-S
Burn 1	02.61	01 76
Burn 2	01.67	02.76
Mean	02 14 =	02 26 =
RSD	31.02	31 28

033 -17	AS	34CPF1036A	1.00	31 JAN 91	11.36

	As-S	Se-S
Burn 1	1[illegible]	11 31
Burn 2	2[illegible]	9 [illegible]
Mean	2[illegible] =	1[illegible] =
RSD	[illegible]2 57	11 [illegible]4
Sample value	3[illegible]	4 [illegible]
Spike added	20 [illegible]	10 [illegible]
Spike recovery, %	101 7	104.9

034 -18	S	34CPF1037	1 00	31 JAN 91	11 [illegible]

	As-S	Se-S
[illegible]	[illegible]	01 [illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
RSD	23 92	13 11

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]
	[illegible]	11 [illegible]
[illegible]	[illegible] =	[illegible]
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

000158

[illegible] Code: F5
[illegible] 91[illegible]

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
036 - 9	S	34CFF1038	1.00	31 JAN 91	11 49

	As-S	Se-S
Burn 1	02.40	02.09
Burn 2	02.53	01.69
Mean	02.46 =	01.89 =
RSD	03.73	14.92

037 -19	AS	34CFF1038A	1.00	31 JAN 91	11:53

	As-S	Se-S
Burn 1	19.88	12.00
Burn 2	20.33	10.69
Mean	20.10 =	11.34 =
RSD	01.59	08.16
Sample value	3.00U	4.00U
Spike added	20.0	10.00
Spike recovery, %	100.5	113.4

[illegible]	S	[illegible]	1.00	31 JAN 91	11:57

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
[illegible]	[illegible]	[illegible]

MS
1/31/91

039 - [illegible]	AS	32CFF1023A	1.00	31 JAN 91	12:01

	As-S	Se-S
Burn 1	20.86	11.25
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	10.79 =
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Spike recovery, %	[illegible]	[illegible]

[illegible]	[illegible]	4	1.00	[illegible]	12 [illegible]

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

000159

Volume to code F6
Run ID 91031 [illegible]

RCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
041 CAL BLK	CCB	4	1.00	31 JAN 91	12.[illegible]

	As-S	Se-S
Burn 1	01.09	03.73
Burn 2	01.04	03.14
Mean	01.06 =	03.43 =
RSD	03.39	12.15
Check	OK	OK

042 -11	S	34CFF1030	1.00	31 JAN 91	12:14

	As-S	Se-S
Burn 1	02.64	02.50
Burn 2	01.40	04.74
Mean	02.02 =	03.62 =
RSD	43.36	43.72

MS 1/31/91

043 -11	AS	34CFF1030A	1.00	31 JAN 91	12:18

	As-S	Se-S
Burn 1	2[illegible]	12.[illegible]
Burn 2	1[illegible]	[illegible]
Mean	2[illegible] =	12.[illegible] =
RSD	[illegible]	[illegible]
Sample [illegible]	3[illegible]	4.00J
[illegible]	2[illegible]	1[illegible]
[illegible]	101.[illegible]	122.[illegible]

044 [illegible]	CCV	5	1.00	31 JAN 91	12:22

	As-S	Se-S
Burn 1	55.45	54.63
Burn 2	54.43	55.16
Mean	[illegible] =	54.89 =
RSD	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]	CCB	5	1.00	31 JAN 91	12:27

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

000160

[illegible] code [illegible]
[illegible] ID 91 31 1

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
046 -07	M0S	34CFF1026	1 00	31 JAN 91	12 35
	As-S		Se-S		
Abs	0 011		0.013		
Spike added	0 00		0 00		
047 - 7	M1S	34CFF1026	1.00	31 JAN 91	12 38
	As-S		Se-S		
Abs	0 047		0.021		
Spike added	5.00		5.00		
048 -07	M2S	34CFF1026	1.00	31 JAN 91	12:40
	As-S		Se-S		
Abs	0 070		0 035		
Spike added	10 00		10.00		
[illegible]	M3S	34CFF1 26	1 00	31 JAN 91	12 42
	As-S		Se-S		
[illegible]	[illegible]		[illegible]		
[illegible] added	[illegible]		[illegible]		
[illegible]	[illegible]		[illegible]		
Slope	[illegible]		[illegible]		
[illegible]	[illegible]		[illegible]		
Calc conc	1 2 S		4 6 +		
[illegible]	M[illegible]S	34CFF1027	1	31 JAN 91	12 45
	As-S	KC 1/31/91	Se-S		
Abs	[illegible] 10		0.[illegible]11		
Spike added			[illegible]		
[illegible]	[illegible]	[illegible]	1	31 JAN 91	12 [illegible]7
	As-S		Se-S		
[illegible]	[illegible]		[illegible]		

Instrument code Fs
Run ID 9103101

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
052 -08	M2S	34CFF1027	1.00	31 JAN 91	12 49

	As-S	Se-S
Abs	0.085	0.039
Spike added	10.00	10.00

KC 1/31/90

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
053 -08	M3S	34CFF1027	1.00	31 JAN 91	12 52

	As-S	Se-S
Abs	0.120	0.048
Spike added	15.00	15.00
Intercept	0.012	0.010
Slope	0.007	0.003
Coefficient	0.9991	0.9913
Calc conc.	1 6 S	4.0 +

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
054 -09	M0S	34CFF1023	1.00	31 JAN 91	12:54

	As-S	Se-S
Abs	[illegible]	[illegible]
Spike added		[illegible]

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
[illegible]	[illegible]	[illegible]	1	31 JAN 91	[illegible]

	As-S	Se-S
Abs	[illegible]	[illegible]
Spike added	5.0	5.0

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
[illegible]	M2S	34CFF1023	1.00	31 JAN 91	12 59

	As-S	Se-S
Abs	[illegible]	0.038
Spike added	[illegible]	10

FCS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
	[illegible]	[illegible]	1.00	31 JAN 91	[illegible]

	As-S	Se-S
[illegible]		[illegible]

000162

Instrument code [illegible]
Run ID [illegible]

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
058	X	X		1.00	31 JAN 91	13:03

	As-S	Se-S
Abs	0.[illegible]9	0.020
Value	2.05	6.34

059	X	X		1.00	31 JAN 91	13:06

	As-S	Se-S
Abs	0.045	0.017
Value	10.46	5.37

060	X	X		1.00	31 JAN 91	13:08

	As-S	Se-S
Abs	0.088	0.035
Value	20.98	11.24

[illegible]	X	[illegible]		1.00	31 JAN 91	13:10

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	12.[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	1.00	31 JAN 91	13:17

	As-S	Se-S
Abs	[illegible]12	0.010
Spike added	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	1.00	31 JAN 91	13:15

	As-S	Se-S
[illegible]	[illegible]	[illegible]
Spike added	[illegible]	5.[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]

[illegible]	1	1[illegible]

KC
1/31/91

000163

Instrument code Fo
Run ID 91 [illegible] 1

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
065 -07	MSS	34CFF1026	1 00	31 JAN 91	13 24

	As-S	Se-S
Abs	0 122	0.044
Spike added	15 00	15.00
Intercept	0 011	0.007
Slope	0.007	0.002
Coefficient	0 9991	0.9555
Calc conc	1 5 S	3.0 +

066 50 FFB	CCV	6	1.00	31 JAN 91	13:27

	As-S	Se-S
Abs	0.204	0.142
Value	52 68	51.76
Check	OK	OK

067 CAL BLK	CCB	6	1.00	31 JAN 91	13:29

	As-S	Se-S
Abs	[illegible]	0.009
[illegible]	0	2 02
Check	C	O

068 -11	[illegible]	34CFF1031	1 [illegible]	31 JAN 91	13 21

	As-S	Se-S
Abs	0 009	0 009
Spike added	0 00	0 00

069 -12	M1S	34CFF1031	1 00	31 JAN 91	13 24

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible] added	[illegible]	5

[illegible] -13	[illegible]	34CFF1031	1 [illegible]	31 JAN 91	13 2[illegible]

	[illegible]	[illegible]
[illegible]	1	1

000164

KC
1/31/91

Instrument code Fo
Run ID 9103101

POS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
071 -12	M2S	34CFF1031	1.00	31 JAN 91	13:39

KC 1/31/91

	As-S	Se-S
Abs	0.124	0.041
Spike added	15.00	15.00
Intercept	0.010	0.010
Slope	0.008	0.002
Coefficient	0.9994	0.9738
Calc conc	1.4 S	5.0 +

072 -08	M S	34CFF1027	1.00	31 JAN 91	13:40

	As-S	Se-S
Abs	0.009	0.012
Spike added	0.00	0.00

073 -08	M1S	34CFF1027	1.00	31 JAN 91	13:43

	As-S	Se-S
Abs	[illegible]	0.021
Spike added	5.00	5.00

[illegible]	[illegible]	[illegible]	1	31 JAN [illegible]	[illegible]

	As-S	Se-S
Abs	[illegible]	[illegible]
Spike added	[illegible]	[illegible]

[illegible]	M3S	34CFF1027	1.[illegible]	31 JAN 91	13:47

	As-S	Se-S
Abs	[illegible]	[illegible]
Spike added	15.[illegible]	15.0[illegible]
Intercept		[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.97[illegible]
Calc conc	1.2 S	4.6 +

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]

000165

Instrument code F5
[illegible] ID 91 3101

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
077 X	X		1 00	31 JAN 91	13 52
	As-S		Se-S		
Abs	0.046		0.023		
Value	10.70		7.30		
078 -12	M0S	34CPF1031	1.00	31 JAN 91	13 54
	As-S		Se-S		
Abs	0.011		0 009		
Spike added	0.00		0.00		
079 -12	M1S	34CPF1031	1.00	31 JAN 91	13·57
	As-S		Se-S		
Abs	0 050		0.022		
Spike added	5 00		5.00		
080 -12	M2S	34CPF1031	1 00	31 JAN 91	13·59
	As-S		Se-S		
[illegible]	[illegible]		[illegible]		
Spike added	1		1[illegible]		
[illegible] -12	[illegible]	34C[illegible]1	1 00	31 JAN 91	14 2
	As-S		Se-S		
Abs	[illegible] 26		0 052		
Spike added	15 [illegible]		15.[illegible]		
Intercept	0 [illegible]11		0 009		
Slope	0 [illegible]09		0 0[illegible]3		
Coefficient	0 9[illegible]30		[illegible] 98 2		
Calc conc	[illegible] 4 S		2.8 +		
[illegible]	[illegible]	7	1 [illegible]	31 JAN [illegible]	[illegible]
	As-S		Se-S		
	[illegible]		[illegible]		
	[illegible]		[illegible]		

000166

Instrument Code [illegible]
[illegible] ID 91 31 1

FOB SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
[illegible] CAL BLK	CCB	7	1 [illegible]	31 JAN 91	14 [illegible]

	As-S	Se-S
Abs	0 [illegible]2	0.010
Value	0.46	3 14
Check	OK	OK

END OF RUN
KC 1/31/91

Run id F6 9103152
THERMO JAPRELL-ASH VIDEO 21

Element Se

Acquired 01/31/91 by CLN
Crunched 02/01/91 by SLN
Time 1304
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	01/31/91	17 29
2	CAL BLK	ICB		ICB	01/31/91	17 32
3	CRA	CRAO 3		CRA	01/31/91	17 34
4	50 PPB	CCV		CCV	01/31/91	17 36
5	CAL BLK	CCB		CCB	01/31/91	17 39
6	X	X		ZZZZZ	01/31/91	17 41
7	X	X		ZZZZZ	01/31/91	17 43
8	X	X		ZZZZZ	01/31/91	17 46
9	X	X		ZZZZZ	01/31/91	17 48
10	9012108-09	M0S	Furnace	PF10280	01/31/91	17.50
11	9012108-09	M1S	Furnace	PF10281	01/31/91	17 53
12	9012108-09	M2S	Furnace	PF10282	01/31/91	17 55
13	9012108-09	M3S	Furnace	PF10283	01/31/91	17 57
14	50 PPB	CCV		CCV	01/31/91	17 59
15	CAL BLK	CCB		CCB	01/31/91	18 02
16	0 PPB	WS0		S0	01/31/91	17 05
17	5 PPB	WS1		S5	01/31/91	17 09
18	50 PPB	WS2		S50	01/31/91	17 13
19	100 PPB	WS3		S100	01/31/91	17 17

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 224 Instrument ID: F_1, F_2, F_3, F_4, F_5 (F6) Page 1 of 1

Date: 1/31/91 Reviewed by: [illegible] Instruments Method #: 150

Operator: KC Standards Prepared: 1/31/91

Background: (BS) BD

Time Calibrated: 17.05 Standards Source: EC

1. Calibration: 10 ppm

disc # F6, Drive C 2. ICV: ICV-2

acq 3. CCV: 50 ppm

SKINNER AND SHERMAN

A		B
Run ID: 9103102	~~9012077~~	Run ID: 9103157
Element: (As) Pb	(9012108)	Element: Se Tl
Wavelength (nm): 197.2		Wavelength (nm): 196
Slitwidth (nm): 2		Slitwidth (nm): 2
Integration Time (sec): 3		Integration Time (sec): 3
STD1: 0 STD2: 10		STD1: 0 STD2: 5
STD3: 50 STD4: 100		STD3: 50 STD4: 100

	COMMENTS	SAMPLE ID	DILUTION	COMMENTS
1		ICV		
2		ICB		
3		CRA		
4		CCV		
5		CCB		
6		9012077-01		
7		+10		
8		+20	1:1	As only NOT THE QAS
9		+30		
10		9012108-09		
11		+5		
12		+10		
13	Se only	+15		
14		CCV		
15		CCB		
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				000109
35				
36				
37				
38				
39				

Normal Calibration

RINSE

		As-S	Se-S
Standard	[illegible]	STD 1	0/0
Abs	1	-0.0001	-0.0003
Mean		-0.0001	-0.0003
F/H		0.0001	-0.0004
Abs	2	[illegible]	[illegible]
Mean		[illegible]	[illegible]
F/H		[illegible]	[illegible]
Abs	[illegible]		
Mean			
F/H			

Standard	[illegible]	STD 2	10/5
Abs	1	[illegible]	[illegible]
Mean		[illegible]	[illegible]
F/H		[illegible]	[illegible]
Abs	[illegible]	[illegible]	[illegible]
Mean		[illegible]	[illegible]
F/H		[illegible]	[illegible]
		As	Se-S
Mean		[illegible]	[illegible]
SD		[illegible]	[illegible]

Standard	[illegible]	STD 3	50/50
Abs	1	[illegible]	[illegible]
Mean		[illegible]	[illegible]

000170

STD 4 100/100

[illegible]

Mean	[illegible]	[illegible]
SD	[illegible]	[illegible]
[illegible]ED	[illegible]	[illegible]

[illegible]

STD	CONC	MEAN
[illegible]	[illegible]	[illegible]
C	10[illegible]	[illegible]
1	50[illegible]	[illegible]
2	99.99	[illegible]

AFF CONC
STD [illegible] [illegible]
STD C 10 34
STD 1 49 83
STD 2 DIG HI

CALIBRATE P

STD	CONC	MEAN
[illegible]	[illegible]	[illegible]
C	05.00	0.020
1	50 00	0 148
2	99 99	0 239

AFF CONC
STD [illegible] [illegible]
STD C 05.75
STD 1 49 94
STD 2 DIG HI

[illegible]

[illegible]

F[illegible] DATA FROM ADS2 [illegible] DATA SYSTEM [illegible]

[illegible] Fe
[illegible] ID 91031 [illegible]

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	[illegible]-2	ICV	3	1.00	31 JAN 91	17 [illegible]
		As-S		Se-S		
	Abs	0.219		0.153		
	Value	49.76		52.12		
002	CAL BLK	ICB	3	1.00	31 JAN 91	17 32
		As-S		Se-S		
	Abs	0.004		0.000		
	Value	0.84		0.00		
	Check	OK		OK		
003	CRA	CRA0		1.00	31 JAN 91	17 34
		As-S		Se-S		
	Abs	0.049		0.026		
	Value	1[illegible]4		7.55		
004	[illegible]	[illegible]	1	1.00	31 JAN 91	17 36
		As-S		Se-S		
	Abs	[illegible]		0.15[illegible]		
	Value	[illegible]		53.85		
	Check	[illegible]		[illegible]		
005	CAL BLK	CC[illegible]	1	1.00	31 JAN 91	17 3[illegible]
		As-S		Se-S		
	Abs	[illegible]4		0.003		
	Value	[illegible]		0.85		
	Check	OK		OK		
[illegible]	[illegible]	[illegible]		2.[illegible]	31 JAN 91	17 4[illegible]
		As-S		Se-S		

SN 2/1/91

KC 1/31/91

000172

[illegible] Fe
[illegible] 91 [illegible]

FLS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
8 -01	M2S		2.00	31 JAN 91	17 46
	As-S		Se-S		
Abs	0.152		0.030		
Spike added	20.00		20.00		
009 -01	M3S		2.00	31 JAN 91	17.48
	As-S		Se-S		
Abs	0.138		0.035		
Spike added	30.00		30.00		
Intercept	0.067		0.003		
Slope	0.004		0.001		
Coefficient	0.9992		0.9684		
Calc. conc.	16.3 S		2.5 +		
010 90121 08-09	M S		1.00	31 JAN 91	17:50
	As-S		Se-S		
Abs	[illegible]		[illegible] 12		
[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]		1.00	31 JAN 91	17.53
	As-S		Se-S		
[illegible]	[illegible]		[illegible]		
Spike added	5.00		5.00		
[illegible]	M2S		1.00	31 JAN 91	17:55
	As-S		Se-S		
Abs	[illegible]		0.042		
[illegible] added	[illegible]		1.00		
[illegible]	[illegible]		1.00	31 JAN 91	17 [illegible]
	As-S		Se-S		
[illegible]	[illegible]		[illegible]		
[illegible]	[illegible]		[illegible]		

KC 1/31/91

KC 1/31/91

000173

[illegible] F5
[illegible] ID 91[illegible]31 2

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
014 50 [illegible]	CCV	2	1 00	31 JAN 91	17 59

