194879

WESTON
MANAGERS DESIGNERS/CONSULTANTS
Suite 201, 1090 King Georges Post Road,
Edison, NJ 08837, • (201) 225-6116 • FAX (201) 225-7037

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TO: JOE ROTOLA, USEPA REGION II

FROM: PTD PETER DI PASCA, TAT PM & JULIAN HILL, TAT QC

SUBJECT: Documentation of Transmittal

SITE: IDEAL COOPERAGE

TDD#: 02-8902-10C

DATE: OCTOBER 3, 1989

The purpose of this memo is to document the transmittal of the following:

_____ Letter Report DCN#_____

_____ OSC Report Draft/Final DCN#_____

_____ Photographs

_____ Analytical Data

_____ POLREP

_____ Safety Plan DCN#_____

_____ Community Relations Plan DCN#_____

_____ Sampling Plan DCN#_____

_____ Sampling Report DCN#_____

_____ Action Memorandum DCN#_____

_____ SPCC Report

_____ Site Maps

✓ Other COPIES OF PERTINENT INFORMATION FROM TAT FILE. INCLUDES: H&S PLAN, TITLE SEARCH REPORT, POLREPS, ANALYTICAL RESULTS, SAMPLING PLAN, TDDS, & SIMS REPORTS.

cc: TAT PM
TDD File

Roy F. Weston, Inc.
MAJOR PROGRAMS DIVISION
In Association with ICF Technology, Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc., and R.E. Sarriera Associates

WESTON • SPER Suite 201, 1090 King Georges Post Road,
Edison, NJ 08837 • (201) 225-6116

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TO: LISE PEDERSON, USEPA REGION II

FROM: PD PETER DIPASCA, TAT PM & THOMAS MIGNONE, TAT QC ATN

SUBJECT: Documentation of Transmittal

SITE: IDEAL COOPERAGE

TDD#: 02-8902-10C

DATE: 5-26-89

The purpose of this memo is to document the transmittal of the following:

_____ Letter Report DCN#_____

_____ OSC Report Draft/Final DCN#_____

_____ Photographs

__✓__ Analytical Data - COMPLETE DATA PACKAGE FROM SKINNER & SHERMAN, INC.

_____ POLREP

_____ Safety Plan DCN#_____

_____ Community Relations Plan DCN#_____

_____ Sampling Plan DCN#_____

_____ Sampling Report DCN#_____

_____ Action Memorandum DCN#_____

_____ SPCC Report

_____ Site Maps

_____ Other _____

cc: TAT PM
TDD File

TMA
Thermo Analytical Inc.

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

(617) 890-7200

Federal Express Airbill #2689432885

22 May 1989

United Stated Environmental Protection Agency
Contract Laboratory Program (CLP)
Sample Management Office (SMO)
300 North Lee Street
Alexandria, VA 22313

Attention: Linda Boynton

Dear Ms. Boynton:

Enclosed is the Sample Data Package for the Inorganic Analyses of SAS #4606-B. The sample were analyzed under Skinner and Sherman Work Order #8905056.

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

Sincerely,

SKINNER AND SHERMAN LABORATORIES

Richard Purdy
Contract Laboratory Program
Program Manager

encl.

RP/cd

cc: Data Audit Staff, EMSL-LV, Federal #2689432896
Richard Spear, USEPA Region II, Federal #2689432900

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

SOW No.: 7/87

EPA Sample No.	Lab Sample ID.
01A	05056-01S
01AD	05056-01S2
01AS	05056-01DS
02A	05056-02S
03A	05056-03S
04A	05056-04S
05A	05056-05S
06A	05056-06S
07A	05056-07S
08A	05056-08S
09A	05056-09S
09AD	05056-09S2
09AS	05056-09DS
EXBLK	05056-11S
EXDUP	05056-10S

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:
THIS IS AN EP TOXICITY AND RCRA CHARACTERIZATION SAS CASE. A SUMMARY OF THE RESULTS AND THE RCRA CHARACTERISTICS CAN BE FOUND FOLLOWING FORM XI

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.

Lab Manager: [signature]

Date: 22 May 89

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

01A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-01S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	5.30	B	S	F
7440-39-3	Barium	500.00	U	NS	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	14.40		NS	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	13.10		NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	47.40		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	3.80	B	NS	F
7440-22-4	Silver	20.00	U	N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

02A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-02S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	15.20		S	F
7440-39-3	Barium	1720.00		NS	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	4.00	B	N+	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.00	U	NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	39.50		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.20	B	NS	F
7440-22-4	Silver	33.20		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

03A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-03S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	27.40		S	F
7440-39-3	Barium	3840.00		NS	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	16.80		NS	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	114.00		N+	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	1010.00		N+	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	N+	F
7440-22-4	Silver	65.00		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

04A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-04S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	1.90	B	S	F
7440-39-3	Barium	1570.00		NS	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	18.40		N+	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.10	B	NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	192.00		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.40	B	N+	F
7440-22-4	Silver	66.60		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

05A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-05S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	3.60	B	S	F
7440-39-3	Barium	500.00	U	N+	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	7.10	B	N+	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.20	B	NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	161.00		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	NS	F
7440-22-4	Silver	48.60		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

06A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-06S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	18.70		S	F
7440-39-3	Barium	500.00	U	N+	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	22.30		N+	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	6.80	B	NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	828.00		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	NS	F
7440-22-4	Silver	20.00	U	N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

07A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-07S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	19.90		S	F
7440-39-3	Barium	500.00	U	N+	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	17.50		NS	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.00		NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	94.40		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	NS	F
7440-22-4	Silver	37.80		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

08A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-08S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	1.60	U	S	F
7440-39-3	Barium	560.00		NS	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	3.00	B	NS	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.00	U	N+	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	12.10		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	N+	F
7440-22-4	Silver	20.00	U	N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

09A

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-09S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	12.20		S	F
7440-39-3	Barium	500.00	U	N+	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	9.30	B	N+	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.00	B	NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	85.10		N+	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	4.00	B	N+	F
7440-22-4	Silver	45.90		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EXBLK

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-11S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	1.60	U	S	F
7440-39-3	Barium	500.00	U	NS	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	1.00	U	NS	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.00	U	NS	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	8.90		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	NS	F
7440-22-4	Silver	20.00	U	N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EXDUP

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Matrix (soil/water): WATER Lab Sample ID: 05056-10S

Level (low/med): LOW Date Received: 05/03/89

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	13.00		S	F
7440-39-3	Barium	980.00		N+	F
7440-41-7	Beryllium				NR
7440-41-7	Cadmium	8.10	B	NS	F
7440-70-2	Calcium				NR
7440-47-3	Chromium	5.00	U	N+	F
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead	37.10		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.10	U	NS	F
7440-22-4	Silver	93.10		N*S	F
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

EP TOX EXTRACT DUPLICATE OF SAMPLE 01A

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Aluminum									NR
Antimony									NR
Arsenic	47.0	46.36	98.6	50.0	50.74	101.5	48.28	96.6	F
Barium	2010.0	1850.00	92.0	2000.0	1880.00	94.0	1910.00	95.5	F
Beryllium									NR
Cadmium	492.0	517.00	105.1	5.0	5.20	104.0	4.73	94.6	F
Calcium									NR
Chromium	503.0	542.00	107.8	50.0	47.90	95.8	51.70	103.4	F
Cobalt									NR
Copper									NR
Iron									NR
Lead	97.9	92.92	94.9	50.0	49.40	98.8	46.14	92.3	F
Magnesium									NR
Manganese									NR
Mercury	5.2	5.44	104.6	2.0	1.83	91.5	2.11	105.5	CV
Nickel									NR
Potassium									NR
Selenium	104.0	98.44	94.7	50.0	49.90	99.8	50.83	101.7	F
Silver	484.0	468.00	96.7	2000.0	1963.00	98.2	2031.00	101.6	F
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