	As-S	Se-S
Abs	0 227	0.153
Value	51 75	52.12
Check	OK	OK

S 2/11/91

015 CAL BLK	CCB	2	1.00	31 JAN 91	18 02

	As-S	Se-S
Abs	0.001	0 002
Value	0 21	0.57
Check	OK	OK

END OF RUN
KC 1/31/91

Run id F6 9103153
THERMO JARRELL-ASH VIDEO 21

Element Se

Acquired 01/31/91 by SLN
Crunched 02/01/91 by SLN
Time 1305
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	01/31/91	19 20
2	CAL BLK	ICB		ICB	01/31/91	19 24
3	CRA	CRA0		CRA	01/31/91	19 28
4	50 PPB	CCV		CCV	01/31/91	19 32
5	CAL BLK	CCB		CCB	01/31/91	19 37
6	X	X		ZZZZZ	01/31/91	19 41
7	X	X		ZZZZZ	01/31/91	19 45
8	X	X		ZZZZZ	01/31/91	19·49
9	X	X		ZZZZZ	01/31/91	19 53
10	X	X		ZZZZZ	01/31/91	19 57
11	X	X		ZZZZZ	01/31/91	20 01
12	X	X		ZZZZZ	01/31/91	20 06
13	X	X		ZZZZZ	01/31/91	20 10
14	9012108-01	S	Furnace	PF1020	01/31/91	20 15
15	9012108-01	AS	Furnace	PF1020A	01/31/91	20 20
16	50 PPB	CCV		CCV	01/31/91	20 24
17	CAL BLK	CCB		CCB	01/31/91	20 28
58	0 PPB	WS0		S0	01/31/91	18 59
59	5 PPB	WS1		S5	01/31/91	19 03
60	50 PPB	WS2		S50	01/31/91	19 07
61	100 PPB	WS3		S100	01/31/91	19 11

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 227 Instrument ID: F_1, F_2, F_3, F_4, F_5 Page 1 of 21

Date: 1/31/91 Reviewed by: TD 2/1/91 F6 Instruments Method #: 150

Operator: YC Standards Prepared: 1/31/91 8:00

Background: BS BD

Time Calibrated: 18:59

Standards Source:

1. Calibration: 10ppm
2. ICV: ICV-2
3. CCV: 50ppB

disc # C

acq X

~~9101177~~ 9012108

SKINNER AND SHERMAN

A	B
Run ID: 9103103 13	Run ID: 9103153 63
Element: As Pb	Element: Se Tl
Wavelength (nm): 192	Wavelength (nm): 196
Slitwidth (nm): 2	Slitwidth (nm): 2
Integration Time (sec): 3	Integration Time (sec): 3
STD1: 0 STD2: 10	STD1: 0 STD2: 5
STD3: 50 STD4: 100	STD3: 50 STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CBA		
	4	CCV		
	5	CCB		
	6	PBW-9101177		
	7	PBWA		
	8	CCSW		
	9	CCSWA		
	10	01		
	11	01A		
	12	01D		
	13	01DA		
	14	~~01S~~ 9012108-01		
	15	~~01SA~~ 01A		
	16	CCV		
	17	CCB		
	18	~~02-9101177~~		
	19	02A		
	20	03		
	21	03A		
	22	04		
	23	04A		
	24	PBS		
	25	PBSA		
	26	05		
	27	05D		
	28	CCV		
	29	CCB		
	30	LOSS	1:4	
	31	LOSS		
	32	LOSS		
	33	X		
	34	LOSS	1:199	
	35	LOSSA		
	36	~~05S~~ 05D		
	37	1/31/91 ~~05SA~~ 05DA		
	38	05S		
	39	05S		

NOT THIS CASE TD 2/1/91

NOT THIS CASE TD 2/1/91

000176

Normal Calibration

RINSE

		As-S	Se-S
Standard C			
Abs	1	0.002	-0.008
Mean		0.002	-0.008
P/H		-0.002	-0.004
Abs	2	0.002	-0.007
Mean		0.002	-0.008
P/H		-0.002	-0.004

STD 1 0/0

AUTO ZERO
18:59:58
Thu 31 JAN 1991

		As-S	Se-S
Standard C			
Abs	1	0.046	0.022
Mean		0.046	0.022
P/H		0.079	0.031
Abs	2	0.048	0.019
Mean		0.047	0.020
P/H		0.083	0.025
		As-S	Se-S
Mean		0.047	0.020
SD		0.001	0.002
RSD		02.97	11.00

STD 2 10/5

		As-S	Se-S
Standard 1			
Abs	1	0.212	1[illegible]9
Mean		0.212	0.149
P/H		[illegible]	[illegible]
Abs	2	0.212	0.15[illegible]
Mean		0.212	0.151
P/H		0.352	[illegible].249
		As-S	Se-S
Mean		0.212	0.151
SD		0.000	0.004
RSD		00.00	02.78

STD 3 50/50

		As-S	Se-S
Standard 2			
Abs	1	0.375	0.238
Mean		0.376	0.238
P/H		[illegible]	[illegible]
Abs	2	[illegible]	[illegible]
Mean		[illegible]	[illegible]
P/H		0.588	[illegible].350
		As-S	Se-S
Mean		0.372	[illegible]
[illegible]		[illegible]	
[illegible]		[illegible]	

STD 4 100/100

[illegible]

000177

STD 1 [illegible]
STD 2 DIG HI

CALIBRATE B

STD	CONC	MEAN
Z	00.00	0.000
C	05.00	0.020
1	50.00	0.151
2	99.99	0.240

APP CONC
STD Z 00.00
STD C 05.58
STD 1 49.87
STD 2 DIG HI

As-S Se-S

Instrument code F6
Run ID: 9103103

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-2	ICV 21		1.00x	31 JAN 91	19:20

	As-S	Se-S
Burn 1	45.24	48.84
Burn 2	44.39	46.30
Mean	44.81 =	47.57 =
RSD	01.34	03.77

002	CAL BLK	ICB 21	1.00x	31 JAN 91	19:24

	As-S	Se-S
Burn 1	00.46	02.88
Burn 2	-00.90	01.79
Mean	-00.22 =	02.33 =
RSD	DIG HI	33.04
Check	OK	OK

003	CRA	CRA0	1.00x	31 JAN 91	19:28

	As-S	Se-S
Burn 1	11.0[illegible]	08.07
Burn 2	09.99	07.21
Mean	10.4[illegible] =	07.64 =
RSD	06.8[illegible]	07.95

004	50 PPB	CCV	1.00x	31 JAN 91	19:32

	As-S	Se-S
Burn 1	52.42	48.92
Burn 2	51.33	49.72
Mean	51.87 =	49.32 =
RSD	01.48	01.14
Check	OK	OK

Se only 2/1/1

005	CAL BLK	CCB	1.00	31 JAN 91	19:37

	As-S	Se-S
Burn 1	[illegible]	03.54
Burn 2	[illegible]	01.72
Mean	[illegible] =	2.13 =
RSD	51.5[illegible]	29.21
Check	[illegible]	OK

Instrument code: F6
Run ID: 9103103

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	PB	PBW		1.00x	31 JAN 91	19:41

	As-S	Se-S
Burn 1	00.65	-00.16
Burn 2	-00.18	-00.69
Mean	00.23 =	-00.43 =
RSD	DIG HI	-86.97

007	PB	ASPBW	1.00x	31 JAN 91	19:45

	As-S	Se-S
Burn 1	16.80	12.25
Burn 2	17.22	08.85
Mean	17.01 =	10.55 =
RSD	01.74	22.78 ***
Sample value	3.00U	4.00U
Spike added	20.00	10.00
Spike recovery, %	85.0	105.5

NOT THIS CASE
D 2/1/91

008	LCSFW	LCSW	1.00x	31 JAN 91	19:49

	As-S	Se-S
Burn 1	48.07	50.37
Burn 2	46.98	47.05
Mean	47.52 =	48.71 =
RSD	01.62	04.81

009	LCSFW	ASLCSW	1.00x	31 JAN 91	19:53

	As-S	Se-S
Burn 1	65.00	58.33
Burn 2	66.06	58.39
Mean	65.53 =	58.36 =
RSD	01.14	00.07
Sample value	47.52	48.71
Spike added	20.00	10.00
Spike recovery, %	90.0	96.5

[illegible]	[illegible]	[illegible]	1	31 JAN 91	19:57

	As-S	Se-S
[illegible]	05.93	[illegible]
Burn 2	03.16	05.80
Mean	[illegible] =	[illegible] =
RSD	43.63	34.39

000180

Instrument code: Fo
Run ID: 9103103

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011	-01	AS	MYF354A	1.00	31 JAN 91	20:01

	As-S	Se-S
Burn 1	21.65	12.00
Burn 2	19.69	10.41
Mean	20.67 =	11.20 =
RSD	06.70	10.03
Sample value	4.57	7.79
Spike added	20.00	10.00
Spike recovery, %	80.5	84.1

NOT this CASE D 2/1/91

012	-01	S2	MYF354D	1.00x	31 JAN 91	20:06

	As-S	Se-S
Burn 1	03.17	04.13
Burn 2	02.02	03.62
Mean	02.59 =	03.87 =
RSD	31.38	09.30

013	-01	ASS2	MYF354A	1.00	31 JAN 91	20:10

	As-S	Se-S
Burn 1	20.87	09.44
Burn 2	20.19	08.01
Mean	20.52 =	08.72 =
RSD	02.37	11.59
Sample value	3.00U	4.00U
Spike added	20.00	10.00
Spike recovery, %	102.6	87.2

014	9012108-01	S	32CFF1020	1.00	31 JAN 91	20:15

	As-S	Se-S
Burn 1	00.53	03.2[illegible]
Burn 2	01.40	02.[illegible]
Mean	00.96 =	02.50 =
RSD	64.06	32.61

2/1/91

015	-01	AS	32CFF1020A	1.0	31 JAN 91	20:20

	As-S	Se-S
Burn 1	19.9[illegible]	[illegible]
Burn 2	12.2[illegible]	09.3[illegible]
Mean	1[illegible].58 =	09.9[illegible] =
RSD	02.3[illegible]	07.23
[illegible]	3[illegible]	[illegible]
[illegible]	2[illegible]	1[illegible]

000181

Instrument code: Fe
Run ID: 9103103

FOS SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
016 50 PFB	CCV 2		1.00x	31 JAN 91	20:24

	As-S	Se-S
Burn 1	51.75	53.27
Burn 2	51.59	50.94
Mean	51.67 =	52.10 =
RSD	00.21	03.16
Check	OK	OK

017 CAL BLK	CCB 2		1.00x	31 JAN 91	20:28

	As-S	Se-S
Burn 1	00.68	02.86
Burn 2	-00.79	02.40
Mean	-00.06 =	02.63 =
RSD	DIG HI	12.35
Check	OK	OK

018 9101177-02	S	MYF355	1.00x	31 JAN 91	20:32

	As-S	Se-S
Burn 1	01 92	02 75
Burn 2	00 78	02 65
Mean	01 35 =	02.70 =
RSD	59.70	02.59

019 [illegible]	AS	MYF355A	1.00	31 JAN 91	20:36

	As-S	Se-S
Burn 1	19.80	09.69
Burn 2	19.99	09.21
Mean	19.89 =	09.45 =
RSD	00.67	03.58
Sample value	8.00U	4.0 U
Spike added	2[illegible]	10.0
Spike recovery, %	95.4	94 5

NOT THIS CASE TD 2/1/91

020 [illegible]	S	MYF356	1.00	31 JAN 91	20:40

	As-S	Se-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
RSD	[illegible]	[illegible]

000182

[illegible] TD 2/1/91

Run id F3 9103003
THERMO JARRELL-ASH VIDEO 22E (#2913)
Element Pb

Acquired 01/30/91 by SLN
Crunched 02/01/91 by SLN
Time 1307
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	01/30/91	18 55
2	CAL BLK	ICB		ICB	01/30/91	18 59
3	CRA	CRAO		CRA	01/30/91	19 03
4	50 PPB	CCV		CCV	01/30/91	19 07
5	CAL BLK	CCB		CCB	01/30/91	19 11
6	PB	PBW	Furnace	PBW	01/30/91	19 15
7	PB	ASPBW	Furnace	PBWA	01/30/91	19 19
8	LCSFW	LCSW	Furnace	LCSW	01/30/91	19 23
9	LCSFW	ASLCSW	Furnace	LCSWA	01/30/91	19 27
10	9012108-01	S	Furnace	PF1020	01/30/91	19 31
11	9012108-01	AS	Furnace	PF1020A	01/30/91	19 35
12	9012108-01	S2	Furnace	PF1020D	01/30/91	19 39
13	9012108-01	ASS2	Furnace	PF1020DA	01/30/91	19 44
14	9012108-01	DS	Furnace	PF1020S	01/30/91	19.48
15	X	X		ZZZZZ	01/30/91	19 52
16	50 PPB	CCV		CCV	01/30/91	19 56
17	CAL BLK	CCB		CCB	01/30/91	20 00
18	9012108-02	S	Furnace	PF1021	01/30/91	20 04
19	9012108-02	AS	Furnace	PF1021A	01/30/91	20 08
20	9012108-03	S	Furnace	PF1022	01/30/91	20 12
21	9012108-03	AS	Furnace	PF1022A	01/30/91	20 16
22	9012108-04	S	Furnace	PF1023	01/30/91	20 20
23	9012108-04	AS	Furnace	PF1023A	01/30/91	20 24
24	9012108-05	S	Furnace	PF1024	01/30/91	20 28
25	9012108-05	AS	Furnace	PF1024A	01/30/91	20 32
26	9012108-06	S	Furnace	PF1025	01/30/91	20 36
27	9012108-06	AS	Furnace	PF1025A	01/30/91	20 40
28	50 PPB	CCV		CCV	01/30/91	20 44
29	CAL BLK	CCB		CCB	01/30/91	20 48
30	9012108-07	S	Furnace	PF1026	01/30/91	20 52
31	9012108-07	AS	Furnace	PF1026A	01/30/91	20 56
32	9012108-08	S	Furnace	PF1027	01/30/91	21 00
33	9012108-08	AS	Furnace	PF1027A	01/30/91	21 04
34	9012108-09	S	Furnace	PF1028	01/30/91	21 08
35	9012108-09	AS	Furnace	PF1028A	01/30/91	21 12
36	9012108-10	S	Furnace	PF1029	01/30/91	21 16
37	9012108-10	AS	Furnace	PF1029A	01/30/91	21 20
38	9012108-11	S	Furnace	PF1030	01/30/91	21 24
39	9012108-11	AS	Furnace	PF1030A	01/30/91	21 2[illegible]
40	50 PPB	CCV		CCV	01/30/91	21 [illegible]
[illegible]	[illegible]	CCB		CCB	01/30/91	21 [illegible]
42	9012108-12	S	Furnace	PF1031	01/30/91	21 40
43	9012108-12	AS	Furnace	PF1031A	01/30/91	21 45

S	Sample	Code	Preparation Method	Client ID		
44	[illegible]	[illegible]	Furnace	PF1032	01/30/91	[illegible]
[illegible]	[illegible]	A	Furnace	PF1032A	01/30/91	[illegible]
[illegible]	[illegible]		Furnace	PF1033	01/30/91	[illegible]
47	[illegible]	AS	Furnace	PF1033A	01/30/91	[illegible]
48	9012108-15	S	Furnace	PF1034	01/30/91	[illegible]
49	9012108-15	AS	Furnace	PF1034A	01/30/91	22 09
50	9012108-16	S	Furnace	PF1035	01/30/91	22 13
51	9012108-16	AS	Furnace	PF1035A	01/30/91	22 17
52	50 PPB	CCV		CCV	01/30/91	22 21
53	CAL BLK	CCB		CCB	01/30/91	22 25
54	9012108-17	S	Furnace	PF1036	01/30/91	22 29
55	9012108-17	AS	Furnace	PF1036A	01/30/91	22 33
56	9012108-18	S	Furnace	PF1037	01/30/91	22 37
57	9012108-18	AS	Furnace	PF1037A	01/30/91	22 41
58	9012108-19	S	Furnace	PF1038	01/30/91	22 45
59	9012108-19	AS	Furnace	PF1038A	01/30/91	22 49
60	50 PPB	CCV		CCV	01/30/91	22 53
61	CAL BLK	CCB		CCB	01/30/91	22 57
62	0 PPB	WS0		S0	01/30/91	18 37
63	3 PPB	WS1		S3	01/30/91	18 41
64	50 PPB	WS2		S50	01/30/91	18 45
65	100 PPB	WS3		S100	01/30/91	18 49

[illegible] F 10 05[illegible]
[illegible] JA[illegible] [illegible] 'IDE[illegible] 2[illegible] (t[illegible]913)

Acquired 01/30/91 by SLN
Crunched 02/ 1/91 by [illegible]
Time [illegible]
[illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	01/30/91	18 55
2	CAL BLK	ICB		ICB	01/30/91	18 59
3	CRA	CRAO		CRA	01/30/91	19 03
4	50 PPB	CCV		CCV	01/30/91	19 07
5	CAL BLK	CCB		CCB	01/30/91	19 11
6	PB	PBW	Furnace	PBW	01/30/91	19 15
7	PB	ASPBW	Furnace	PBWA	01/30/91	19 19
8	LCSFW	LCSW	Furnace	LCSW	01/30/91	19 23
9	LCSFW	ASLCSW	Furnace	LCSWA	01/30/91	19 27
10	9012108-01	S	Furnace	PF1020	01/30/91	19 31
11	9012108-01	AS	Furnace	PF1020A	01/30/91	19 35
12	9012108-01	S2	Furnace	PF1020D	01/30/91	19 39
13	9012108-01	ASS2	Furnace	PF1020DA	01/30/91	19 44
14	9012108-01	DS	Furnace	PF1020S	01/30/91	19 48
15	X	X		ZZZZZ	01/30/91	19 52
16	50 PPB	CCV		CCV	01/30/91	19 56
17	CAL BLK	CCB		CCB	01/30/91	20 00
[illegible]	9012108-02	S	Furnace	PF1021	01/30/91	20.04
[illegible]	9012108-02	AS	Furnace	PF1021A	01/30/91	20 08
20	9012108-03	S	Furnace	PF1022	01/30/91	20 12
21	9012108-03	AS	Furnace	PF1022A	01/30/91	20 16
22	9012108-04	S	Furnace	PF1023	01/30/91	20.20
23	9012108-04	AS	Furnace	PF1023A	01/30/91	20.24
24	9012108-05	S	Furnace	PF1024	01/30/91	20:28
25	9012108-05	AS	Furnace	PF1024A	01/30/91	20 32
26	9012108-06	S	Furnace	PF1025	01/30/91	20 36
27	9012108-06	AS	Furnace	PF1025A	01/30/91	20·40
28	50 PPB	CCV		CCV	01/30/91	20 44
29	CAL BLK	CCB		CCB	01/30/91	20 48
30	9012108-07	S	Furnace	PF1026	01/30/91	20 52
31	9012108-07	AS	Furnace	PF1026A	01/30/91	20 56
32	9012108-08	S	Furnace	PF1027	01/30/91	21 00
33	9012108-08	AS	Furnace	PF1027A	01/30/91	21:04
34	9012108-09	S	Furnace	PF1028	01/30/91	21.08
35	9012108-09	AS	Furnace	PF1028A	01/30/91	21 12
36	9012108-10	S	Furnace	PF1029	01/30/91	21 16
37	9012108-10	AS	Furnace	PF1029A	01/30/91	21.20
38	9012108-11	S	Furnace	PF1030	01/30/91	21 24
39	9012108-11	AS	Furnace	PF1030A	01/30/91	21 28
40	50 PPB	CCV		CCV	01/30/91	21 32
41	CAL BLK	CCB		CCB	01/30/91	21 36
42	9012108-12	S	Furnace	PF1031	01/30/91	21 40
43	9012108-12	AS	Furnace	PF1031A	01/30/91	21 45

[illegible]	Sample	Code	Preparation Method	Client ID	[illegible]	[illegible]
44	901[illegible]-1[illegible]	S	Furnace	PF1032	01/[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Furnace	PF1032A	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Furnace	PF1033	[illegible]	[illegible]
[illegible]	[illegible]-14	AS	Furnace	PF1033A	[illegible]	[illegible]
[illegible]	9012108-1[illegible]	S	Furnace	PF1034	[illegible]	[illegible]
49	9012108-15	AS	Furnace	PF1034A	01/30/91	22 09
50	9012108-16	S	Furnace	PF1035	01/30/91	22 13
51	9012108-16	AS	Furnace	PF1035A	01/30/91	22 17
52	50 PPB	CCV		CCV	01/30/91	22 1[illegible]
53	CAL BLK	CCB		CCB	01/30/91	22 25
54	9012108-17	S	Furnace	PF1036	01/30/91	22 29
55	9012108-17	AS	Furnace	PF1036A	01/30/91	22 33
56	9012108-18	S	Furnace	PF1037	01/30/91	22 37
57	9012108-18	AS	Furnace	PF1037A	01/30/91	22 41
58	9012108-19	S	Furnace	PF1038	01/30/91	22 45
59	9012108-19	AS	Furnace	PF1038A	01/30/91	22 49
60	50 PPB	CCV		CCV	01/30/91	22 53
61	CAL BLK	CCB		CCB	01/30/91	22 57
62	0 PPB	WS0		S0	01/30/91	18 37
63	10 PPB	WS1		S10	01/30/91	18 41
64	50 PPB	WS2		S50	01/30/91	18 45
65	100 PPB	WS3		S100	01/30/91	18 49

AA Sequence #: 4241 Instrument ID: F_1, F_2, F_3, F_4, F_5 F6 Page 1 of 2

Date: 1/30/91 Reviewed by: [illegible]

Operator: KC

Background: BS BD

Time Calibrated: 18 37

disc # 18

acq X

Instruments Method #: 1600

Standards Prepared: 1/30/91 X 00

Standards Source:

1. Calibration: [illegible]
2. ICV: [illegible]
3. CCV: 50,000

9012108

SKINNER AND SHERMAN

A	B
Run ID: 9103003	Run ID: 9103053
Element: As Pb	Element: Se Tl
Wavelength (nm): 2833	Wavelength (nm): 2768
Slitwidth (nm): 1	Slitwidth (nm): 1
Integration Time (sec): 3	Integration Time (sec): 3
STD1: 0 STD2: 3	STD1: 0 STD2: 10
STD3: 50 STD4: 100	STD3: 50 STD4: 100

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CRA		
	4	CCV		
	5	CCB		
rerun	6	PBW		
	7	PBWA		
	8	LCSW		
	9	LCSWA		
	10	01		
	11	01A		
	12	01D		D.1 L40%
	13	01DA		
	14	01S		
	15	01SA		
	16	CCV		
	17	CCB		
rerun	18	02		D.1 L40%
RSD	19	02A		
	20	03		D.1 L40%
	21	03A		
	22	04		D.1 L40
	23	04A		
	24	05		D.1 L40
	25	05A		
	26	06		
	27	06A		
	28	CCV		
	29	CCB		
	30	07		
	31	07A		
	32	08		
	33	08A		
	34	09		
	35	09A		
rerun	36	10		
RSD	37	10A		
	38	11		
	39	11A		

000187

GFAA RUN BENCH SHEET

AA SEQUENCE #: 9241

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	CCU		
	41	CC3		
	42	12		
	43	12A		
	44	13		
	45	13A		
	46	14		D.1 440%
	47	14A		
	48	15		D.1 440%
	49	15A		
	50	16		
	51	16A		
	52	CCU		
	53	CCB		
	54	17		D.1 440%
	55	17A		
	56	18		
	57	18A		
	58	19		
	59	19A		
	60	CCU		
	61	CC3		
	62			
	63			
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	67			
	68			
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	83			000188
	84			
	85			

[illegible]
[illegible] 1 [illegible] 1
[illegible] [illegible] 01 STD 10/0
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
Wed 30 JAN 1991
[illegible]
Standard 2
Abs 1 [illegible] 14 [illegible] 27
Mean 0 014 0 027
F/H [illegible] 13 0 043 STD 2 3/10
Abs 2 0 011 0 027
Mean 0 012 0 027
F/H 0 020 0 044
Fb-S T1-S
Mean 0 012 0 027
SD [illegible] 2 [illegible]
RSD 18 3[illegible] [illegible]
Fb-S T1-S
Standard 1
Abs 1 [illegible] 1 [illegible] 103 STD3 50/50
Mean [illegible] [illegible] 1 [illegible]
F/H [illegible] 173
Abs 2 [illegible] 106
Mean [illegible] 103
F/H 0.252 0 186
Fb-S T1-S
Mean 0 168 0 108
SD 0 003 0 000
RSD 01 66 00 00
Fb-S T1-S
Standard 2
Abs 1 0.316 0 208
Mean 0 316 0 208 STD4 100/100
F/H 0.459 0.320
Abs 2 0 309 0 207
Mean 0 312 0 207
F/H 0 462 0 341
Fb-S T1-S
Mean 0.312 0 207
SD 0.005 0 001
RSD 01.60 00.48

CALIBRATE A

STD	CONC	MEAN
Z	00 00	0.000
C	03 00	0 012
1	50 00	0 168
2	99 99	0 312

AFF CONC
STD Z [illegible]
STD C [illegible] 34
STD 1 [illegible]
STD 2 [illegible]

[illegible]
[illegible]

000189

[illegible]

[illegible]

[illegible]

4	[illegible]	2	[illegible]

	Pb-S	Tl-S
Burn 1	46 71	47 36
Burn 2	49 [illegible]	49 38
Mean	47 60 =	48 37 =
RSD	03 23	02.95

00[illegible] CAL BLK	ICB	1 00	30 JAN 91 18:59

	Pb-S	Tl-S
Burn 1	00 04	00.37
Burn 2	00 46	00 90
Mean	00 25 =	00.63 =
RSD	DIG HI	59.36
Check	Ok	Ok

3 CRA	CRA0	1 00	30 JAN 91 19:05

	Pb-S	Tl-S
Burn 1	03.66	09.04
Burn 2	03.17	09.77
Mean	03 41 =	09 40 =
RSD	10 14	05.48

004 50 FFB	CCV	1 00x	30 JAN 91 19:07

	Pb-S	Tl-S
Burn 1	48.63	49.49
Burn 2	48 19	48 96
Mean	48 41 =	49.22 =
RSD	00.64	00.75
Check	Ok	Ok

005 CAL BLK	CCB	1 00x	30 JAN 91 19:11

	Pb-S	Tl-S
Burn 1	00.39	00 02
Burn 2	00.44	00.14
Mean	00 41 =	00 08 =
RSD	08.78	DIG HI
Check	Ok	Ok

[illegible] FB
[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]

	Fb-S	Tl-S
[illegible] 1	[illegible]	[illegible]
[illegible] 2	[illegible]	[illegible]
[illegible]	[illegible] =	[illegible] =
RSD	[illegible]	DIG HI

007 FB ASFBW 1.00x 30 JAN 91 19:19

SP 1/31/91

	Fb-S	Tl-S
Burn 1	29 74	21 26
Burn 2	[illegible] 39	23.06
Mean	29 56 =	22 17 =
RSD	03.94	05.60
Sample value	1 00U	2 00U
Spike added	20 00	20 00
Spike recovery, %	147 3	110.8

008 LCSFW LCSW 1 00 30 JAN 91 19:23

	Fb-S	Tl-S
Burn 1	51.03	46 72
Burn 2	50 95	46.31
Mean	50.99 =	46.51 =
RSD	00.10	00.62

009 LCSFW ASLCSW 1.00x 30 JAN 91 19:27

	Fb-S	Tl-S
Burn 1	72.38	65.67
Burn 2	68.28	64.04
Mean	70 33 =	64.85 =
RSD	04.12	01.77
Sample value	50.99	46.51
Spike added	20 00	20.00
Spike recovery, %	96.7	91.7

010 9012108-01 S 32CFF1020 1.00x 30 JAN 91 19:31

	Fb-S	Tl-S
Burn 1	03.53	00.27
Burn 2	03.69	00.37
Mean	03.61 =	00 33 =
RSD	03.13	16 96

000192

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]

	Pb-S	Tl-S
[illegible] 1	22 [illegible]3	08.64
[illegible] 2	22 [illegible]7	09 12
Mean	22 65 =	08 88 =
RSD	00 73	03 81
Sample value	[illegible] 61	2 00U
Spike added	20 00	20 00
Spike recovery, %	96 2	44 4

012 -01 S2 32CFF1020D 1.00 30 JAN 91 19 39

	Pb-S	Tl-S
Burn 1	04 33	00 21
Burn 2	04 97	01.71
Mean	04 65 =	00 96 =
RSD	[illegible]	DIG HI

013 - [illegible] AS2 32CFF1020D 1.00 30 JAN 91 19:44

	Pb-S	Tl-S
Burn 1	24.69	07.23
Burn 2	23 44	08.19
Mean	24 06 =	07.71 =
RSD	03.66	08.79
Sample value	4.65	2.00U
Spike added	20.00	20.00
Spike recovery, %	97.0	38.6

014 -01 DS 32CFF1020S 1.00x 30 JAN 91 19.48

	Pb-S	Tl-S
Burn 1	22 07	18.63
Burn 2	21.45	18.73
Mean	21 76 =	18.68 =
RSD	02 01	00.37

015 X X 1.00x 30 JAN 91 19:52

	Pb-S	Tl-S
Burn 1	40.87	25 82
Burn 2	41 60	27.82
Mean	41 23 =	26 82 =
RSD	01 25	05 27

000193

[illegible]

[illegible]

[illegible] 2

	Fb-S	Tl-S
Burn 1	51 [illegible]	47 98
Burn 2	5[illegible] [illegible]	[illegible] 6
Mean	51 21 =	[illegible] 52 =
RSD	01 10	01 [illegible]
Check	OK	OK

017 CAL BLK CCB 2 1 00 30 JAN 91 20.00

	Fb-S	Tl-S
Burn 1	-00 78	00 26
Burn 2	00 41	00.30
Mean	-00 19 =	00 28 =
RSD	DIG HI	10 00
Check	OK	OK

018 -02 S 32CFF1021 1 00 30 JAN 91 20.04

	Fb-S	Tl-S
Burn 1	22.04	00 75
Burn 2	02.34	00 11
Mean	12.19 =	00 43 =
RSD	DIG HI ***	DIG HI

ren
RSD

019 -02 AS 32CFF1021A 1.00x 30 JAN 91 20:08

	Fb-S	Tl-S
Burn 1	21 99	07.15
Burn 2	21 96	07.99
Mean	21.97 =	07.57 =
RSD	00 10	07.83
Sample value	12.19	2.00U
Spike added	20.00	20.00
Spike recovery, %	48.9	37.8

020 -03 S 32CFF1022 1.00x 30 JAN 91 20:12

	Fb-S	Tl-S
Burn 1	01 71	00.00
Burn 2	02 91	01 09
Mean	02 21 =	00 54 =
RSD	36.70	DIG HI

000194

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	32CFF1022	1.00	[illegible]

	Fb-S	T1-S
Burn 1	[illegible]	[illegible]
Burn 2	21.87	[illegible]
Mean	21.42 =	[illegible] =
RSD	02.93	11.38
Sample value	2.31	2.00U
Spike added	20.00	20.00
Spike recovery, %	75.6	37.6

022 -04	S	32CFF1023	1.00	30 JAN 91 20.20

	Fb-S	T1-S
Burn 1	03.53	-00.11
Burn 2	04.46	- 0.67
Mean	03.99 =	-00.39 =
RSD	16.[illegible]	[illegible] HI

023 -04	AS	32CFF1023A	1.00	30 JAN 91 20.24

	Fb-S	T1-S
Burn 1	21.85	07.78
Burn 2	21.97	08.16
Mean	21.91 =	07.97 =
RSD	00.38	03.36
Sample value	3.99	2.00U
Spike added	20.00	20.00
Spike recovery, %	89.6	39.8

024 -05	S	32CFF1024	1.00x	30 JAN 91 20:28

	Fb-S	T1-S
Burn 1	02.25	00.09
Burn 2	02.58	00.05
Mean	02.41 =	00.07 =
RSD	09.66	40.00

025 -05	AS	32CFF1024A	1.00x	30 JAN 91 20:32

	Fb-S	T1-S
Burn 1	23.34	08.02
Burn 2	22.46	06.54
Mean	22.90 =	07.28 =
RSD	02.71	14.36
Sample value	2.41	2.00U
Spike added	20.00	20.00
Spike recovery, %	102.4	36.4

000195

[illegible]

[illegible]

[illegible]

[illegible] S [illegible]

	Pb-S	Tl-S
Burn 1	[illegible] 81	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] 87 =	-00.06 =
RSD	03 20	DIG HI

027 -04 AS 34CFF1025A 1 00 30 JAN 91 20 40

	Pb-S	Tl-S
Burn 1	23 89	10.27
Burn 2	23.30	10.20
Mean	23 59 =	10.23 =
RSD	01 76	00 48
Sample value	2 87	2 00U
Spike added	20 00	20 00
Spike [illegible] %	103 6	51 2

028 50 FFB CCV 3 1 00 30 JAN 91 20:44

	Pb-S	Tl-S
Burn 1	52 86	52.67
Burn 2	52.63	50.75
Mean	52 74 =	51.71 =
RSD	00.30	02.62
Check	OK	OK

029 CAL BLK CCB 3 1.00x 30 JAN 91 20:48

	Pb-S	Tl-S
Burn 1	-00.04	-00.02
Burn 2	-00.23	00.82
Mean	-00.14 =	00 40 =
RSD	-95.71	DIG HI
Check	OK	OK

030 -07 S 34CFF1026 1.00 30 JAN 91 20:52

	Pb-S	Tl-S
Burn 1	02.29	00.59
Burn 2	01.90	00.33
Mean	02 09 =	00 46 =
RSD	13.15	37.78

000196

[illegible]

[illegible]

[illegible]

[illegible]

	Fb-S	Tl-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	22 [illegible] =	09 73 =
RSD	02 30	01 23
Sample value	[illegible]	2 00U
Spike added	20 00	20.00
Spike recovery, %	103 0	48 6

032 -08 S 34CFF1027 1.00 30 JAN 91 21:00

	Fb-S	Tl-S
Burn 1	01.81	00 04
Burn 2	01 16	-00 06
Mean	01 48 =	-00 01 =
RSD	31 01	-44 64

033 -08 AS 34CFF1027A 1 00 30 JAN 91 21:04

	Fb-S	Tl-S
Burn 1	21 49	09.55
Burn 2	21 98	09.43
Mean	21.73 =	09.49 =
RSD	01 59	00.88
Sample value	1.48	2.00U
Spike added	20.00	20.00
Spike recovery, %	101.2	47.4

034 -09 S 34CFF1028 1.00x 30 JAN 91 21:08

	Fb-S	Tl-S
Burn 1	03.53	00.90
Burn 2	03.22	-00.08
Mean	03.37 =	00 41 =
RSD	06 49	DIG HI

035 -09 AS 34CFF1028A 1.00x 30 JAN 91 21:12

	Fb-S	Tl-S
Burn 1	23.93	08 97
Burn 2	24 27	08.31
Mean	24.10 =	08 64 =
RSD	00 59	05 39
Sample value	3 37	2 00U
Spike added	20 00	20 00
Spike recovery, %	[illegible]	43 2

000197

[illegible]

[illegible]

[illegible]

[illegible]

	Fb-S	T1-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
RSD	38.78 ***	17.83

5/13/91 review RSD

027 -10 AS 34CPF1029A 1.00 30 JAN 91 21.20

	Fb-S	T1-S
Burn 1	24.29	10.14
Burn 2	23.82	09.67
Mean	24.05 =	09.90 =
RSD	01.68	02.35
Sample value	4.12	2.00U
Spike added	20.00	20.00
Spike recovery, %	[illegible]	49.5