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

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Aluminum									NR
Antimony									NR
Arsenic				50.0	48.18	96.4	47.33	94.7	F
Barium				2000.0	2120.00	106.0	1930.00	96.5	F
Beryllium									NR
Cadmium				5.0	4.92	98.4	4.65	93.0	F
Calcium									NR
Chromium				50.0	54.20	108.4	52.20	104.4	F
Cobalt									NR
Copper									NR
Iron									NR
Lead				50.0	48.24	96.5	46.64	93.3	F
Magnesium									NR
Manganese									NR
Mercury				2.0	2.06	103.0	2.06	103.0	CV
Nickel									NR
Potassium									NR
Selenium				50.0	47.93	95.9	46.01	92.0	F
Silver				2000.0	1931.00	96.6			F
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

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

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Aluminum									NR
Antimony									NR
Arsenic				50.0	52.41	104.8			F
Barium				2000.0	2010.00	100.5	2010.00	100.5	F
Beryllium									NR
Cadmium				5.0	4.72	94.4	4.84	96.8	F
Calcium									NR
Chromium	503.0	507.00	100.8	50.0	47.50	95.0	52.90	105.8	F
Cobalt									NR
Copper									NR
Iron									NR
Lead				50.0	45.92	91.8	54.07	108.1	F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium				50.0	50.78	101.6			F
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

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SKINER

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%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	97.9	94.88	96.9	50.0	50.64	101.3			F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium	104.0	99.54	95.7	50.0	46.77	93.5			F
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

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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

AA CRDL Standard Source: SS-DP

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	10.0	9.72	97.2					
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	5.0	5.82	116.4					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5.0	4.78	95.6					
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

AA CRDL Standard Source: SS-DP

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	5.0	4.94	98.8					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5.0	4.74	94.8					
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

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3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

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											NR
Antimony											NR
Arsenic	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	F
Barium	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	F
Beryllium											NR
Cadmium	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	F
Calcium											NR
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	F
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	F
Magnesium											NR
Manganese											NR
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel											NR
Potassium											NR
Selenium	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	F
Silver	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	F
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

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3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 46068 SDG No.: 01A

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			1.6	U	1.6	U					F
Barium			500.0	U	500.0	U	500.0	U			F
Beryllium											NR
Cadmium			0.5	U	0.5	U	0.5	U			F
Calcium											NR
Chromium			5.0	U							F
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.2	B	1.1	U	1.1	U			F
Magnesium											NR
Manganese											NR
Mercury			0.2	U							CV
Nickel											NR
Potassium											NR
Selenium			1.1	U	1.1	U					F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

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3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

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	5.0	U	5.0	U	5.0	U					F
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.1	U	1.1	U							F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	1.1	U	1.1	U							F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

01AS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

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

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	75-125	45.0402		5.3264	B	40.0	99.3		F
Barium	75-125	2808.3832		500.0000	U	2000.0	140.4	N	F
Beryllium									NR
Cadmium	75-125	24.2433	B	14.3915		5.0	197.0	N	F
Calcium									NR
Chromium	75-125	12.7996		13.1416		200.0	-0.2	N	F
Cobalt									NR
Copper									NR
Iron									NR
Lead	75-125	95.1688		47.3758		20.0	239.0	N	F
Magnesium									NR
Manganese									NR
Mercury	75-125	0.8350		0.2000	U	1.0	83.5		CV
Nickel									NR
Potassium									NR
Selenium	75-125	8.0133		3.7642	B	10.0	42.5	N	F
Silver	75-125	90.9091		20.0000	U	50.0	181.8	N	F
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

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6
DUPLICATES

EPA SAMPLE NO.

01AD

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

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								NR
Antimony								NR
Arsenic	10.0	5.3264	B	4.1984	B	23.7		F
Barium	200.0	500.0000	U	500.0000	U			F
Beryllium								NR
Cadmium	5.0	14.3915		17.3141	B	18.4		F
Calcium								NR
Chromium	10.0	13.1416		10.5947		21.5		F
Cobalt								NR
Copper								NR
Iron								NR
Lead		47.3758		40.8201		14.9		F
Magnesium								NR
Manganese								NR
Mercury	0.2	0.2000	U	0.2000	U			CV
Nickel								NR
Potassium								NR
Selenium	5.0	3.7642	B	1.3008	B	97.3		F
Silver	10.0	20.0000	U	39.1683		200.0	*	F
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

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7

LABORATORY CONTROL SAMPLE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Solid LCS Source:

Aqueous LCS Source: SKINER

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic	50.0	47.81	95.6						
Barium	1000.0	1190.00	119.0						
Beryllium									
Cadmium	5.0	5.28	105.6						
Calcium									
Chromium	50.0	47.30	94.6						
Cobalt									
Copper									
Iron									
Lead	50.0	51.12	102.2						
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium	50.0	45.32	90.6						
Silver	3000.0	3083.00	102.8						
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

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8 AA
STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Concentration Units: ug/L

EPA Sample No.	An	Dil	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
01A	AG	1	14.000	1M	1074	2M	2128	3M	3170	17.3	1.0000	
01AD	AG	1	29.000	1M	1085	2M	2122	3M	3130	39.2	0.9999	
01AS	AG	1	79.000	1M	1135	2M	2188	3M	3171	90.9	0.9999	
02A	AG	1	23.000	1M	1082	2M	2152	3M	3147	33.2	0.9999	
03A	AG	1	42.000	1M	1112	2M	2094	3M	3089	65.0	0.9998	
04A	AG	1	47.000	1M	1109	2M	2109	3M	3099	66.6	0.9999	
05A	AG	1	40.000	1M	1096	2M	2151	3M	3155	48.6	0.9999	
06A	AG	1	11.000	1M	1035	2M	2034	3M	3028	19.4	1.0000	
07A	AG	1	5.000	1M	1087	2M	2153	3M	3074	37.8	0.9993	
08A	AG	1	-3.000	1M	1072	2M	2109	3M	3105	16.0	0.9999	
09A	AG	1	27.000	1M	1111	2M	2144	3M	3150	45.9	0.9999	
EXBLK	AG	1	-3.000	1M	1084	2M	2132	3M	2926	0.5	1.0000	
EXDUP	AG	1	41.000	1M	1045	2M	2080	3M	3117	93.1	0.9980	
01A	AS	1	5.380	10	15.070	20	25.470	30	35.150	5.3	0.9999	
01AD	AS	1	4.700	10	14.790	20	25.200	30	36.450	4.2	0.9997	
01AS	AS	1	47.970	10	58.770	20	70.260	30	79.780	45.0	0.9993	
02A	AS	1	14.100	10	23.770	20	32.630	30	42.220	15.2	0.9999	
03A	AS	1	27.630	10	37.700	20	48.090	30	57.860	27.4	0.9999	
04A	AS	1	1.500	10	11.630	20	21.030	30	29.970	1.9	0.9996	
05A	AS	1	3.710	10	13.090	20	21.320	30	32.740	3.6	0.9978	
06A	AS	1	18.250	10	28.860	20	36.950	30	48.230	18.7	0.9982	
07A	AS	1	16.540	10	24.880	20	33.820	30	41.410	19.9	0.9995	
08A	AS	1	1.610	10	10.630	20	19.400	30	29.320	1.6	0.9996	
09A	AS	1	12.400	10	20.780	20	30.330	30	41.410	12.2	0.9980	

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S AB
STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Concentration Units: ug/L

EPA Sample No.	An	Dil	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
EXBLK	AS	1	-0.370	10	9.580	20	16.860	30	27.270	0.2	0.9979	
EXDUP	AS	1	12.090	10	20.390	20	28.900	30	39.110	13.0	0.9987	
01A	BA	1	-30.000	1m	1210	2m	2050	3m	3450	19.5	0.9959	
01AD	BA	1	-40.000	1m	1060	2m	2510	3m	4420	159.8	0.9926	+
01AD	BA	1	310.000	1m	990.000	2m	1650	3m	2410	425.3	0.9995	
01AS	BA	2	1160	1m	2720	2m	3530	3m	4230	2808.4	0.9802	+
01AS	BA	2	1340	1m	1460	2m	2510	3m	3340	3134.8	0.9634	+
02A	BA	1	-930	1m	2700	2m	2490	3m	2230	250.3	0.6988	+
02A	BA	1	1110	1m	1910	2m	2420	3m	3170	1717.5	0.9967	
03A	BA	2	1600	1m	2240	2m	3050	3m	3980	3836.5	0.9967	
04A	BA	1	-850	1m	300.000	2m	1330	3m	2810	752.7	0.9970	
04A	BA	1	1280	1m	2070	2m	2760	3m	3720	1568.0	0.9978	
05A	BA	1	-30.000	1m	730.000	2m	2720	3m	4020	184.6	0.9874	+
05A	BA	1	180.000	1m	610.000	2m	1340	3m	2290	65.2	0.9866	+
06A	BA	1	-110	1m	1310	2m	1890	3m	3550	64.0	0.9855	+
06A	BA	1	240.000	1m	690.000	2m	1640	3m	2310	203.9	0.9918	+
07A	BA	1	-1310	1m	670.000	2m	2100	3m	3240	720.8	0.9922	+
07A	BA	1	-50.000	1m	860.000	2m	1400	3m	2400	39.3	0.9942	+
08A	BA	1	-100	1m	1290	2m	2980	3m	3760	6.0	0.9907	+
08A	BA	1	410.000	1m	1080	2m	1800	3m	2520	560.3	0.9998	
09A	BA	1	-1980	1m	-970	2m	1480	3m	1410	1511.9	0.9386	+
09A	BA	1	-40.000	1m	770.000	2m	1480	3m	1910	70.1	0.9913	+
EXBLK	BA	1	100.000	1m	1390	2m	2670	3m	3850	98.2	0.9998	
EXDUP	BA	1	-1430	1m	-300	2m	1740	3m	3470	980.3	0.9942	+

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8 AC
STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Concentration Units: ug/L

EPA Sample No.	An	Dil	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
EXDUP	BA	1	-230	1M	100.000	2M	1200	3M	2830	551.6	0.9620	+
01A	CD	2	6.460	1	7.440	2	8.150	3	9.220	14.4	0.9973	
01A	CD	2	6.460	0	0.000	0	0.000	0	0.000	0.0	0.0000	+
01AD	CD	10	1.390	1	2.310	2	3.210	3	3.870	17.3	0.9972	
01AS	CD	10	2.290	1	3.720	2	4.230	3	5.110	27.8	0.9808	+
01AS	CD	10	2.350	1	3.580	2	4.540	3	5.400	24.2	0.9965	
02A	CD	2	1.700	1	2.100	2	3.560	3	3.900	4.0	0.9652	+
02A	CD	2	2.420	1	2.340	2	3.570	3	3.160	13.6	0.7502	+
03A	CD	2	5.390	1	6.830	2	7.050	3	8.150	13.1	0.9672	+
03A	CD	2	5.930	1	6.690	2	7.300	3	8.090	16.8	0.9989	
04A	CD	2	3.060	1	3.700	2	3.780	3	4.180	18.4	0.9579	+
04A	CD	2	3.510	1	3.610	2	3.610	3	3.550	592.0	0.3162	+
05A	CD	2	3.580	1	3.190	2	4.870	3	5.930	7.1	0.9006	+
05A	CD	2	2.760	1	4.890	2	5.130	3	5.510	7.8	0.8875	+
06A	CD	2	5.940	1	6.510	2	7.260	3	7.480	22.3	0.9812	+
06A	CD	2	4.760	1	6.500	2	5.460	3	7.700	12.7	0.7839	+
07A	CD	2	4.190	1	4.620	2	5.070	3	5.630	17.4	0.9980	
08A	CD	2	1.450	1	2.270	2	3.500	3	4.240	3.0	0.9955	
09A	CD	2	1.470	1	1.560	2	2.210	3	2.270	9.3	0.9355	+
09A	CD	2	1.050	1	1.720	2	1.670	3	1.860	10.2	0.8556	+
EXBLK	CD	2	0.530	1	1.350	2	2.370	3	3.420	1.0	0.9984	
EXDUP	CD	2	3.210	1	3.060	2	3.980	3	3.290	55.4	0.3671	+
EXDUP	CD	5	1.350	1	2.050	2	2.880	3	3.760	8.1	0.9987	
01A	CR	1	14.100	10	27.200	20	37.600	30	48.300	13.1	0.9985	

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8 AD
STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Concentration Units: ug/L

EPA Sample No.	An	Dil	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
01AD	CR	1	11.400	10	23.400	20	32.200	30	44.900	10.6	0.9978	
01AS	CR	1	13.200	10	22.600	20	34.100	30	43.300	12.8	0.9991	
02A	CR	1	4.200	10	14.200	20	23.300	30	32.800	4.6	0.9998	
03A	CR	10	11.300	10	13.500	20	25.400	30	33.900	113.8	0.9721	+
04A	CR	1	7.000	10	12.400	20	24.700	30	35.000	5.5	0.9894	+
04A	CR	1	5.800	10	16.600	20	27.600	30	39.000	5.1	0.9999	
05A	CR	1	6.400	10	20.400	20	31.000	30	45.300	5.2	0.9984	
06A	CR	1	8.300	10	18.900	20	27.300	30	45.100	6.0	0.9863	+
06A	CR	1	7.200	10	18.300	20	28.100	30	39.600	6.8	0.9996	
07A	CR	1	8.800	10	20.300	20	30.300	30	37.900	10.0	0.9960	
08A	CR	1	3.600	10	11.000	20	24.700	30	33.800	2.5	0.9939	+
08A	CR	1	2.300	10	9.100	20	19.500	30	30.500	1.2	0.9947	+
09A	CR	1	5.100	10	15.200	20	26.600	30	35.600	5.0	0.9991	
EXBLK	CR	1	4.100	10	12.100	20	20.500	30	35.300	2.6	0.9874	+
EXBLK	CR	1	3.400	10	14.300	20	23.600	30	34.500	3.5	0.9995	
EXDUP	CR	1	6.700	10	11.600	20	32.800	30	33.500	5.8	0.9367	+
EXDUP	CR	1	3.400	10	11.900	20	25.200	30	42.300	0.9	0.9892	+
01A	PB	1	61.520	10	75.500	20	87.610	20	0.000	63.9	0.2689	+
01A	PB	5	11.830	10	25.030	20	38.090	30	50.030	47.4	0.9997	
01AD	PB	5	12.080	10	25.550	20	37.220	30	54.850	40.8	0.9963	
01AS	PB	5	21.980	10	32.770	20	43.910	30	56.180	95.2	0.9996	
02A	PB	1	55.960	10	72.960	20	84.880	30	99.960	39.5	0.9979	
03A	PB	100	12.420	10	17.910	20	28.860	30	42.450	1014.8	0.9839	+
03A	PB	100	13.400	10	16.920	20	27.680	30	43.100	1031.0	0.9660	+

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3 AE
STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Concentration Units: ug/L