028 - 1 S 34CPF1028 1.00 30 JAN 91 21.24

	Fb-S	T1-S
Burn 1	01.54	00.52
Burn 2	01.76	-00.04
Mean	01.65 =	00.24 =
RSD	09.39	DIG HI

039 -11 AS 34CPF1030A 1.00x 30 JAN 91 21.28

	Fb-S	T1-S
Burn 1	24.06	09.66
Burn 2	23.94	10.34
Mean	24.00 =	10.00 =
RSD	00.35	04.80
Sample value	1.65	2.00U
Spike added	20.00	20.00
Spike recovery, %	111.8	50.0

040 50 PPB CCV 4 1.00x 30 JAN 91 21:32

	Fb-S	T1-S
Burn 1	50.39	49.15
Burn 2	50.35	49.80
Mean	50.37 =	49.47 =
RSD	00.05	00.92
Check	OK	OK

000198

[illegible] DATA SYSTEM

[illegible]

[illegible] 4

	Fb-S	Tl-S
Burn 1	[illegible]	-[illegible] 27
Burn 2	[illegible] 16	-00 21
Mean	-00 11 =	-00 24 =
RSD	DIG HI	-17 50
Check	OK	OK

042 -12 S 34CFF1031 1.00 30 JAN 91 21 40

	Fb-S	Tl-S
Burn 1	01 13	00 45
Burn 2	01 62	00 67
Mean	01 37 =	00 55 =
RSD	25 25	30 72

043 -12 AS 34CFF1031A 1 00 30 JAN 91 21:45

	Fb-S	Tl-S
Burn 1	22 12	10 23
Burn 2	22 66	09 78
Mean	22 39 =	10.00 =
RSD	01 70	03.18
Sample value	1 37	2.00U
Spike added	20.00	20.00
Spike recovery, %	105.1	50.0

044 -13 S 34CFF1032 1.00x 30 JAN 91 21:49

	Fb-S	Tl-S
Burn 1	03.31	00.27
Burn 2	02.92	-00.54
Mean	03.11 =	-00.14 =
RSD	08.84	DIG HI

045 -13 AS 34CFF1032A 1.00x 30 JAN 91 21:53

	Fb-S	Tl-S
Burn 1	27 90	12.21
Burn 2	28 10	12.44
Mean	28 00 =	12.32 =
RSD	00 50	01.31
Sample value	3 11	2 00U
Spike added	20 00	20.00
Spike recovery, %	124 4	61 6

000199

[illegible] SYSTEM

[illegible]

[illegible]

[illegible]	[illegible]	34 [illegible]	1 [illegible]	30 JAN 9[illegible] 21 [illegible]

	Fb-S	Tl-S
Burn 1	[illegible]	-00 36
Burn 2	[illegible]	[illegible] 54
Mean	03 00 =	00 34 =
RSD	03 76	DIG HI

047 -14 -S 34CFF1033A 1 00x 30 JAN 91 22 01

	Fb-S	Tl-S
Burn 1	24 00	07 30
Burn 2	23 76	08 40
Mean	23 88 =	07 85 =
RSD	00 70	09 89
Sample value	[illegible] 00	2 00U
Spike added	2[illegible] 00	20 00
Spike recovery, %	[illegible] 4	39 2

048 -15 S 34CFF1034 1 00 30 JAN 91 22 05

	Fb-S	Tl-S
Burn 1	03 09	00.26
Burn 2	02.54	00.91
Mean	02.81 =	00 58 =
RSD	13 80	79 13

049 -15 AS 34CFF1034A 1.00x 30 JAN 91 22:09

	Fb-S	Tl-S
Burn 1	22.06	07.90
Burn 2	22 32	07 41
Mean	22 19 =	07.65 =
RSD	00.82	04.52
Sample value	2 81	2.00U
Spike added	20.00	20.00
Spike recovery, %	96 9	38.2

050 -16 S 34CFF1035 1 00x 30 JAN 91 22·13

	Fb-S	Tl-S
Burn 1	04 89	-00 51
Burn 2	05 32	00 04
Mean	05 10 =	-00 24 =
RSD	05 96	DIG HI

000200

[illegible]

[illegible]

[illegible]

[illegible] 1 [illegible]

	Fb-S	Tl-S
Burn 1	25 94	[illegible]
Burn 2	25 11	08 55
Mean	25 52 =	08 61 =
RSD	02.29	01 06
Sample value	5 10	2 00U
Spike added	20 00	20.00
Spike recovery %	102 1	43 0

052 50 FFB CCV 5 1 00 30 JAN 91 22 21

	Fb-S	Tl-S
Burn 1	52 35	50 88
Burn 2	50 57	50 62
Mean	51 61 =	50 75 =
RSD	02 02	00.56
Check	OK	OK

053 CAL BLK CCB 5 1 00 30 JAN 91 22:25

	Fb-S	Tl-S
Burn 1	00 24	00 26
Burn 2	-00.32	00.51
Mean	-00.04 =	00.38 =
RSD	DIG HI	46 31
Check	OK	OK

054 -17 S 34CFF1036 1.00x 30 JAN 91 22:29

	Fb-S	Tl-S
Burn 1	03 16	00 33
Burn 2	02.53	00 75
Mean	02.84 =	00 54 =
RSD	15.66	54 81

055 -17 AS 34CFF1036A 1.00x 30 JAN 91 22:33

	Fb-S	Tl-S
Burn 1	22 39	07.90
Burn 2	22.48	07 62
Mean	22 43 =	07.76 =
RSD	00 28	02 53
Sample value	2 64	2 00U
Spike added	20 00	20 00
Spike recovery %	98 0	38.8

000201

[illegible]

[illegible]

[illegible]

	Fb-S	T1-S
Burn 1	[illegible]	[illegible]
Burn 2	[illegible]	[illegible]
Mean	[illegible] =	[illegible] =
RSD	15 76	DIG HI

057 -16 AS 34CFF1037A 1 00 30 JAN 91 22.41

	Fb-S	T1-S
Burn 1	22 92	08 62
Burn 2	21 23	09 13
Mean	22 07 =	08 87 =
RSD	05 41	04 05
Sample value	2 22	2 00U
Spike added	20 00	20 00
Spike recovery, %	96 2	44 4

058 -18 S 34CFF1038 1 00 30 JAN 91 22 45

	Fb-S	T1-S
Burn 1	02 59	00.26
Burn 2	02 11	00.33
Mean	02 35 =	00 29 =
RSD	14 42	17.24

059 -19 AS 34CFF1038A 1 00x 30 JAN 91 22:49

	Fb-S	T1-S
Burn 1	23 20	08.13
Burn 2	23.26	08 25
Mean	23.23 =	08 19 =
RSD	00.18	01.02
Sample value	2.35	2.00U
Spike added	20 00	20 00
Spike recovery, %	104.4	41.0

060 50 FFB CCV 6 1 00x 30 JAN 91 22:53

	Fb-S	T1-S
Burn 1	52 24	50 15
Burn 2	50 43	49 54
Mean	51 33 =	49 84 =
RSD	02 49	00 86
Check	OK	OK

000202

[illegible]

[illegible]

[illegible] 6

	Pb-S	T1-S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Mean	[illegible] 71 =	[illegible] 55 =
RSD	-57 74	69 81
Check	OK	OK

END OF RUN
SJ
1/31/91

000203

Run id F3 9103101
[illegible] MO [illegible] VIDEO 22F (#2913)

Acquired 01/31/91 b SLN
Crunched 02/01/91 b [illegible] N
Time 1715
Processing [illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	01/31/91	10 [illegible]
2	CAL BLK	ICB		ICB	01/31/91	11 01
3	CRA	CRAO		CRA	01/31/91	11 05
4	50 PPB	CCV		CCV	01/31/91	11 09
5	CAL BLK	CCB		CCB	01/31/91	11 13
6	PB	PBW	Furnace	PBW	01/31/91	11 17
7	PB	ASPBW	Furnace	PBWA	01/31/91	11 21
8	9012108-02	S	Furnace	PF1021	01/31/91	11 25
9	9012108-02	AS	Furnace	PF1021A	01/31/91	11 29
10	9012108-10	S	Furnace	PF1029	01/31/91	11 33
11	9012108-10	AS	Furnace	PF1029A	01/31/91	11 37
12	X	X		ZZZZZ	01/31/91	11 41
13	X	X		ZZZZZ	01/31/91	11 45
14	X	X		ZZZZZ	01/31/91	11 49
15	X	X		ZZZZZ	01/31/91	11 53
16	50 PPB	CCV		CCV	01/31/91	11 57
17	CAL BLK	CCB		CCB	01/31/91	12 01
34	0 PPB	WS0		S0	01/31/91	10 41
[illegible]	3 PPB	WS1		S3	01/31/91	10 45
[illegible]	50 PPB	WS2		S50	01/31/91	10 49
37	100 PPB	WS3		S100	01/31/91	10 53

Run Id F3 9101151
T I M I TAFFELL-ASH VIDEO 22E (#2013)

Acquired 01/31/91 by SLN
Crunched 02/01/91 by SLN
Time [illegible]
[illegible]

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	[illegible]	ICV		ICV	01/31/91	10 57
2	CAL BLK	ICB		ICB	01/31/91	11 01
3	CRA	CRAO		CRA	01/31/91	11 05
4	50 PPB	CCV		CCV	01/31/91	11 09
5	CAL BLK	CCB		CCB	01/31/91	11 13
6	PB	PBW		PBW	01/31/91	11 17
7	PB	ASPBW		PBWA	01/31/91	11 21
8	X	X		ZZZZZ	01/31/91	11 25
9	X	X		ZZZZZ	01/31/91	11 29
10	X	X		ZZZZZ	01/31/91	11 33
11	X	X		ZZZZZ	01/31/91	11 37
12	9012108-01	S2	Furnace	PF1020D	01/31/91	11 41
13	9012108-01	ASS2	Furnace	PF1020DA	01/31/91	11 45
14	9012108-02	S	Furnace	PF1021	01/31/91	11 49
15	9012108-02	AS	Furnace	PF1021A	01/31/91	11 53
16	50 PPB	CCV		CCV	01/31/91	11 57
17	CAL BLK	CCB		CCB	01/31/91	12 01
18	9012108-03	S	Furnace	PF1022	01/31/91	12 05
19	9012108-03	AS	Furnace	PF1022A	01/31/91	12 09
20	9012108-04	S	Furnace	PF1023	01/31/91	12.13
21	9012108-04	AS	Furnace	PF1023A	01/31/91	12 18
22	9012108-05	S	Furnace	PF1024	01/31/91	12 22
23	9012108-05	AS	Furnace	PF1024A	01/31/91	12 26
24	9012108-14	S	Furnace	PF1033	01/31/91	12·30
25	9012108-14	AS	Furnace	PF1033A	01/31/91	12 34
26	9012108-15	S	Furnace	PF1034	01/31/91	12 38
27	9012108-15	AS	Furnace	PF1034A	01/31/91	12 42
28	50 PPB	CCV		CCV	01/31/91	12·46
29	CAL BLK	CCB		CCB	01/31/91	12 50
30	9012108-17	S	Furnace	PF1036	01/31/91	12 54
31	9012108-17	AS	Furnace	PF1036A	01/31/91	12.58
32	50 PPB	CCV		CCV	01/31/91	13 02
33	CAL BLK	CCB		CCB	01/31/91	13 06
34	0 PPB	WS0		S0	01/31/91	10 41
35	10 PPB	WS1		S10	01/31/91	10 45
36	50 PPB	WS2		S50	01/31/91	10.49
37	100 PPB	WS3		S100	01/31/91	10 53

AA Sequence # 1342 Instrument ID F1, F2, F3, F4, F5, F6 Page 1 of 1

Date: 1 31 91 Reviewed by: [illegible]

Operator: S~

Background: BS BD

Time Calibrated: 1041

disc # 01

acq

Instruments Method #: 100

Standards Prepared: 1/31/91

Standards Source: 8.00

1. Calibration: 10 ppm
2. ICV: ICV-4
3. CCV: 50 ppb

SKINNER AND SHERMAN

9012108

A	B
Run ID: 9103101	Run ID: 9103151
Element: As	Element: Se
Wavelength (nm): 283.3	Wavelength (nm): 276.8
Slitwidth (nm): 1	Slitwidth (nm): 1
Integration Time (sec): 3	Integration Time (sec): 3
STD1: 0 STD2: 3	STD1: 0 STD2: 10
STD3: 50 STD4: 100	STD3: 50 STD4: 100

	SAMPLE ID	DILUTION	COMMENTS
1	ICV		
2	ICB		
3	CRA		
4	CCV		
5	CCB		
6	DBW		
7	DBWA		PD only
8	02		
9	02A		
10	10		
11	10A		
12	01D	1:4	
13	01DA		
14	02	1:4	
15	02A		
16	CCV		
17	CCB		
18	03		
19	03A		
20	04		
21	04A		
22	05	1:4	
23	05A		
24	14		
25	14A		
26	15		
27	15A		
28	CCV		
29	CCB		
30	17	1:4	
31	17A		
32	CCV		
33	CCB		
34			
35			
36			
37			
38			
39			

COMMENTS

PD only

PD only

PD only

000206

Normal Calibration

RINSE

Normal Calibration

RINSE

	Pb-S	Tl-S
Standard Z	STD 1	0/0
Abs 1	-0 002	0 001
Mean	-0 002	0 001
P/H	0 001	-0 001
Abs 2	0 000	0 001
Mean	-0 001	0 001
P/H	0 001	-0 001

AUTO ZERO
10 41 04
Thu 31 JAN 1991

	Pb-S	Tl-S
Standard C	STD 2	3/10
Abs 1	[illegible]	[illegible]
Mean	[illegible]	[illegible]
P/H	[illegible]	[illegible]
Abs 2	[illegible]	0 021
Mean	0 008	0 021
P/H	0 11	0 36
	Pb-S	Tl-S
Mean	0 008	0 021
SD	0 001	0 001
RSD	17 50	04 76

	Pb-S	Tl-S
Standard 1	STD 3	50/50
Abs 1	0 170	0.112
Mean	0 170	0 112
P/H	0 270	0 194
Abs 2	0 178	0.114
Mean	0.174	0 113
P/H	0 257	0.188
	Pb-S	Tl-S
Mean	0 174	0 113
SD	0 006	0.001
RSD	03 21	01.23

	Pb-S	Tl-S
Standard 2	STD 4	100/100
Abs 1	0 316	0 208
Mean	0.316	0 208
P/H	0 467	0.328
Abs 2	0 320	0.210
Mean	0 318	0 209
P/H	0 454	0 340
	Pb-S	Tl-S
Mean	0 318	0 209
SD	0 003	0 001
RSD	00 88	00 66

[illegible]

000207

[illegible]

[illegible]

[illegible] 2 [illegible]

	Fb-S	T1-S
[illegible]	[illegible]	43 [illegible]3
[illegible]	[illegible]	47 19
Mean	47 51 =	48 06 =
RSD	04 50	02.55

[illegible] CAL BLK ICB 2 1 00 31 JAN 91 11 01

	Fb-S	T1-S
Burn 1	-00.63	-00.04
Burn 2	-00 84	-00 58
Mean	-00 74 =	-00 31 =
RSD	-20 00	DIG HI
Check	OK	OK

[illegible] CRA CRA0 1 00 31 JAN 91 11 05

	Fb-S	T1-S
Burn 1	02.40	09.02
Burn 2	02 33	09.13
Mean	02 36 =	09.07 =
RSD	02 11	00.85

004 50 FFB CCV 1 1 00 31 JAN 91 11:09

	Fb-S	T1-S
Burn 1	49.83	50.91
Burn 2	49 37	50.33
Mean	49.60 =	50.62 =
RSD	00.65	00.80
Check	OK	OK

005 CAL BLK CCB 1 1.00 31 JAN 91 11:13

	Fb-S	T1-S
Burn 1	-00.98	00.15
Burn 2	-00.75	-00.08
Mean	-00 87 =	00.03 =
RSD	-18 62	DIG HI
Check	OK	OK

000209

	Fb-S	Tl-S
Burn 1	[illegible]	[illegible] 34
Burn 2	[illegible]	[illegible] 5
Mean	[illegible] 71 =	[illegible] 40 =
RSD	-69 57	-19 50

KC 1/31/91

007 FB ASFBW 1 00x 31 JAN 91 11 21

	Fb-S	Tl-S
Burn 1	20 23	19.77
Burn 2	[illegible]	19 40
Mean	20 46 =	19 58 =
RSD	01 58	01 33
Sample value	1 00U	2 00U
Spike added	[illegible]	20 00
Spike recovery, %	[illegible]	[illegible]

008 901210E-02 S 32CFF1021 1 00x 31 JAN 91 11 25

	Fb-S	Tl-S
Burn 1	02 31	-00 68
Burn 2	02.56	-00 13
Mean	02 43 =	-00.41 =
RSD	07.24	-94.63

009 -02 AS 32CFF1021A 1 00x 31 JAN 91 11:29

	Fb-S	Tl-S
Burn 1	23.83	09 55
Burn 2	21.98	07.83
Mean	22.90 =	08.69 =
RSD	05 71	13.99
Sample value	2.43	2.00U
Spike added	20.00	20.00
Spike recovery, %	102.4	43.4

010 -10 S 34CFF1029 1 00 31 JAN 91 11:33

	Fb-S	Tl-S
Burn 1	02 75	-00 15
Burn 2	03 09	00 02
Mean	02 92 =	-00 07 =
RSD	08 21	DIG HI

000210

	Fb-S	T1-S
[illegible]	[illegible]	[illegible] 18
[illegible]	[illegible]	[illegible] 12
[illegible]	[illegible] =	10.15 =
RSD	06 19	00 41
[illegible] value	2 93	2.00U
Spike added	20 00	20 00
Spike recovery, %	102 4	50 8

KC 1/31/91

012 -01 S2 32CFF1020D 5.00 31 JAN 91 11:41

	Fb-S	T1-S
Burn 1	00 29	00 18
Burn 2	[illegible] 61	-00 25
Mean	[illegible] 45 =	-00 04 =
RSD	[illegible] 9E	DIG HI