EPA Sample No.	An	Dil	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
04A	PB	5	40.520	10	48.340	20	61.390	30	70.630	192.1	0.9957	
05A	PB	5	40.710	10	51.590	20	63.410	30	78.130	160.6	0.9975	
06A	PB	50	23.420	10	36.540	20	48.450	30	65.310	828.4	0.9972	
07A	PB	5	25.280	10	37.530	20	49.910	30	64.820	94.4	0.9988	
08A	PB	1	15.890	10	27.980	20	42.020	30	54.420	12.1	0.9996	
09A	PB	5	17.910	10	36.000	20	43.490	30	55.110	85.1	0.9853	+
09A	PB	5	16.800	10	35.630	20	42.050	30	53.920	82.5	0.9804	+
EXBLK	PB	1	9.840	10	22.340	20	34.470	30	44.610	8.9	0.9989	
EXDUP	PB	1	51.620	10	65.660	20	76.220	30	94.110	37.1	0.9950	
01A	SE	1	2.290	5	5.240	10	8.150	15	11.300	3.8	0.9998	
01AD	SE	1	-0.100	5	4.730	10	8.460	15	11.060	0.6	0.9911	+
01AD	SE	1	0.820	5	4.320	10	7.390	15	10.880	1.3	0.9997	
01AS	SE	1	7.590	5	12.030	10	17.560	15	21.510	8.0	0.9981	
02A	SE	1	-0.840	5	3.300	10	4.960	15	8.680	0.8	0.9884	+
02A	SE	1	0.700	5	2.620	10	4.770	15	7.370	1.2	0.9976	
03A	SE	1	0.990	5	2.840	10	6.340	15	10.400	0.6	0.9875	+
03A	SE	1	0.040	5	3.520	10	5.320	15	10.330	0.2	0.9837	+
04A	SE	1	-0.610	5	1.370	10	5.290	15	7.160	1.4	0.9894	+
04A	SE	1	0.050	5	1.650	10	5.670	15	7.130	0.3	0.9810	+
05A	SE	1	-0.330	5	2.610	10	5.720	15	8.060	0.4	0.9983	
06A	SE	1	-0.070	5	3.600	10	7.100	15	10.560	0.0	0.9999	
07A	SE	1	-0.890	5	2.980	10	7.560	15	8.970	0.7	0.9811	+
07A	SE	1	0.150	5	3.270	10	6.120	15	10.230	0.0	0.9967	
08A	SE	1	0.150	5	3.700	10	6.800	15	11.990	0.2	0.9934	+

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8 AF
STANDARD ADDITION RESULTS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

Concentration Units: ug/L

EPA Sample No.	An	Dil	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
08A	SE	1	0.930	5	3.610	10	8.430	15	11.880	0.8	0.9947	+
09A	SE	1	-1.590	5	-0.290	10	3.200	15	5.830	4.0	0.9866	+
09A	SE	1	2.300	5	2.630	10	6.240	15	9.330	2.9	0.9595	+
EXBLK	SE	1	-0.560	5	4.200	10	8.250	15	13.080	0.6	0.9994	
EXDUP	SE	1	-0.520	5	2.610	10	5.710	15	9.570	1.0	0.9985	

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10
HOLDING TIMES

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

EPA Sample No.	Matrix	Date Received	Mercury Prep Date	Mercury Holding Time	Cyanide Prep Date	Cyanide Holding Time
01A	WATER	05/03/89	05/15/89	12		
01AD	WATER	05/03/89	05/15/89	12		
01AS	WATER	05/03/89	05/15/89	12		
02A	WATER	05/03/89	05/15/89	12		
03A	WATER	05/03/89	05/15/89	12		
04A	WATER	05/03/89	05/15/89	12		
05A	WATER	05/03/89	05/15/89	12		
06A	WATER	05/03/89	05/15/89	12		
07A	WATER	05/03/89	05/15/89	12		
08A	WATER	05/03/89	05/15/89	12		
09A	WATER	05/03/89	05/15/89	12		
09AD	WATER	05/03/89	05/15/89	12		
09AS	WATER	05/03/89	05/15/89	12		
EXBLK	WATER	05/03/89	05/15/89	12		
EXDUP	WATER	05/03/89	05/15/89	12		

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

ICP ID Number: Date: 04/15/89

Flame AA ID Number:

Furnace AA ID Number: F2

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	5	1.1	F
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments:

F2: THERMO JARRELL-ASH VIDEO 22E (#2)

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

ICP ID Number: Date: 04/15/89

Flame AA ID Number:

Furnace AA ID Number: F5

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium	553.60	BD	200	500.0	F
Beryllium			5		
Cadmium	228.80	BD	5	0.5	F
Calcium			5000		
Chromium	357.90	BD	10	5.0	F
Cobalt			50		
Copper			25		
Iron			100		
Lead			5		
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver	328.10	BD	10	20.0	F
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments:
F5: PERKIN-ELMER 3030B

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

ICP ID Number: Date: 04/15/89

Flame AA ID Number: M2

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			5		
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:

M2: SPECTRO PRODUCTS HG-4 (#4707)

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INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-W8-0006

Lab Code: SKINER Case No.: SAS No.: 4606B SDG No.: 01A

ICP ID Number: Date: 04/15/89

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	1.6	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			5		
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.00	BS	5	1.1	F
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments:
F4: THERMO JARRELL-ASH VIDEO 22E (#4)

TEST \ SAMPLE #	1	2	3	4	5	6	7	8	9
As	5.3	15.2	27.4	1.9	3.6	18.7	19.9	<1.6	12.2
Ba	<500	1720	3840	1570	<500	<500	<500	560	<500
Cd	14.4	4.0	16.8	18.4	7.1	22.3	17.5	3.0	9.3
Cr	13.1	<5.0	16.8	5.1	5.2	6.8	10.0	<5.0	5.0
Pb	47.4	39.5	1010	192	161	828	94.4	12.1	85.1
Hg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Se	3.8	1.2	<1.1	1.4	<1.1	<1.1	<1.1	<1.1	4.0
Ag	< 20	33.2	65.0	66.6	48.6	< 20	37.8	<20	45.9
pH	6.9	7.2	7.6	7.2	7.8	8.1	7.8	5.8	7.2
IGNIT	>200	>200	>200	>200	>200	>200	>200	>200	>200
H_2S	<25	<25	<25	<25	<25	<25	<25	<25	<25
CN	<1	<1	<1	<1	<1	<1	<1	<1	<1

METALS IN UG/L
pH IN UNITS
IGNITABILITY IN °F
REACTIVITY IN mg/kg

SKIDMORE & SHERMAN
SAS 4606-B

C L P M E T A L S 2.02

Run Id: FA 8913702
THERMO TARRELL-ASH VIDEO 22E (#4)

Element:

Acquired: 05/17/89 by ###
Crunched: 05/19/89 by ###
Time: 1322
Processing method: 7/7

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-2	ICV		ICV	05/17/89	14:57
2	CAL BLK	ICB		ICB	05/17/89	15:01
3	CRA	CRAO		CRAO	05/17/89	15:05
4	PB	OBW		OBW	05/17/89	15:08
5	PB	ASOBW		ASOBW	05/17/89	15:12
6	LCSFW	LCSW		LCSW	05/17/89	15:16
7	LCSFW	ASLCSW		ASLCSW	05/17/89	15:20
8	50 PPB	CCV		CCV	05/17/89	15:23
9	CAL BLK	CCB		CCB	05/17/89	15:27
10	8905056-01	M0S	Furnace	4606B-1AO	05/17/89	15:34
11	8905056-01	M1S	Furnace	4606B-1A	05/17/89	15:36
12	8905056-01	M2S	Furnace	4606B-1A	05/17/89	15:38
13	8905056-01	M3S	Furnace	4606B-1A	05/17/89	15:40
14	8905056-01	M0S2	Furnace	4606B-1AOO	05/17/89	15:43
15	8905056-01	M1S2	Furnace	4606B-1AO	05/17/89	15:45
16	8905056-01	M2S2	Furnace	4606B-1AO	05/17/89	15:47
17	8905056-01	M3S2	Furnace	4606B-1AO	05/17/89	15:49
18	8905056-01	M0DS	Furnace	4606B-1ASO	05/17/89	15:51
19	8905056-01	M1DS	Furnace	4606B-1AS	05/17/89	15:53
20	8905056-01	M2DS	Furnace	4606B-1AS	05/17/89	15:56
21	8905056-01	M3DS	Furnace	4606B-1AS	05/17/89	15:58
22	8905056-02	M0S	Furnace	4606B-2AO	05/17/89	16:00
23	8905056-02	M1S	Furnace	4606B-2A	05/17/89	16:02
24	8905056-02	M2S	Furnace	4606B-2A	05/17/89	16:04
25	8905056-02	M3S	Furnace	4606B-2A	05/17/89	16:07
26	8905056-03	M0S	Furnace	4606B-3AO	05/17/89	16:09
27	8905056-03	M1S	Furnace	4606B-3A	05/17/89	16:11
28	8905056-03	M2S	Furnace	4606B-3A	05/17/89	16:13
29	8905056-03	M3S	Furnace	4606B-3A	05/17/89	16:15
30	50 PPB	CCV		CCV	05/17/89	16:17
31	CAL BLK	CCB		CCB	05/17/89	16:19
44	8905056-04	M0S	Furnace	4606B-4AO	05/17/89	16:49
45	8905056-04	M1S	Furnace	4606B-4A	05/17/89	16:51
46	8905056-04	M2S	Furnace	4606B-4A	05/17/89	16:53
47	8905056-04	M3S	Furnace	4606B-4A	05/17/89	16:55
48	8905056-05	M0S	Furnace	4606B-5AO	05/17/89	16:57
49	8905056-05	M1S	Furnace	4606B-5A	05/17/89	17:00
50	8905056-05	M2S	Furnace	4606B-5A	05/17/89	17:02
51	8905056-05	M3S	Furnace	4606B-5A	05/17/89	17:04
52	50 PPB	CCV		CCV	05/17/89	17:06
53	CAL BLK	CCB		CCB	05/17/89	17:08
58	8905056-06	M0S	Furnace	4606B-6AO	05/17/89	17:19
59	8905056-06	M1S	Furnace	4606B-6A	05/17/89	17:21

Pos	Sample	Code	Preparation Method	Client ID		
60	3905056-06	M2S	Furnace	46068-6A	05/17/89	17:24
61	3905056-06	M3S	Furnace	46068-6A	05/17/89	17:26
62	3905056-07	M0S	Furnace	46068-7A0	05/17/89	17:27
63	3905056-07	M1S	Furnace	46068-7A	05/17/89	17:30
64	3905056-07	M2S	Furnace	46068-7A	05/17/89	17:32
65	3905056-07	M3S	Furnace	46068-7A	05/17/89	17:34
66	3905056-08	M0S	Furnace	46068-8A0	05/17/89	17:37
67	3905056-08	M1S	Furnace	46068-8A	05/17/89	17:41
68	3905056-08	M2S	Furnace	46068-8A	05/17/89	17:43
69	3905056-08	M3S	Furnace	46068-8A	05/17/89	17:46
70	3905056-09	M0S	Furnace	46068-9A0	05/17/89	17:48
71	3905056-09	M1S	Furnace	46068-9A	05/17/89	17:50
72	3905056-09	M2S	Furnace	46068-9A	05/17/89	17:52
73	3905056-09	M3S	Furnace	46068-9A	05/17/89	17:54
74	50 PPB	CCV		CCV	05/17/89	17:56
75	CAL BLK	CCB		CCB	05/17/89	17:59
76	3905056-11	M0S	Furnace	EXTRACTION BLK	05/17/89	18:09
77	3905056-11	M1S	Furnace	EXTRACTION BLB	05/17/89	18:12
78	3905056-11	M2S	Furnace	EXTRACTION BLB	05/17/89	18:14
79	3905056-11	M3S	Furnace	EXTRACTION BLB	05/17/89	18:16
80	3905056-10	M0S	Furnace	EXTRACTION DUB	05/17/89	18:18
81	3905056-10	M1S	Furnace	EXTRACTION DUB	05/17/89	18:20
82	3905056-10	M2S	Furnace	EXTRACTION DUB	05/17/89	18:22
83	3905056-10	M3S	Furnace	EXTRACTION DUB	05/17/89	18:25
84	50 PPB	CCV		CCV	05/17/89	18:29
85	CAL BLK	CCB		CCB	05/17/89	18:31
90	0 PPB	WS0		S0	05/17/89	
91	10 PPB	WS1		S10	05/17/89	
92	50 PPB	WS2		S50	05/17/89	
93	100 PPB	WS3		S100	05/17/89	

C L P M E T A L S 2.00

Run [illegible] 8913750
Inst: [illegible] TARRELL-ASH VIDEO JCP (#4)
[illegible]

Acquired: 05/17/89 by RPP
Crunched: 05/19/89 by RPP
Time: 1339
Processing conditions: 7/67

Ana	Sample	Code	Preparation Method	Client ID	Date	Time
1	CCV-2	CCV		CCV	05/17/89	14:57
2	CAL BLK	CCB		CCB	05/17/89	15:01
3	CRA	CRAD		CRAD	05/17/89	15:05
4	PB	DBW		DBW	05/17/89	15:08
5	PB	ASDBW		ASDBW	05/17/89	15:12
6	LCSFW	LCSW		LCSW	05/17/89	15:16
7	LCSFW	ASLCSW		ASLCSW	05/17/89	15:20
8	50 PPB	CCV		CCV	05/17/89	15:23
9	CAL BLK	CCB		CCB	05/17/89	15:27
10	8905056-01	M0S	Furnace	46068-1AD	05/17/89	15:34
11	8905056-01	M1S	Furnace	46068-1A	05/17/89	15:36
12	8905056-01	M2S	Furnace	46068-1A	05/17/89	15:38
13	8905056-01	M3S	Furnace	46068-1A	05/17/89	15:40
14	8905056-01	M0S2	Furnace	46068-1ADD	05/17/89	15:43
15	8905056-01	M1S2	Furnace	46068-1AD	05/17/89	15:45
16	8905056-01	M2S2	Furnace	46068-1AD	05/17/89	15:47
17	8905056-01	M3S2	Furnace	46068-1AD	05/17/89	15:49
18	8905056-01	M0DS	Furnace	46068-1ASD	05/17/89	15:51
19	8905056-01	M1DS	Furnace	46068-1AS	05/17/89	15:53
20	8905056-01	M2DS	Furnace	46068-1AS	05/17/89	15:56
21	8905056-01	M3DS	Furnace	46068-1AS	05/17/89	15:58
22	8905056-02	M0S	Furnace	46068-2AD	05/17/89	16:00
23	8905056-02	M1S	Furnace	46068-2A	05/17/89	16:02
24	8905056-02	M2S	Furnace	46068-2A	05/17/89	16:04
25	8905056-02	M3S	Furnace	46068-2A	05/17/89	16:07
26	8905056-03	M0S	Furnace	46068-3AD	05/17/89	16:09
27	8905056-03	M1S	Furnace	46068-3A	05/17/89	16:11
28	8905056-03	M2S	Furnace	46068-3A	05/17/89	16:13
29	8905056-03	M3S	Furnace	46068-3A	05/17/89	16:15
30	50 PPB	CCV		CCV	05/17/89	16:17
31	CAL BLK	CCB		CCB	05/17/89	16:19
32	8905056-01	M0S2	Furnace	46068-1ADD	05/17/89	16:23
33	8905056-01	M1S2	Furnace	46068-1AD	05/17/89	16:25
34	8905056-01	M2S2	Furnace	46068-1AD	05/17/89	16:27
35	8905056-01	M3S2	Furnace	46068-1AD	05/17/89	16:29
36	8905056-02	M0S	Furnace	46068-2AD	05/17/89	16:31
37	8905056-02	M1S	Furnace	46068-2A	05/17/89	16:34
38	8905056-02	M2S	Furnace	46068-2A	05/17/89	16:36
39	8905056-02	M3S	Furnace	46068-2A	05/17/89	16:38
40	8905056-03	M0S	Furnace	46068-3AD	05/17/89	16:40
41	8905056-03	M1S	Furnace	46068-3A	05/17/89	16:42
42	8905056-03	M2S	Furnace	46068-3A	05/17/89	16:44
43	8905056-03	M3S	Furnace	46068-3A	05/17/89	16:47