013 -01 HFE 32CFF1020D 5 00 31 JAN 91 11:45

	Fb-S	T1-S
Burn 1	17 23	13 35
Burn 2	19.07	13.32
Mean	18 15 =	13 33 =
RSD	07.16	00.16
Sample value	1.00U	2.00U
Spike added	20.00	20.00
Spike recovery, %	90 8	66.6

014 -02 S 32CFF1021 5.00 31 JAN 91 11:49

	Fb-S	T1-S
Burn 1	00.27	00.25
Burn 2	00.47	-00.48
Mean	00 37 =	-00.12 =
RSD	38.10	DIG HI

015 -02 AS 32CFF1021A 5.00 31 JAN 91 11:53

	Fb-S	T1-S
Burn 1	17 93	12 63
Burn 2	17 84	12.48
Mean	17 88 =	12 55 =
RSD	00 35	00 84
Sample value	1 00U	2.00U
Spike added	2 00	20 00
[illegible]	[illegible]	62 8

000211

[illegible]

[illegible]

[illegible] 2 [illegible]

	Fb-S	Tl-S
Burn 1	47 52	49 54
Burn 2	45 2	49 82
Mean	48 32 =	49 88 =
RSD	00 58	00 15
Check	OK	OK

017 CAL BLK CCB 2 1.00 31 JAN 91 12.01

	Fb-S	Tl-S
Burn 1	-00 46	-00.52
Burn 2	-00 92	-00 95
Mean	-00 69 =	-00 74 =
RSD	-47 10	-41 08
Check	OK	OK

018 -03 S 32CFF1022 5 00 31 JAN 91 12 05

	Fb-S	Tl-S
Burn 1	00 03 KC 1/31/91	-00 09
Burn 2	00 37	-00.45
Mean	00.20 =	-00.27 =
RSD	DIG HI	-94.07

019 -03 AS 32CFF1022A 5.00x 31 JAN 91 12:09

	Fb-S	Tl-S
Burn 1	17 88	12.54
Burn 2	18 05	12.87
Mean	17 96 =	12.70 =
RSD	00 66	01.83
Sample value	1 00U	2.00U
Spike added	20 00	20.00
Spike recovery, %	89.8	63.5

020 -04 S 32CFF1023 5.00x 31 JAN 91 12:13

	Fb-S	Tl-S
Burn 1	00 10	-00 04
Burn 2	00 35	00 12
Mean	00 22 =	00.04 =
RSD	80 00	DIG HI

000212

[illegible]

	Fb-S	T1-S
Burn 1	17 [illegible]	12 75
Burn 2	[illegible] 57	12.57
Mean	[illegible] 16	12 66 =
RSD	[illegible] 99	01 00
Sample value	[illegible] 00 U	2 00U
Spike added	20 00	20 00
Spike recovery, %	[illegible]0 9	63 3

KC 1/31/91

025 -05 S 32CFF1024 5 00 31 JAN 91 12:22

	Fb-S	T1-S
Burn 1	[illegible] 57	-00 60
Burn 2	[illegible] 46	-00 09
Mean	[illegible] 01 =	-00 35 =
RSD	[illegible] 27	DIG HI

025 -05 AS 32CFF1024A 5 00 31 JAN 91 12 26

	Fb-S	T1-S
Burn 1	18 52	12.79
Burn 2	17 14	11.57
Mean	17.83 =	12 18 =
RSD	05 46	07.07
Sample value	1 01	2.00U
Spike added	20.00	20.00
Spike recovery, %	84.1	60.9

024 -14 S 34CFF1033 5 00 31 JAN 91 12:30

	Fb-S	T1-S
Burn 1	-00.13	00.15
Burn 2	00 32	-00.15
Mean	00 09 =	00.00 =
RSD	DIG HI	DIG HI

025 -14 AS 34CFF1033A 5.00 31 JAN 91 12:34

	Fb-S	T1-S
Burn 1	18 51	12 57
Burn 2	19 61	12 34
Mean	18 56 =	12 45 =
RSD	00 37	01.30
Sample value	1 00U	2 00U
Spike added	20 00	20 00
Spike recovery, %	92.9	62 2

000213

[illegible]

[illegible] F2
[illegible] TI [illegible]

[illegible]

[illegible] S [illegible]

	Fb-S	Tl-S
[illegible]	-[illegible] 19	[illegible]
[illegible]	-[illegible] 18	-00 95
ean	-00 16 =	-00 43 =
RSD	DIG HI	DIG HI

KC 1/31/91

027 -15 AS 34CFF1034A 5 00 31 JAN 91 12 42

	Fb-S	Tl-S
Burn 1	17 14	13 04
Burn 2	17.60	12 38
Mean	17 37 =	12 71 =
RSD	01 87	03 66
Sample value	1 00U	2 00U
Spike added	20 00	20 00
Spike recovery, %	26 8	63 6

[illegible] 50 FFB CCV 3 1 00 31 JAN 91 12 46

	Fb-S	Tl-S
Burn 1	48 64	50.40
Burn 2	47 45	49 07
Mean	48.04 =	49 73 =
RSD	01.75	01.89
Check	OK	OK

029 CAL BLK CCB 3 1.00 31 JAN 91 12:50

	Fb-S	Tl-S
Burn 1	-00.49	00.68
Burn 2	-00.85	-00.45
Mean	-00.67 =	00.11 =
RSD	-37.91	71 00
Check	OK	OK

030 -17 S 34CFF1036 5.00 31 JAN 91 12.54

	Fb-S	Tl-S
Burn 1	HIGH	00.20
Burn 2	HIGH	-00 19
Mean	HIGH =	00 00 =
RSD		DIG HI ***

000214

[illegible]

[illegible]

	Fb-S	Tl-S
[illegible]	[illegible]7 1[illegible]	12 47
[illegible] 2	[illegible]2 27	12 25
Mean	1[illegible] 6[illegible] =	12 36 =
RSD	[illegible]4.59	01 25
Sample value	[illegible]	2 00U
Spike added	20 00	20 00
Spike recovery, %	-49910 9	61 8

KC 1/31/91

032 50 FFB CCV 4 1 00x 31 JAN 91 13 02

	Fb-S	Tl-S
Burn 1	47 32	48 64
Burn 2	4[illegible] 6[illegible]	48 83
Mean	48 [illegible]9 =	48 73 =
RSD	[illegible] 42	00 27
Check	OK	OK

[illegible] CAL BLK CCB 4 1 00 31 JAN 91 13:06

	Fb-S	Tl-S
Burn 1	-01.21	-00.65
Burn 2	00 47	-00.13
Mean	-00 37 =	-00.39 =
RSD	DIG HI	-94.10
Check	OK	OK

END OF RUN
KC 1/31/91

000215

C I P M E T A L S 2 21b

0012108--MERCURY

Run id M1 9100204
TECHNICON MERCURY ANALYZER (#SS4199A-D)

Element Hg

Acquired 01/02/91 by KDT
Crunched 01/30/91 by KDT
Time 1221
Processing protocol 7/88

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	01/02/91	09 31
2	0 5 PPB	WS1		S0.5	01/02/91	09 34
3	1.0 PPB	WS2		S1 0	01/02/91	09 37
4	2 0 PPB	WS3		S2 0	01/02/91	09 40
5	5 0 PPB	WS4		S5.0	01/02/91	09 43
6	ICV-5	ICV		ICV	01/02/91	09·49
7	CAL BLK	ICB		ICB	01/02/91	09 52
8	2 0 PPB	CCV		CCV	01/02/91	09 55
9	CAL BLK	CCB		CCB	01/02/91	09·58
10	X	X		ZZZZZ	01/02/91	10 01
11	X	X		ZZZZZ	01/02/91	10.04
12	X	X		ZZZZZ	01/02/91	10 07
13	X	X		ZZZZZ	01/02/91	10·10
14	X	X		ZZZZZ	01/02/91	10 13
15	X	X		ZZZZZ	01/02/91	10 16
16	X	X		ZZZZZ	01/02/91	10 19
17	X	X		ZZZZZ	01/02/91	10 22
18	X	X		ZZZZZ	01/02/91	10 2[illegible]
19	2 0 PPB	CCV		CCV	01/02/91	10 28
20	CAL BLK	CCB		CCB	01/02/91	10 31
21	X	X		ZZZZZ	01/02/91	10 34
22	X	X		ZZZZZ	01/02/91	10 37
23	X	X		ZZZZZ	01/02/91	10 40
24	X	X		ZZZZZ	01/02/91	10 43
25	X	X		ZZZZZ	01/02/91	10 46
26	X	X		ZZZZZ	01/02/91	10 49
27	X	X		ZZZZZ	01/02/91	10 52
28	X	X		ZZZZZ	01/02/91	10 55
29	2 0 PPB	CCV		CCV	01/02/91	10 58
30	CAL BLK	CCB		CCB	01/02/91	11 01
31	X	X		ZZZZZ	01/02/91	11 04
32	X	X		ZZZZZ	01/02/91	11 07
33	X	X		ZZZZZ	01/02/91	11 10
34	X	X		ZZZZZ	01/02/91	11 13
35	X	X		ZZZZZ	01/02/91	11 16
36	X	X		ZZZZZ	01/02/91	11 1[illegible]
37	[illegible] PPB	CCV		CCV	01/02/91	11 [illegible]
38	CAL BL	CCB		CCB	01/02/91	11 [illegible]
39	[illegible]	[illegible]	Mercury	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	Mercury	PF[illegible]	01/02/91	1[illegible]
41	[illegible]	[illegible]	Mercury	PF10200	01/02/91	11 34
42	[illegible]	[illegible]	Mercury	PF10[illegible]	01/02/91	11 [illegible]
43	[illegible]	[illegible]	Mercury	PF10[illegible]	01/02/91	11 40

000216

9012108--MERCURY

Pos	Sample	Code	Preparation Method	Client ID		
44	9012108-03	S	Mercury	PF1022	01/02/91	11 43
45	9012108-04	S	Mercury	PF1023	01/02/91	11 46
46	9012108-05	S	Mercury	PF1024	01/02/91	11 49
47	9012108-06	S	Mercury	PF1025	01/02/91	11 52
48	9012108-07	S	Mercury	PF1026	01/02/91	11 55
49	2 0 PPB	CCV		CCV	01/02/91	11 58
50	CAL BLK	CCB		CCB	01/02/91	12 01
51	9012108-08	S	Mercury	PF1027	01/02/91	12 04
52	9012108-09	S	Mercury	PF1028	01/02/91	12 07
53	9012108-10	S	Mercury	PF1029	01/02/91	12 10
54	9012108-11	S	Mercury	PF1030	01/02/91	12 13
55	9012108-12	S	Mercury	PF1031	01/02/91	12 16
56	9012108-13	S	Mercury	PF1032	01/02/91	12 19
57	9012108-14	S	Mercury	PF1033	01/02/91	12.22
58	9012108-15	S	Mercury	PF1034	01/02/91	12 25
59	9012108-16	S	Mercury	PF1035	01/02/91	12.28
60	9012108-17	S	Mercury	PF1036	01/02/91	12 31
61	2 0 PPB	CCV		CCV	01/02/91	12 34
62	CAL BLK	CCB		CCB	01/02/91	12 37

7E12/L8

SEQ NO: 221 SKINER MERCURY BENCH SHEET Pg 1 of 2

RUN IDS:

91002-01 02 03 04

ANALYST ZP

INSTR: M1 (water) M2 (soil)

METHOD: HG

WAVELENGTH 253.7 mm

CALIBRATION TIME 931

RUN DATE 1-2-91

STANDARDS PREPPED

DATE: 1-2-91

STANDARD SOURCE

CALIB: 2 ppm SPEX

ICV : ICV-5 CCV : 2PPB

		PK HT(mm)
01	BLANK	0
02	0.5 PPB	8
03	1.0 PPB	15
04	2.0 PPB	30
05	5.0 PPB	68

r = 0.999

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
06	ICV-5	ICV	38	2.72 (5.44)	108.9 %
07	CAL BLK	ICB	0	<0.20	
08	CCV		31	2.20	110.2 %
09	CCB		0	<0.20	
10	X		5	0.28	
11	9012073 - PB		0	<0.20	
12	-01	ASGW074006	0	<0.20	
13	-01.S2	74006 A	~~9~~ 0	~~0.57~~ <0.20	
14	-01.D3	74006 S	~~0~~ 9	~~<0.20~~ 0.57	
15	-02	50004	0	<0.20	
16	-03	-	~~0~~ 2	<0.20	
17	-04	21006	~~0~~ 2	<0.20	
18	-05	03005	0	<0.20	
19	CCV		33	2.35	117.6 %
20	CCB		0	<0.20	
21	9012072 - PB		0	<0.20	
22	-01	ASGW074006	0	<0.20	
23	-01.S2	74006 D	0	<0.20	
24	-01.D3	14006 S	~~0~~ 6	~~<0.20~~ 0.35	
25	-02	50004	04	~~<0.20~~ 0.20	
26	-03	-	~~0~~ 3	<0.20	
27	-04	21006	~~0~~ 0	<0.20	
28	-05	03005	0	<0.20	
29	CCV		31	2.20	110.2 %
30	CCB		3	<0.20	
31	9012068 - PB		~~0~~ 3	<0.20	
32	-01	386511	5	0.28	
33	-02	386512	0	<0.20	
34	-03	386513	5	0.28	
35	-03 S2	386513 D	4	0.20	
36	-03 D3	386513 S	9	0.57	
37	CCV		30	2.13	106.5 %
38	CCB		0	<0.20	
39	9012108 - PB		0	<0.20	