Pos	Sample	Code	Preparation Method	Client ID		
44	8905056-04	M05	Furnace	46068-4A0	05/17/89	16:46
45	8905056-04	M15	Furnace	46068-4A	05/17/89	16:51
46	8905056-04	M25	Furnace	46068-4A	05/17/89	16:53
47	8905056-04	M35	Furnace	46068-4A	05/17/89	16:55
48	8905056-05	M05	Furnace	46068-5A0	05/17/89	16:57
49	8905056-05	M15	Furnace	46068-5A	05/17/89	17:00
50	8905056-05	M25	Furnace	46068-5A	05/17/89	17:02
51	8905056-05	M35	Furnace	46068-5A	05/17/89	17:04
52	50 PPB	CCV		CCV	05/17/89	17:06
53	CAL BLK	CCB		CCB	05/17/89	17:08
54	8905056-06	M0	Furnace	46068-6A0	05/17/89	17:11
55	8905056-06	M15	Furnace	46068-6A	05/17/89	17:13
56	8905056-06	M25	Furnace	46068-6A	05/17/89	17:15
57	8905056-06	M35	Furnace	46068-6A	05/17/89	17:17
58	8905056-06	M05	Furnace	46068-6A0	05/17/89	17:19
59	8905056-06	M15	Furnace	46068-6A	05/17/89	17:21
60	8905056-06	M25	Furnace	46068-6A	05/17/89	17:24
61	8905056-06	M35	Furnace	46068-6A	05/17/89	17:26
62	8905056-07	M05	Furnace	46068-7A0	05/17/89	17:28
63	8905056-07	M15	Furnace	46068-7A	05/17/89	17:30
64	8905056-07	M05	Furnace	46068-7A	05/17/89	17:32
65	8905056-07	M35	Furnace	46068-7A	05/17/89	17:34
66	8905056-08	M05	Furnace	46068-8A0	05/17/89	17:37
67	8905056-08	M15	Furnace	46068-8A	05/17/89	17:41
68	8905056-08	M25	Furnace	46068-8A	05/17/89	17:43
69	8905056-08	M35	Furnace	46068-8A	05/17/89	17:46
70	8905056-09	M05	Furnace	46068-9A0	05/17/89	17:48
71	8905056-09	M15	Furnace	46068-9A	05/17/89	17:50
72	8905056-09	M25	Furnace	46068-9A	05/17/89	17:52
73	8905056-09	M35	Furnace	46068-9A	05/17/89	17:54
74	50 PPB	CCV		CCV	05/17/89	17:56
75	CAL BLK	CCB		CCB	05/17/89	17:59
76	8905056-07	M05	Furnace	46068-7A0	05/17/89	18:01
77	8905056-07	M15	Furnace	46068-7A	05/17/89	18:03
78	8905056-07	M25	Furnace	46068-7A	05/17/89	18:05
79	8905056-07	M35	Furnace	46068-7A	05/17/89	18:07
80	8905056-11	M05	Furnace	EXTRACTION	8L05/17/89	18:09
81	8905056-11	M15	Furnace	EXTRACTION	8L05/17/89	18:12
82	8905056-11	M25	Furnace	EXTRACTION	8L05/17/89	18:14
83	8905056-11	M35	Furnace	EXTRACTION	8L05/17/89	18:16
84	8905056-10	M05	Furnace	EXTRACTION	DU05/17/89	18:18
85	8905056-10	M15	Furnace	EXTRACTION	DU05/17/89	18:20
86	8905056-10	M25	Furnace	EXTRACTION	DU05/17/89	18:23
87	8905056-10	M35	Furnace	EXTRACTION	DU05/17/89	18:25
88	50 PPB	CCV		CCV	05/17/89	18:29
89	CAL BLK	CCB		CCB	05/17/89	18:31
90	0 PPB	WS0		90	05/17/89	
91	5 PPB	WS1		95	05/17/89	
92	50 PPB	WS2		850	05/17/89	
93	100 PPB	WS3		8100	05/17/89	

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 552 Instrument ID: F_1, F_2, F_3, (F4) Page 1 of 3

Date: 5-17-89 Reviewed by: _____ Instruments Method #: 150

Operator: SN Standards Prepared: 5-17-89 800

Background: (BS) BD Standards Source:

Time Calibrated: 14:41

1. Calibration: 10 PPM
2. ICV: ICV-2 (4:100)
3. CCV: 50 PPB

disc # 44

acq _____

SKINNER AND SHERMAN

8 9D5056

A	B
Run ID: 8913702	Run ID: 8913752
Element: (As) Pb	Element: (Se) Tl
Wavelength (nm): 197.2	Wavelength (nm): 196.0
Slitwidth (nm): 2.0	Slitwidth (nm): 2.0
Integration Time (sec): 3.0	Integration Time (sec): 3.0
STD1: 0 STD2: 10	STD1: 0 STD2: 5
STD3: 50 STD4: 100	STD3: 50 STD4: 100

		SAMPLE ID		DILUTION	COMMENTS
COMMENTS	1	ICV			
	2	ICB			
	3	CRA			
	4	PB			
	5	PBA			
	6	LCSW			
	7	LCSWA			
	8	CCV			
	9	CCB			
	10	O1			
r = .9999	11	+10	+5		
	12	+20	+10		r = .9998
	13	+30	+15		
	14	O1D			
	15	+10	+5		mf 5/17/89
r = .9997	16	+20	+10		r = ~~.9998~~ .9911
	17	+30	+15		rerun
	18	O1S			
	19	+10	+5		
r = .9993	20	+20	+10		r = .9981
	21	+30	+15		
	22	O2			
	23	+10	+5		mf 5/17/89
r = .9999	24	+20	+10		r = ~~.9996~~ .9884
	25	+30	+15		rerun
	26	O3			
r = .9999	27	+10	+5		SN 5/17/89
	28	+20	+10		r = .9875
	29	+30	+15		rerun
	30	CCV			
	31	CCB			
	32	O1D			
Se	33	+5			
only	34	+10			
	35	+15			
	36	O2			
	37	+5			
	38	+10			
	39	+15			

GFAA RUN BENCH SHEET

AA SEQUENCE #: 552

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	03		
Se	41	+5		
only	42	+10		
	43	+15		
	44	04		
	45	+10/+5		
r=.9960	46	+20/+10		r=.9894
	47	+30/+15		rerun
	48	05		
	49	+10/+5		
r=.9978	50	+20/+10		r=.9983
	51	+30/+15		
	52	CCV		
	53	CCB		
Se	54	04		
only	55	+5		
	56	+10		
	57	+15		
	58	06		
	59	+10/+5		r=.9999
r=.9982	60	+20/+10		
	61	+30/+15		
	62	07		
	63	+10/+5		
r=.9995	64	+20/+10		r=.9911 rerun
	65	+30/+15		
	66	08		
	67	+10/+5		
r=.9996	68	+20/+10		r=.9934
	69	+30/+15		rerun
	70	09		
r=.9980	71	+10/+5		
	72	+20/+10		r=.9966 rerun
	73	~~+30/+15~~		
	74	CCV		
	75	CCB		
Se	76	07		
only	77	+5		
	78	+10		
	79	+15		
	80	11		
	81	+10/+5		
r=.9979	82	+20/+10		r=.9995
	83	+30/+15		
	84	10		
r=.9987	85	+10/+5		r=.9995

GFAA RUN BENCH SHEET

AA SEQUENCE #: 552

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	86	+20 / +10		
	87	+30 / M5		
	88	✓ CCU ✓		
	89	CCB		
	90			
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Normal Calibration

RINSE

		As-S	Se-S
Standard	Z STD 1 0/0		
Abs	1	0.004	0.001
Mean		0.004	0.001
P/H		0.002	-0.010
Abs	2	-0.003	0.000
Mean		0.000	0.000
P/H		-0.002	-0.015

AUTO ZERO
14:41:00
Wed 17 MAY 1989

		As-S	Se-S
Standard	C STD 2 10/5		
Abs	1	0.058	0.021
Mean		0.058	0.021
P/H		0.085	0.041
Abs	2	0.060	0.027
Mean		0.059	0.024
P/H		0.075	0.038
		As-S	Se-S
Mean		0.059	0.024
SD		0.001	0.004
RSD		02.37	17.50
		As-S	Se-S
Standard	1 STD 3 50/50		
Abs	1	0.278	0.223
Mean		0.278	0.223
P/H		0.436	0.363
Abs	2	0.276	0.224
Mean		0.277	0.223
P/H		0.416	0.351
		As-S	Se-S
Mean		0.277	0.223
SD		0.001	0.001
RSD		00.50	00.44
		As-S	Se-S
Standard	2 STD 4 100/100		
Abs	1	0.482	0.342
Mean		0.482	0.342
P/H		0.646	0.420
Abs	2	0.484	0.354
Mean		0.483	0.348
P/H		0.619	0.448
		As-S	Se-S
Mean		0.483	0.348
SD		0.001	0.008
RSD		00.28	02.41

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	10.00	0.059
1	50.00	0.277
2	99.99	0.483

APP CONC

STD Z	00.00
STD C	09.69
STD 1	50.14
STD 2	99.97

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-2	ICV		1.25x	17 MAY 89	14:57

	As-S	Se-S
Burn 1	37.68	81.06
Burn 2	36.49	76.44
Mean	37.08 =	78.75 =
RSD	02.26	04.14

002	CAL BLK	ICB	1.00x	17 MAY 89	15:01

	As-S	Se-S
Burn 1	00.54	00.14
Burn 2	-00.20	-00.26
Mean	00.17 =	-00.06 =
RSD	DIG HI	DIG HI
Check	OK	OK

003	CRA	CRAO	1.00x	17 MAY 89	15:05

	As-S	Se-S
Burn 1	09.66	05.48
Burn 2	09.79	04.07
Mean	09.72 =	04.77 =
RSD	00.94	20.90 ***

004	PB	DBW	1.00x	17 MAY 89	15:08

	As-S	Se-S
Burn 1	00.26	-00.51
Burn 2	00.48	00.00
Mean	00.37 =	-00.26 =
RSD	41.89	DIG HI

005	PB	ASDBW	1.00x	17 MAY 89	15:12

	As-S	Se-S
Burn 1	18.67	09.51
Burn 2	19.14	08.95
Mean	18.90 =	09.23 =
RSD	01.75	04.27
Sample value	1.60U	1.10U
Spike added	20.00	10.00
Spike recovery, %	94.5	92.3

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	LCSFW	LCSW		1.00x	17 MAY 89	15:16

	As-S	Se-S
Burn 1	48.11	45.81
Burn 2	47.51	44.83
Mean	47.81 =	45.32 =
RSD	00.88	01.52

007	LCSFW	ASLCSW		1.00x	17 MAY 89 15:20

	As-S	Se-S
Burn 1	65.94	56.64
Burn 2	64.98	53.31
Mean	65.46 =	54.97 =
RSD	01.03	04.28
Sample value	47.81	45.32
Spike added	20.00	10.00
Spike recovery, %	88.2	96.5

008	50 PPB	CCV1		1.00x	17 MAY 89 15:23

	As-S	Se-S
Burn 1	51.00	50.03
Burn 2	50.49	49.77
Mean	50.74 =	49.90 =
RSD	00.70	00.36
Check	OK	OK

009	CAL BLK	CCB1		1.00x	17 MAY 89 15:27

	As-S	Se-S
Burn 1	00.96	-00.73
Burn 2	-00.07	-00.22
Mean	00.44 =	-00.48 =
RSD	DIG HI	-75.00
Check	OK	OK

010	-01	MOS		1.00x	17 MAY 89 15:34

	As-S	Se-S
Value	05.38	02.29
Spike added	0.00	0.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011	-01	M1S		1.00x	17 MAY 89	15:36

	As-S	Se-S
Value	15.07	05.24
Spike added	10.00	5.00

012	-01	M2S	1.00x	17 MAY 89 15:38

	As-S	Se-S
Value	25.47	08.15
Spike added	20.00	10.00

013	-01	M3S	1.00x	17 MAY 89 15:40

	As-S	Se-S
Value	35.15	11.30
Spike added	30.00	15.00
Intercept	5.311	2.254
Slope	0.997	0.599
Coefficient	0.9999	0.9998
Calc. conc.	5.3 S	3.8 S

014	-01	M0S2	1.00x	17 MAY 89 15:43

	As-S	Se-S
Value	04.70	-00.10
Spike added	0.00	0.00

015	-01	M1S2	1.00x	17 MAY 89 15:45

	As-S	Se-S
Value	14.79	04.73
Spike added	10.00	5.00

016	-01	M2S2	1.00x	17 MAY 89 15:47

	As-S	Se-S
Value	25.20	08.46
Spike added	20.00	10.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
017	-01	M3S2		1.00x	17 MAY 89	15:49

	As-S	Se-S
Value	36.45	11.06
Spike added	30.00	15.00
Intercept	4.436	0.456
Slope	1.057	0.744
Coefficient	0.9997	0.9911
Calc. conc.	4.2 S	0.6 +

018	-01	MODS		1.00x	17 MAY 89	15:51

	As-S	Se-S
Value	47.97	07.59
Spike added	0.00	0.00

019	-01	M1DS		1.00x	17 MAY 89	15:53

	As-S	Se-S
Value	38.77	12.03
Spike added	10.00	5.00

020	-01	M2DS		1.00x	17 MAY 89	15:56

	As-S	Se-S
Value	70.26	17.56
Spike added	20.00	10.00

021	-01	M3DS		1.00x	17 MAY 89	15:58

	As-S	Se-S
Value	79.78	21.51
Spike added	30.00	15.00
Intercept	48.157	7.579
Slope	1.069	0.946
Coefficient	0.9993	0.9981
Calc. conc.	45.0 S	8.0 S

022	-02	MOS		1.00x	17 MAY 89	16:00

	As-S	Se-S
Value	14.10	-00.84
Spike added	0.00	0.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
023	-02	M1S		1.00x	17 MAY 89	16:02