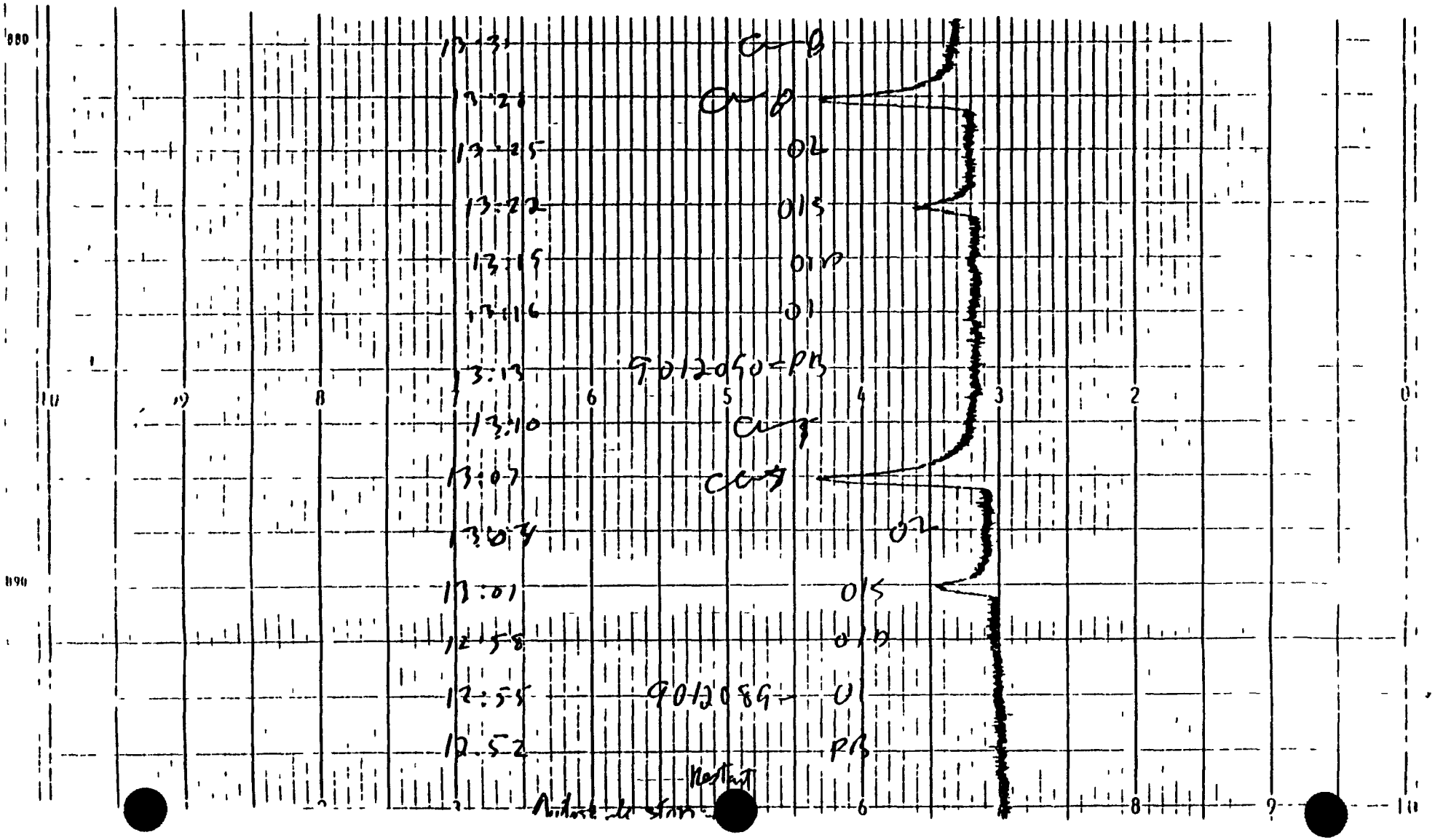
000213

SEQ NO: 229

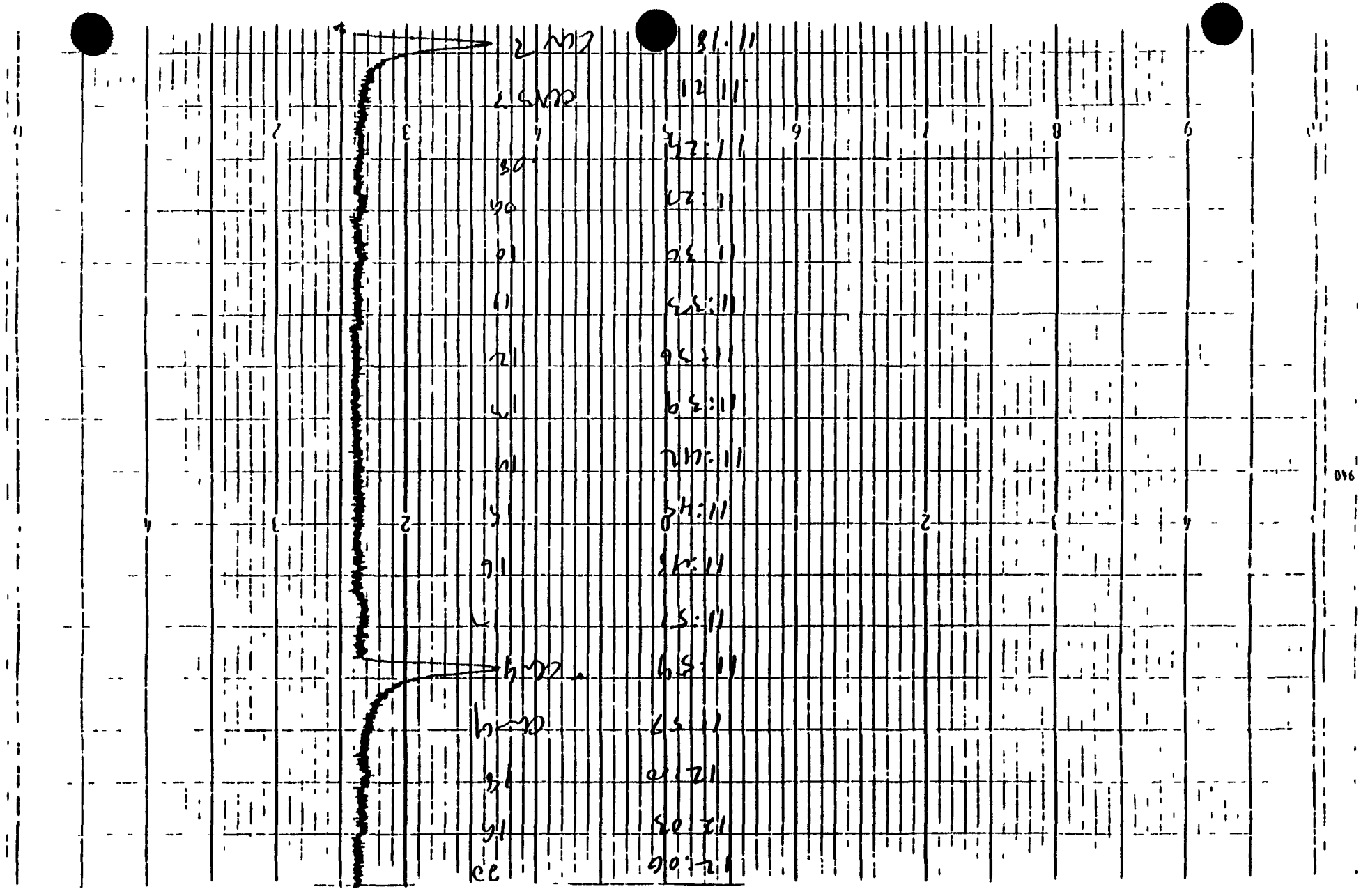
Skinner & Sherman Labs
COLD VAPOUR ATOMIC ABSORPTION
MERCURY BENCH SHEET

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
40	9012108 -01	32CPF 1020	~~0~~ 5	~~<0.20~~ 0.28	~~20~~
41	-01 S2	1020 D	~~0~~ 4	0.20 ~~<0.20~~	1-2-90
42	-01.05	1020 S	8	~~<0.20~~ 0.50	
43	-02	1021	~~0~~ 4	~~<0.20~~ 0.20	
44	-03	1022	~~0~~ 3	<0.20	
45	-04	1023	~~0~~ 2	<0.20	
46	-05	1024	~~0~~ 2	<0.20	
47	-06	34CPF 1025	~~0~~ 3	<0.20	
48	-07	1026	~~0~~ 2	<0.20	
49	CCV		30	2.13	106.5%
50	CCB		0	<0.20	
51	9012108 -08	34CPF 1027	4	0.20	
52	-09	1028	4	0.20	
53	-10	1029	3	~~<0.20~~ <0.20	
54	-11	1030	3	~~<0.20~~ <0.20	
55	-12	1031	~~0~~ 2	<0.20	
56	-13	1032	~~0~~ 2	<0.20	
57	-14	1033	~~0~~ 2	<0.20	
58	-15	1034	~~0~~ 2	<0.20	
59	-16	1035	~~0~~ 1	<0.20	
60	-17	1036	~~0~~ 2	<0.20	
61	CCV		33	2.35	117.6%
62	CCB		0	<0.20	
63	~~-18~~	~~34CPF 1037~~			
64	~~-19~~	~~1038~~			
65	~~CCV~~				
66	~~CCB~~				
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					

ID 1-3-90


880
890
13:31
13:28
13:25
13:22
13:19
13:16
13:13
13:10
13:07
13:04
13:01
12:58
12:55
12:52
9012050-PB
9012086-
10
9
8
7
6
5
4
3
2
0
6
8
9
10

000231



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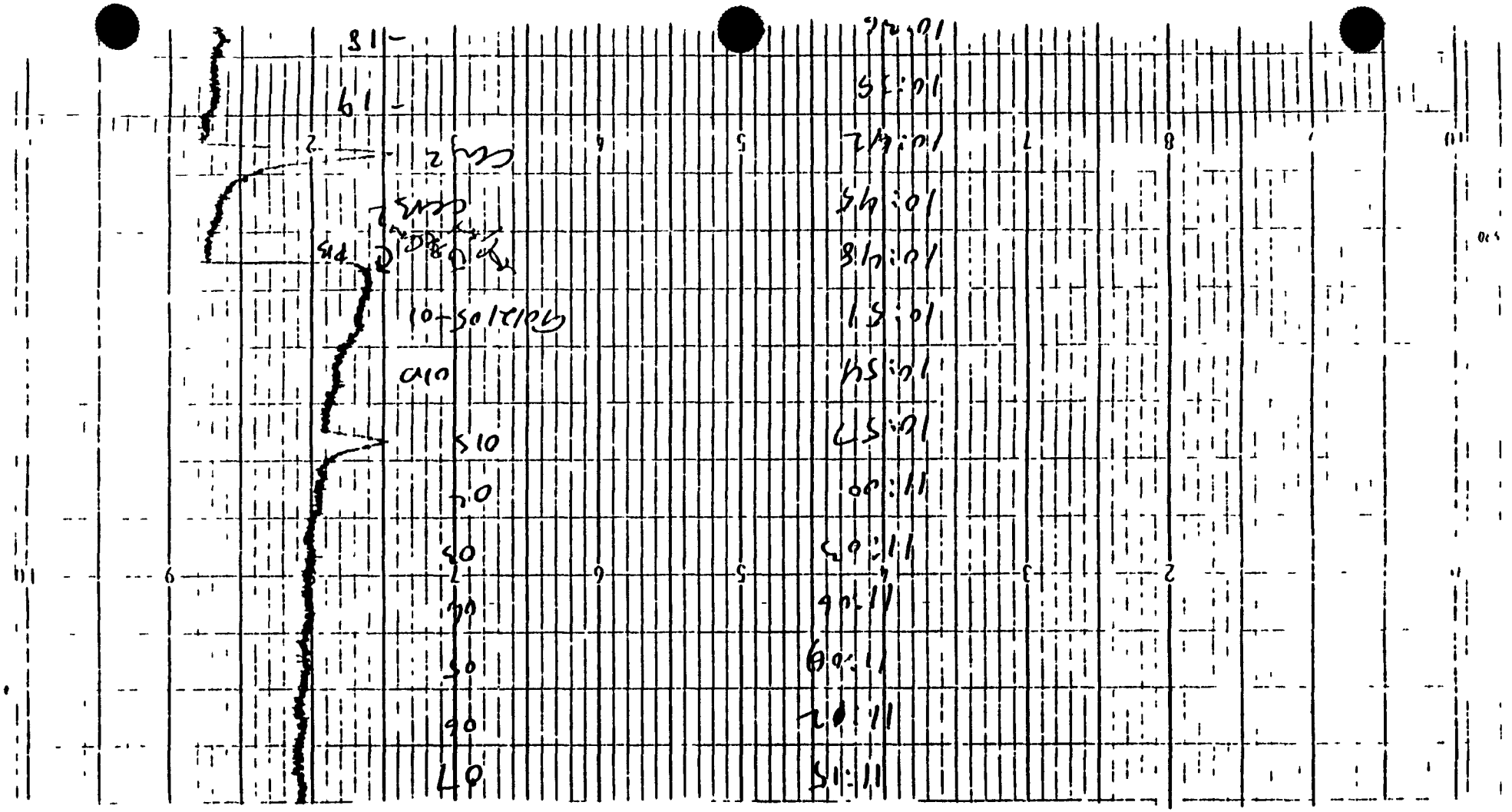

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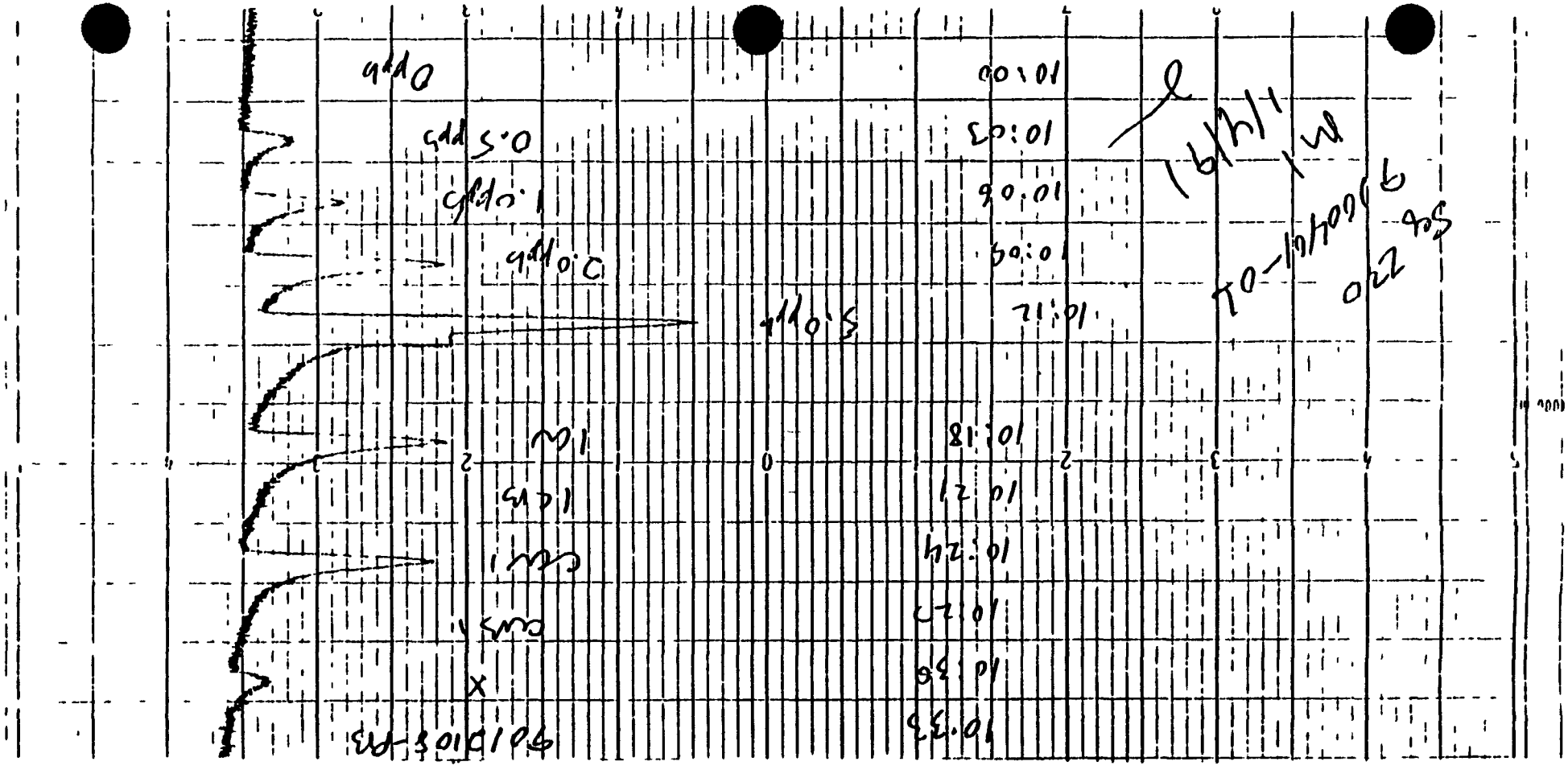

10:00
10:03
10:06
10:09
10:12
10:18
10:21
10:24
10:27
10:30
10:33
0.5 ppb
1.0 ppb
2.0 ppb
5.0 ppb
1 cm
1 cm
cm 1
cm 1
X
0
2
3
4

SEQ NO: 230

Skinner & Sherman Labs
COLD VAPOUR ATOMIC ABSORPTION
MERCURY BENCH SHEET

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
40	18	32CPF1017	0	<0.20	
41	19	1018	↓	↓	
42	20	1019	↓	↓	
43	CCV		32	2.15	
44	CCB		0	<0.20	
45	9012101-MB		0	<0.20	
46	01	MAS760	2	<0.20	
03 47	01S	760S	11	0.68	
48	02	761	0	<0.20	
49	02D	761D	0	<0.20	
50	CCV		25	1.66	
51	CCB		0	<0.20	
52	9012086-MB		↓	↓	
53	01	ASSW003005	↓	↓	
04 54	01D	5005D	↓	↓	
55	01S	5005S	10	0.61	
56	02	5006	0	<0.20	
57	CCV		30	2.01	
58	CCB		0	<0.20	
59	9012090-MB		0	↓	
05 60	01	ASSW003005	0	↓	
61	01D	5005D	0	↓	
62	01S	5005S	11	0.68	
63	02	5006	0	<0.20	
64	CCV		27	1.80	
65	CCB		0	<0.20	
66	9012227-01		0	<0.20	
67	01S		12	0.75	
68	02		0	<0.20	
06 69	03		↓	↓	
70	04		↓	↓	
71	05		↓	↓	
72	06		↓	↓	
73	07		↓	↓	
74	08		↓	↓	
75	09		↓	↓	
76	10		↓	↓	
77	11		↓	↓	
78	12		↓	↓	
79	x		↓	↓	
80	CCV		25	1.66	
81	CCB		0	<0.20	
82					
83					
84					
85					

9012108

SEQ NO: 230 SKINER MERCURY BENCH SHEET Pg 1 of 2

RUN IDS:

G1004 01 02 03 04 05 06

ANALYST

INSTR: M1(water) M2(soil)

METHOD: HG

WAVELENGTH 253.7 mm

CALIBRATION TIME 10:00

RUN DATE 1/4/91

STANDARDS PREPPED

DATE: 1/4/91

STANDARD SOURCE

CALIB: 10µ spec

ICV : 1cv5 CCV : 2ppb

		PK HT(mm)
01	BLANK	0
02	0.5 PPB	8
03	1.0 PPB	16
04	2.0 PPB	32
05	5.0 PPB	72

r=.9989

	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
06	ICV-5	ICV	32	2.15 x 2 = 4.30	
07	CAL BLK	ICB	0	<0.20	
08	CCV		31	2.08	
09	CCB		0	<0.20	
10	X		X		
11	9012108 - PB		0	<0.20	
01 12	18	34CPE1037	0		
13	19	1038	0		
14	CCV		32	2.15	
15	CCB		0	<0.20	
16	9012105-PB				
17	01	04CWC1006			
18	01D	1006D			
19	015	1006S	12	0.75	
02 20	02	30CPE1001	0	<0.20	
21	03	1002			
22	04	1003			
23	05	1004			
24	06	1005			
25	07	1006			
26	CCV		28	1.87	
27	CCB		0	<0.20	
28	08	1007			
29	09	32CPE1008			
30	10	1009			
31	11	1010			
32	12	1011			
33	13	1012			
34	14	1013			
35	15	1014			
36	16	1015			
37	17	1016			
38	CCV		26	1.73	
39	CCB		0	<0.20	

000225

C L P M E T A L S 2 21b

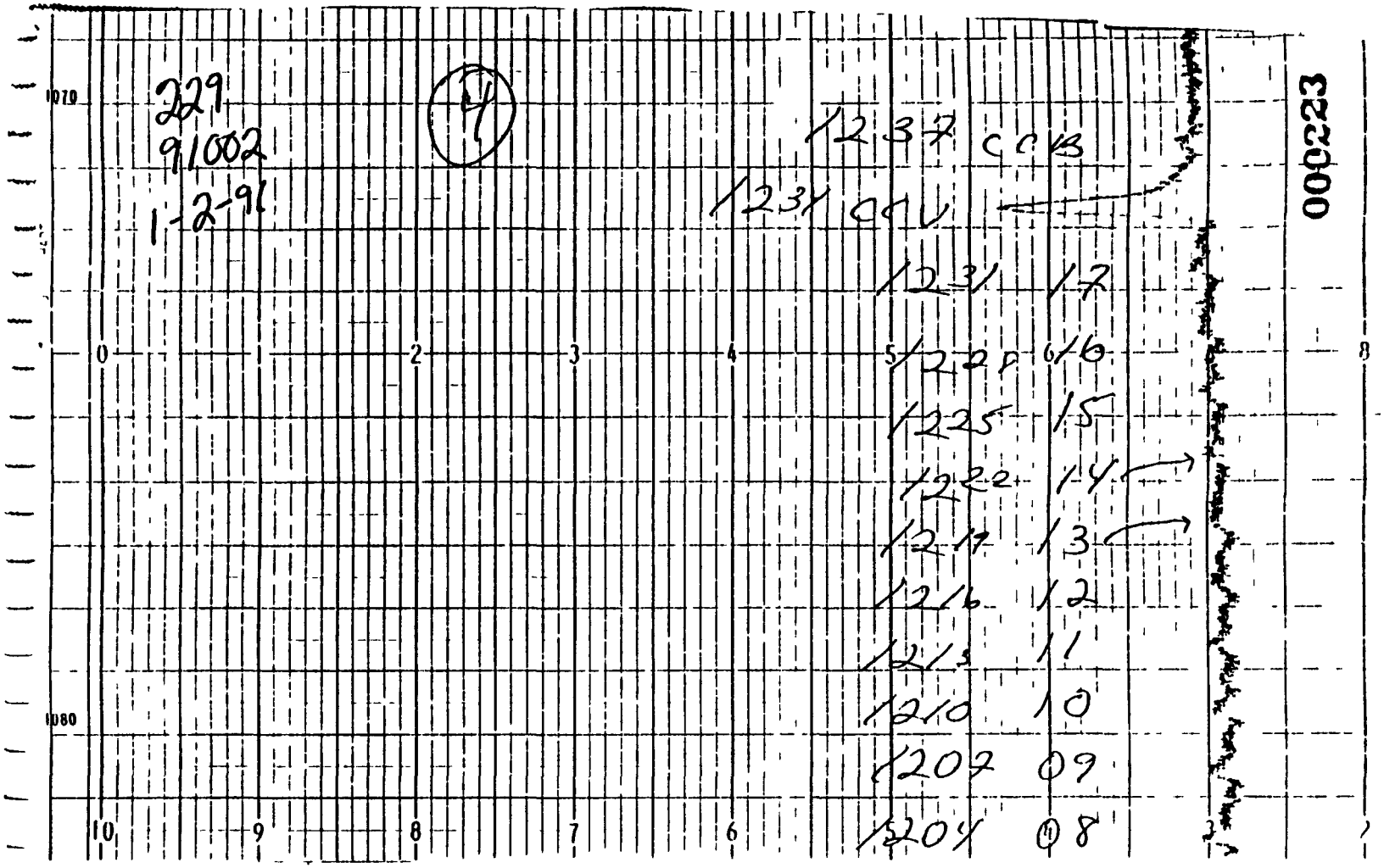
9012108--Mercury

Run id M1 9100401
TECHNICON MERCURY ANALYZER (#SS4199A-D)

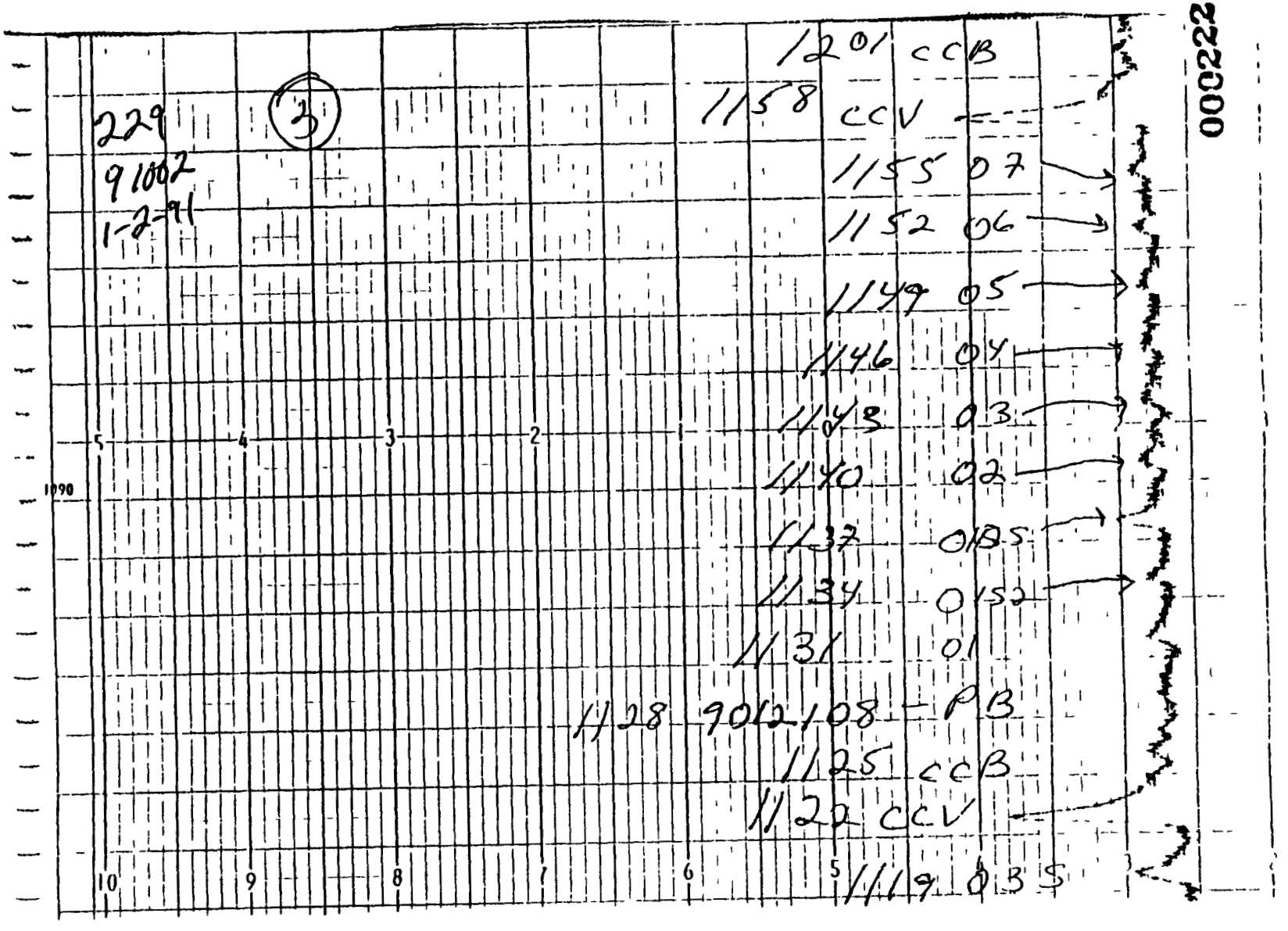
Element Hg

Acquired 01/04/91 by KDT
Crunched 01/30/91 by KDT
Time 1224
Processing protocol 7/8

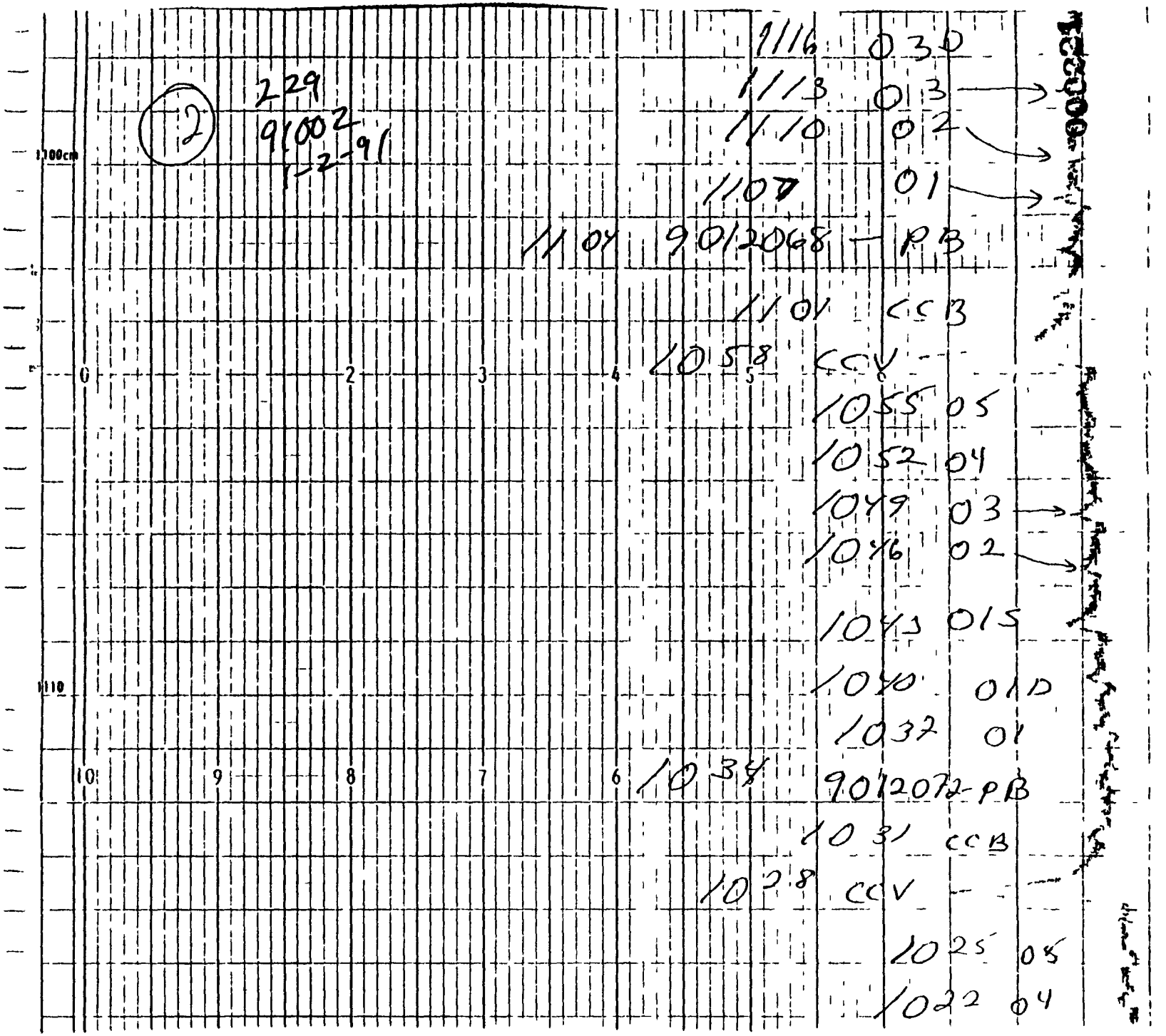
Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	01/04/91	10 00
2	0 5 PPB	WS1		S0 5	01/04/91	10 03
3	1 0 PPB	WS2		S1 0	01/04/91	10 06
4	2 0 PPB	WS3		S2 0	01/04/91	10 09
5	5 0 PPB	WS4		S5 0	01/04/91	10·12
6	ICV-5	ICV		ICV	01/04/91	10 15
7	CAL BLK	ICB		ICB	01/04/91	10 18
8	2.0 PPB	CCV		CCV	01/04/91	10 21
9	CAL BLK	CCB		CCB	01/04/91	10 24
10	X	X		ZZZZZ	01/04/91	10 27
11	PB	PBW	Mercury	PBW	01/04/91	10 30
12	9012108-18B	S	Mercury	PF1037	01/04/91	10 33
13	9012108-19B	S	Mercury	PF1038	01/04/91	10 36
14	2 0 PPB	CCV		CCV	01/04/91	10 39
15	CAL BLK	CCB		CCB	01/04/91	10 42

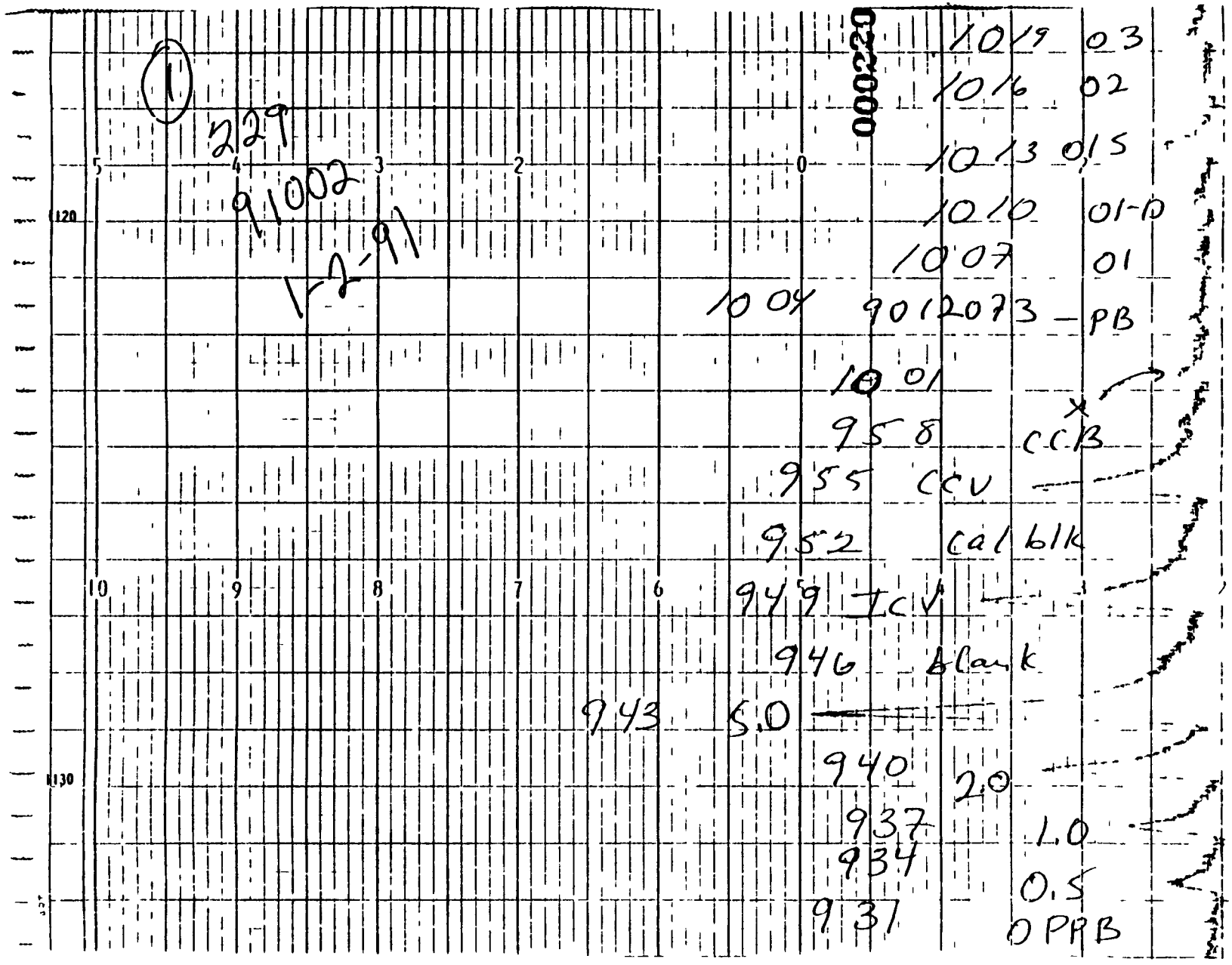

229
91002
1-2-91
4
1237 CCB
1234 CCV
1231 17
1228 16
1225 15
1222 14
1219 13
1216 12
1213 11
1210 10
1207 09
1204 08
1070
1080
0
1
2
3
4
5
6
7
8
9
10

000223


229
91002
1-2-91
3
1201 CCB
1158 CCV
1155 07
1152 06
1149 05
1146 04
1143 03
1140 02
1137 01S
1134 01S2
1131 01
1128 9012108 PB
1125 CCB
1122 CCV
1119 01S
1090

000222


2
229
91002
1-2-91
1100cm
1110
0
2
3
4
5
10
9
8
7
6
1116 030
1113 03
1110 02
1107 01
1104 9012068 - PB
1101 CCB
1058 CCV
1055 05
1052 04
1049 03
1046 02
1043 015
1040 01D
1032 01
1034 9012072-PB
1031 CCB
1028 CCV
1025 05
1022 04


1
229
91002
1-2-91
1019 03
1016 02
1013 0.5
1010 01-0
1007 01
1004 9012073 - PB
1001
958 CCB
955 CCV
952 cal blk
949 ICV
946 blank
943 5.0
940 2.0
937 1.0
934 0.5
931 0 PPB
000220

000230

SAMPLE PREPARATION REPORT AQUEOUS

Prep batch 114

Date 01/30/94

Approved KCJ 1/30/94

Sample identification			Digest 1 Furnace		Digest 2 ICP		Digest 3 Mercury		Digest 4	
Client ID	Sample ID	Lab code	Initial vol ml	Final vol ml	Initial vol ml	Final vol ml	Initial vol ml	Final vol ml	Initial vol ml	Final vol ml
PF1020S	9012108-01	DS	100.0	100	100.0	100	100.0	100		
PF1020	9012108-01	S	100.0	100	100.0	100	100.0	100		
PF1020D	9012108-01	S2	100.0	100	100.0	100	100.0	100		
PF1021	9012108-02	S	100.0	100	100.0	100	100.0	100		
PF1022	9012108-03	S	100.0	100	100.0	100	100.0	100		
PF1023	9012108-04	S	100.0	100	100.0	100	100.0	100		
PF1024	9012108-05	S	100.0	100	100.0	100	100.0	100		
PF1025	9012108-06	S	100.0	100	100.0	100	100.0	100		
PF1026	9012108-07	S	100.0	100	100.0	100	100.0	100		
PF1027	9012108-08	S	100.0	100	100.0	100	100.0	100		
PF1028	9012108-09	S	100.0	100	100.0	100	100.0	100		
PF1029	9012108-10	S	100.0	100	100.0	100	100.0	100		
PF1030	9012108-11	S	100.0	100	100.0	100	100.0	100		
PF1031	9012108-12	S	100.0	100	100.0	100	100.0	100		
PF1032	9012108-13	S	100.0	100	100.0	100	100.0	100		
PF1033	9012108-14	S	100.0	100	100.0	100	100.0	100		
PF1034	9012108-15	S	100.0	100	100.0	100	100.0	100		
PF1035	9012108-16	S	100.0	100	100.0	100	100.0	100		
PF1036	9012108-17	S	100.0	100	100.0	100	100.0	100		
PF1037	9012108-18	S	100.0	100	100.0	100	100.0	100		
PF103	9012108-19	S	100.0	100	100.0	100	100.0	100		
	[illegible]	[illegible]	100.0	100						
	LCFW	LCSW			100.0	100				
	PR	PRW	100.0	100	100.0	100	100.0	100		

000232

SAMPLE PREPARATION REPORT AQUEOUS

Prep Batch 1191

Date 01/30/91

Approved KDJ 1/30/91

Sample Identification				Digest 1 Furnace			Digest 2 ICP			Digest 3 Mercury			Digest 4		
Sample ID	Lab code	pH	pH(CN)	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution
9012108-01	DS	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-01	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-01	S2	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-02	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-03	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-04	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-05	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-06	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-07	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-08	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-09	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-10	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-11	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-12	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-13	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-14	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-15	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-16	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-17	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-18	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
9012108-19	S	2.0		01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			
LCSFW	LCSW			01/14/91	KDJ	1.00									
LCSPW	LCSW						01/14/91	KDJ	1.00						
PB	PBW			01/14/91	KDJ	1.00	01/14/91	KDJ	1.00	01/02/91	KDJ	1.00			

SAMPLE PREPARATION REPORT AQUEOUS

Prep batch 1195A

Date 01/30/91

Approved RJ 1/30/91

Sample identification			Digest 1		Digest 2		Digest 3 Mercury		Digest 4	
Client ID	Sample ID	Lab code	Initial vol ml	Final vol ml	Initial vol ml	Final vol ml	Initial vol ml	Final vol ml	Initial vol ml	Final vol ml
PF1037	9012108-18B	S					100 0	100		
PF1038	9012108-19B	S					100 0	100		
	PB	PBW					100 0	100		

SAMPLE PREPARATION REPORT AQUEOUS

Prep batch 1195A

Date 01/30/91

Approved KG 1/30/91

Sample identification				Digest 1			Digest 2			Digest 3 Mercury			Digest 4		
Sample ID	Lab code	pH	pH(CN)	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution	Date extr	Anal	Overall dilution
9012108-18R	S	2 0								01/04/91	KDJ	1 00			
9012108-19B	S	2 0								01/04/91	KDJ	1 00			
PB	PBW									01/04/91	KDJ	1 00			

DATE 1/14/91 ANALYST HE FOR GFAA/ICP

DATE 1/14/91 ANALYST LD FOR MERCURY

SKINNER & SHERMAN

WATERS PREP LOG

PREP BATCH # 195

REVIEWED BY [illegible] 1/16/91

LCS SOURCE		Digest 1 (GFAA)		Digest 2 (ICP)			Digest 3 (Hg)	Description Color Clarity
Client ID	Lab ID	Initial Vol(ml)	Final Vol(ml)	Initial Vol(ml)	Final Vol(ml)	pH	Initial Vol(ml)	
Wardwood Clay								
32CPF 1020	9012108-01	100	100	100	100	2.0	100	Colorless, clear
1020D	01S2	50	50	50	50			
1020S	01:LS	100	100	50	50			
1021	02			100	100			
1022	03							
1023	04							
1024	05							
34DPF 1025	06							
1026	07							
1027	08							
1028	09							
1029	10							
1030	11							
1031	12							
1032	13							
1033	14							
1034	15							
1035	16							
1036	17							
1037	18							
1038	19							
	LCSW							
BATCH 119A	MB						100	
1-4-91 1037	18						100	
1038	19							

002238

(1)

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

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

STANDARD IDENTITY: STANDARD B

DATE PREPARED: 1/19/91
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
Reprepped 1/24/91					

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: 1/19/91
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-1	1000 ppm	5 ml	5 ppm
As	MVAs-3	1000 ppm	5 ml	5 ppm
Ba	MVBa-2	1000 ppm	5 ml	5 ppm
Be	MVBe-2	1000 ppm	1 ml	1 ppm
Cd	MVCd-2	1000 ppm	5 ml	5 ppm
Cr	MVCr-2	1000 ppm	5 ml	5 ppm
Co	MVCo-2	1000 ppm	5 ml	5 ppm
Cu	MVCu-2	1000 ppm	5 ml	5 ppm
Pb	MVPb-2	1000 ppm	5 ml	5 ppm
Mn	MVMn-1	1000 ppm	5 ml	5 ppm
Ni	MVNi-1	1000 ppm	5 ml	5 ppm
Se	MVSe-2	1000 ppm	5 ml	5 ppm
Tl	MVTl-2	1000 ppm	5 ml	5 ppm
V	MVV-2	1000 ppm	5 ml	5 ppm
Zn	MVZn-2	1000 ppm	5 ml	5 ppm
Ti	MVTi-1	1000 ppm	5 ml	5 ppm

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

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

(3)

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

STANDARD IDENTITY: STANDARD 2

DATE PREPARED: 12/18/90
PREPARED BY: SRP

FINAL VOLUME: 1000 ml

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 20 HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
Ag	MVAg-2		1000 ppm	1 ml	1.0 ppm
Reprepped	1/14/91		SRP		

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

000239

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

(4)

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

STANDARD IDENTITY: STANDARD 3

DATE PREPARED: 1/19/91
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
AL	MVAl-2		10,000 ppm	5 ml	50 ppm
Ca	MVCa-2		10,000 ppm	5 ml	50 ppm
Fe	MVFe-2		10,000 ppm	3 ml	30 ppm
Mg	MVMg-2		10,000 ppm	5 ml	50 ppm
K	MVK-2		10000 ppm	5.0 ml	50 ppm
Na	MVNa-3		10000 ppm	5.0 ml	50 ppm

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

000240

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

(5)

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

STANDARD IDENTITY: Initial Calibration Verification Solutions

DATE PREPARED: 1/19/91
PREPARED BY: SRP

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	-40		20 ml → 200 ml	
b) ICV-2	QCICV2	-47		20 ml → 100 ml	
c) ICV-3	QCICV3	-25		20 ml → 200 ml	

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

000241

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

(6)

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

STANDARD IDENTITY: Interference Check Sample Solutions

DATE PREPARED: 1/25/91
PREPARED BY: SRP

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	-43		20 ml →	200 ml
b) ICSABR	QCICSA	-43		20 ml →	200 ml
	QCICSB	-25		20 ml →	

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

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

(7)

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

STANDARD IDENTITY: 2 x Contract Required Detection Limit Solution

DATE PREPARED: 1/4/91
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-1	1000 ppm	120 ul	120 ppb
As	MVAs-3	1000 ppm	50 ul	50 ppb
Be	MVBe 2	1000 ppm	10 ul	10 ppb
Cd	MVCd-2	1000 ppm	10 ul	10 ppb
Cr	MVCr-2	1000 ppm	20 ul	20 ppb
Co	MVCo-2	1000 ppm	100 ul	100 ppb
Cu	MVCu-2	1000 ppm	50 ul	50 ppb
Pb	MVPb-2	1000 ppm	50 ul	50 ppb
Mn	MVMn-1	1000 ppm	30 ul	30 ppb
Ni	MVNi-1	1000 ppm	80 ul	80 ppb
Se	MVSe-2	1000 ppm	100 ul	100 ppb
V	MVV-2	1000 ppm	100 ul	100 ppb
Tl	MVTl-2	1000 ppm	500 ul	500 ppb
Ag	MVAg-2	1000 ppm	20 ul	20 ppb
Zn	MVZn-2	1000 ppm	40 ul	40 ppb
	MVTi-1			

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

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

(8)

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

STANDARD IDENTITY: Continuing Calibration Verification Solution (HalfSTD)

DATE PREPARED: 1/19/91
PREPARED BY: SRP

FINAL VOLUME: 500 ml

MATRIX: 1 %HNO3
5 %HCl
___Other

MLS ADDED: ___HNO3
___HCl
___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
STD 1	In House			250 ml	500 ml
STD 3	In House			250 ml	
Ag			1000 ppm	250 ul	

Reprepped 1/24/91
Reprepped 2/1/91

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

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

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

STANDARD IDENTITY:

DATE PREPARED: Hg Working Standard
PREPARED BY:

FINAL VOLUME: 100 ml

MATRIX: 2 %HNO3 ___%HCl ___Other

MLS ADDED: 2 HNO3 ___HCl ___Other

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
12-21-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-26-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-27-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-31-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
1-2-91 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-28-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
1-3-91 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
1-4-91 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
1-7-91 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb
Cr			5%	1 ml	0.05%
12-29-90 Hg		MV-Hg-6	10 ppm	1 ml	100 ppb

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

DOCUMENT# _____
(BOOK# - PAGE#)

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

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

STANDARD IDENTITY:

DATE PREPARED:
PREPARED BY:

FINAL VOLUME:

MATRIX: 2 %HNO3
___%HCl
___Other

MLS ADDED: 2 HNO3
___HCl
___Other

Hg working std

ELEMENT	SOURCE	LOT#	STOCK CONC	VOLUME	FINAL CONC
1-1-91	Hg	mV-Hg-3	10 ppm	1 ml	100 ppb
1-2-91	Hg	mV-Hg-3	10 ppm	1 ml	100 ppb
1-4-91	Hg	mV Hg-3	10 ppm	1 ml	100 ppb

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

DOCUMENT#_____
(BOOK# - PAGE#)

000248

SAMPLE LOG IN SKINNER & SHERMAN LABORATORIES

SAMPLE CUSTODIAN A Bonney
CUSTODY SEAL present / absent
intact / not
CHAIN OF CUSTODY present / absent
823, 822

INORG PREP 12/28/90 (Fri)
CN DIST (9) NOCN
TRAACS (12)
MERCURY (14) 12/26/90 (wed)
ICP/AA (17) 12/31/90 (Mon)

SAMPLE TEMP 4°C
SAMPLE DELIVERY GROUP (SDG #) N/A
CASE and/or SAS # Woodward-Clyde
AIRBILL NUMBER # Fedex

TAGS - present / absent
TAG # listed / not listed
TRAFFIC REPORTS - present / absent
SAMPLE CONTAINERS - intact / broken (comment)

MAIL OUT DP (20) 01/02/90 (wed)

SMO CONTACT Dan Streamer
Do tags agree with samples? yes / no (comment)
Do samples agree with TRS? yes / no (comment)
Do tags agree with TRS? yes / no (comment)
Do TRS agree with COC? yes / no (comment)
Do shipped samples agree with booked? yes / no
N/A

	SAMPLE IDENTIFICATION (SMO #)	(SAM #)	MATRIX WATER/SOIL	DATE RECEIVED	TESTS REQUIRED	QC REQ'D also Specify if a blank	TAG # if not on COC	COMMENT
1	32CPF1020	9012108 01	WATER	12/11/90	TM	DS	—	O.K.
2	1021	02						
3	1022	03						
4	1023	04						
5	1024	05						
6	32CPF1025	06						
7	1026	07						
8	1027	08		12/12/90				
9	1028	09						
10	1029	10						
11	1030	11						
12	1031	12						
13	1032	13						
14	1033	14						
15	1034	15						
16	1035	16						
17	1036	17						
18	1037	18						
19	1038	19						
20								

Complete 12/12/90 AB

QUESTIONS? CALL 800 238 5355 TOLL FREE

TRACKING NUMBER 7[illegible]

9727723176

RECIPIENT'S COPY

Date 12/11/90

1 From (Your Name) Please Print: [illegible]
Your Phone Number (very important): (303) 271-4601
Department/Floor No
Company: Woodward-Clyde Federal Services
Street Address: 1801 Broadway St
City: Golden State: CO ZIP Required: 80401

2 To (Recipient's Name) Please Print: Mark Boyle
Recipient's Phone Number (very important): (617) 890-[illegible]
Department/Floor
Company: Tippl-Skinner/Sherman
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip + Codes.): 300 Second Ave
City: Waltham State: Mass ZIP Required: 02254

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): 1/R 90-560

H IF HOLD FOR PICK-UP Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 [X] 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 Service (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
51 [ ]
56 [ ] FEDEX LETTER
52 [ ] FEDEX PAK
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day Service (formerly Standard Air) (Delivery by second business day)
70 HEAVYWEIGHT**
ECONOMY TWO-DAY SVC

Heavyweight Service (for Extra Large or any package over 150 lbs.)
HEAVYWEIGHT

DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
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)

PACKAGES	WEIGHT in Pounds/Kg	YOUR DECLARED VALUE
1	52	6000
Total 2	Total 1467	Total 6000

BILL SHIPMENT (Chargeable Weight) [ ] lbs.
Received At: 1 [ ] Regular Stop 3 [ ] Drop Box

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State Zip
Received By: X [illegible]
Date/Time Received: 12/11/90 Time: 9:30 FedEx Employee Number

5 Recipient Signature:
Date/Time

Federal Express
Base Charges
Declared Value Ch
Other 1
Other 2
Total Charges

REVISION DATE 8/90 PART #119500 GBFE FORMAT #041+

041

QUESTIONS? CALL 800 238 5355 TOLL FREE

AIRBILL PACKAGE TRACKING NUMBER 9727723143

9727723143

RECIPIENT'S COPY

Date 12/11/90

1 From (Your Name) Please Print: [illegible]
Your Phone Number (very important): [illegible]
Department/Floor No
Company: Woodward-Clyde Federal Services
Street Address: 1801 Broadway St
City: Golden State: CO ZIP Required: 80401

2 To (Recipient's Name) Please Print: Mark Boyle
Recipient's Phone Number (very important): (617) 890-[illegible]
Department/Floor
Company: Tippl-Skinner/Sherman
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip + Codes.): 300 Second Ave
City: Waltham State: Mass ZIP Required: 02254

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.): 1/R 90-560

H IF HOLD FOR PICK-UP Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 [X] 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 Service (Delivery by next business morning)
11 [X] YOUR PACKAGING
6 [ ] FEDEX LETTER
2 [ ] FEDEX PAK
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon)
51 [ ]
56 [ ] FEDEX LETTER
52 [ ] FEDEX PAK
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two Day Service (formerly Standard Air) (Delivery by second business day)
ECONOMY TWO-DAY SVC

Heavyweight Service (for Extra Large or any package over 150 lbs.)
HEAVYWEIGHT

DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY [ ]
4 DANGEROUS GOODS
5 [ ] DRY ICE
7 OTHER SPECIAL SERVICE
8 [ ]

PACKAGES	WEIGHT in Pounds/Kg	YOUR DECLARED VALUE
1	31	6000
Total		

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State
Received By: X [illegible]
Date/Time Received: 12/12/90 Time: 9:30 FedEx Employee Number

5 Recipient Signature

Base Charges

REVISION DATE 8/90

041

000248

→See Sample # OHCWC1006, CCC #020 at TMA-NORCAL For Rad Assay

Woodward·Clyde Consultants
Stanford Place 3 Suite 1000 4582 South Ulster Street Parkway
Denver Colorado 80237 (303) 694 2770

Chain of Custody Record

CCC #022

PROJECT NO: 22538 Task 500

SAMPLERS: (Signature) R.W. [illegible], R.G. [illegible]

DATE	TIME	SAMPLE NUMBER	Metals	Wet Chem*	NO_3/NO_2					NUMBER OF CONTAINERS
12/10/90	1215	32CPFL014	X	X	X					3
	1315	32CPFL015	X	X	X					3
	1215	32CPFL016	X	X	X					3
	1315	32CPFL017	X	X	X					3
	1100	32CPFL018	X	X	X					3
	1215	32CPFL019	X	X	X					3
	1315	32CPFL020	X	X	X					3
	1500	32CPFL021	X	X	X					3
	1530	32CPFL022	X	X	X					3
	1500	32CPFL023	X	X	X					3
	1530	32CPFL024	X	X	X					3
	1500	34CPFL025	X	X	X					3
	1530	34CPFL026	X	X	X					3

BR Clow 12/10/90

TOTAL NUMBER OF CONTAINERS: 39

REMARKS (Sample preservation handling procedures etc.)

For TMA - Skinner/Sherman

Matrix - Water

All samples stored on ice.

*Wet Chem: Cl^-, F^-, Carb/Bicarb, pH, Sulfate, TDS, TSS, Cond.

- Metals Preserved w/HNO_3 to pH<2
- NO_3/NO_2 Preserved w/H_2SO_4 to pH<2

Contact personnel: Brian Clow (303) 279-4501 x205

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
BR Clow	12/10/1730				0002-9

METHOD OF SHIPMENT	SHIPPED BY (Signature)	COURIER (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
			Anita Berry	12/11 930

→ See Sample # Ø4CWC1ØØ6, COC # Ø2Ø at TMA/NORCAL for Rad Assay ←

Woodward·Clyde Consultants

Stanford Place 3 Suite 1000 4582 South Ulster Street Parkway
Denver Colorado 80237 (303) 694 2770

Chain of Custody Record

COC # Ø23

PROJECT NO: 22558 Task 500

SAMPLERS: (Signature) P.W. Lynch

DATE	TIME	SAMPLE NUMBER	Metals	Wet Chem*	NO_3/NO_2					NUMBER OF CONTAINERS
12/10/90	0930	34CPF1Ø27	X	X	X					3
↓	1030	34CPF1Ø28	X	X	X					3
	0930	34CPF1Ø29	X	X	X					3
	1030	34CPF1Ø30	X	X	X					3
	0930	34CPF1Ø31	X	X	X					3
	1030	34CPF1Ø32	X	X	X					3
	1420	34CPF1Ø33	X	X	X					3
	1520	34CPF1Ø34	X	X	X					3
	1420	34CPF1Ø35	X	X	X					3
	1520	34CPF1Ø36	X	X	X					3
	1420	34CPF1Ø37	X	X	X					3
↓	1520	34CPF1Ø38	X	X	X					3

BE Clow 12/11/90

TOTAL NUMBER OF CONTAINERS: 36

REMARKS (Sample preservation handling procedures etc.)

For TMA-Skinner/Sherman

Matrix – Water

All samples stored on ice.

*Wet Chem: Cl^-, F^-, Carb/Bicarb, pH, Sulfate, TDS, TSS, Conductivity.

– Metals preserved w/ HNO_3 to pH<2

– NO_3/NO_2 preserved w/ H_2SO_4 to pH<2

Last Shipment

Contact personnel: Brian Clow (303) 279-4501 x205

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
BE Clow	12/11/90 1600				

000250

METHOD OF SHIPMENT	SHIPPED BY (Signature)	COURIER (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME
			[signature]	12/12 9:30