	As-S	Se-S
Value	23.77	03.30
Spike added	10.00	5.00

024	-02	M2S		1.00x	17 MAY 89	16:04

	As-S	Se-S
Value	32.63	04.96
Spike added	20.00	10.00

025	-02	M3S		1.00x	17 MAY 89	16:07

	As-S	Se-S
Value	42.22	08.68
Spike added	30.00	15.00
Intercept	14.197	-0.508
Slope	0.932	0.604
Coefficient	0.9999	0.9884
Calc. conc.	15.2 S	-0.7 +

026	-03	MOS		1.00x	17 MAY 89	16:09

	As-S	Se-S
Value	27.63	00.99
Spike added	0.00	0.00

027	-03	M1S		1.00x	17 MAY 89	16:11

	As-S	Se-S
Value	37.70	02.84
Spike added	10.00	5.00

028	-03	M2S		1.00x	17 MAY 89	16:13

	As-S	Se-S
Value	48.09	06.34
Spike added	20.00	10.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
029	-03	M3S		1.00x	17 MAY 89	16:15

	As-S	Se-S
Value	57.86	10.40
Spike added	30.00	15.00
Intercept	27.658	0.383
Slope	1.011	0.635
Coefficient	0.9999	0.9875
Calc. conc.	27.4 S	0.6 +

030	50 PPB	CCV 2		1.00x	17 MAY 89	16:17

	As-S	Se-S
Value	48.28	50.83
Check	***	***

031	CAL BLK	CCB 2		1.00x	17 MAY 89	16:19

	As-S	Se-S
Value	-00.06	00.26
Check	OK	OK

032	-01	M0S2		1.00x	17 MAY 89	16:23

	As-S	Se-S
Value	04.08	00.82
Spike added	0.00	0.00

SP 5-18-89

033	-01	M1S2		1.00x	17 MAY 89	16:25

	As-S	Se-S
Value	14.20	04.32
Spike added	10.00	5.00

034	-01	M2S2		1.00x	17 MAY 89	16:27

	As-S	Se-S
Value	23.89	07.39
Spike added	20.00	10.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
035	-01	M3S2		1.00x	17 MAY 89	16:29

	As-S	Se-S
Value	32.52	10.88
Spike added	30.00	15.00
Intercept	4.371	0.865
Slope	0.945	0.665
Coefficient	0.9997	0.9997
Calc. conc.	4.6 S	1.3 S

SP 5-18-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
036	-02	MOS		1.00x	17 MAY 89	16:31

	As-S	Se-S
Value	13.81	00.70
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
037	-02	M1S		1.00x	17 MAY 89	16:34

	As-S	Se-S
Value	22.08	02.62
Spike added	10.00	5.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
038	-02	M2S		1.00x	17 MAY 89	16:36

	As-S	Se-S
Value	31.41	04.77
Spike added	20.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
039	-02	M3S		1.00x	17 MAY 89	16:38

	As-S	Se-S
Value	41.27	07.37
Spike added	30.00	15.00
Intercept	13.886	0.541
Slope	0.917	0.443
Coefficient	0.9992	0.9976
Calc. conc.	14.6 S	1.2 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
040	-03	MOS		1.00x	17 MAY 89	16:40

	As-S	Se-S
Value	26.57	00.04
Spike added	0.00	0.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
041	-03	M1S		1.00x	17 MAY 89	16:42

S 5/18/89

	As-S	Se-S
Value	36.32	03.52
Spike added	10.00	5.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
042	-03	M2S		1.00x	17 MAY 89	16:44

	As-S	Se-S
Value	46.18	05.32
Spike added	20.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
043	-03	M3S		1.00x	17 MAY 89	16:47

	As-S	Se-S
Value	56.80	10.33
Spike added	30.00	15.00
Intercept	26.385	-0.098
Slope	1.005	0.653
Coefficient	0.9998	0.9837
Calc. conc.	26.2 S	0.0 +

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
044	-04	M0S		1.00x	17 MAY 89	16:49

	As-S	Se-S
Value	01.50	-00.61
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
045	-04	M1S		1.00x	17 MAY 89	16:51

	As-S	Se-S
Value	11.63	01.37
Spike added	10.00	5.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
046	-04	M2S		1.00x	17 MAY 89	16:53

	As-S	Se-S
Value	21.03	05.29
Spike added	20.00	10.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
047	-04	M3S		1.00x	17 MAY 89	16:55

	As-S	Se-S
Value	29.97	07.16
Spike added	30.00	15.00
Intercept	1.811	-0.782
Slope	0.948	0.545
Coefficient	0.9996	0.9894
Calc. conc.	1.9 S	-1.3 +

048	-05	M0S		1.00x	17 MAY 89	16:57

	As-S	Se-S
Value	03.71	-00.33
Spike added	0.00	0.00

049	-05	M1S		1.00x	17 MAY 89	17:00

	As-S	Se-S
Value	13.09	02.61
Spike added	10.00	5.00

050	-05	M2S		1.00x	17 MAY 89	17:02

	As-S	Se-S
Value	21.32	05.72
Spike added	20.00	10.00

051	-05	M3S		1.00x	17 MAY 89	17:04

	As-S	Se-S
Value	32.74	08.06
Spike added	30.00	15.00
Intercept	3.417	-0.227
Slope	0.953	0.566
Coefficient	0.9978	0.9983
Calc. conc.	3.6 S	-0.3 S

052	50 PPB	CCV 3		1.00x	17 MAY 89	17:06

	As-S	Se-S
Value	48.18	47.93
Check	***	***

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
053	CAL BLK	CCB 3		1.00x	17 MAY 89	17:08

	As-S	Se-S
Value	-00.06	00.23
Check	OK	OK

054	-04	MOS		1.00x	17 MAY 89	17:11

	As-S	Se-S
Value	01.67	00.05
Spike added	0.00	0.00

SP 5-18-89

055	-04	M1S		1.00x	17 MAY 89	17:13

	As-S	Se-S
Value	11.10	01.65
Spike added	10.00	5.00

056	-04	M2S		1.00x	17 MAY 89	17:15

	As-S	Se-S
Value	20.16	05.67
Spike added	20.00	10.00

057	-04	M3S		1.00x	17 MAY 89	17:17

	As-S	Se-S
Value	30.81	07.13
Spike added	30.00	15.00
Intercept	1.463	-0.164
Slope	0.965	0.505
Coefficient	0.9994	0.9810
Calc. conc.	1.5 S	-0.2 +

058	-06	MOS		1.00x	17 MAY 89	17:19

	As-S	Se-S
Value	18.25	-00.07
Spike added	0.00	0.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
059	-06	M1S		1.00x	17 MAY 89	17:21

	As-S	Se-S
Value	28.86	03.60
Spike added	10.00	5.00

060	-06	M2S		1.00x	17 MAY 89	17:24

	As-S	Se-S
Value	36.95	07.10
Spike added	20.00	10.00

061	-06	M3S		1.00x	17 MAY 89	17:26

	As-S	Se-S
Value	48.23	10.56
Spike added	30.00	15.00
Intercept	18.368	-0.011
Slope	0.980	0.708
Coefficient	0.9982	0.9999
Calc. conc.	18.7 S	0.0 S

062	-07	M0S		1.00x	17 MAY 89	17:28

	As-S	Se-S
Value	16.54	-00.89
Spike added	0.00	0.00

063	-07	M1S		1.00x	17 MAY 89	17:30

	As-S	Se-S
Value	24.88	02.98
Spike added	10.00	5.00

064	-07	M2S		1.00x	17 MAY 89	17:32

	As-S	Se-S
Value	33.82	07.56
Spike added	20.00	10.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
065	-07	M3S		1.00x	17 MAY 89	17:34

	As-S	Se-S
Value	41.41	08.97
Spike added	30.00	15.00
Intercept	16.630	-0.469
Slope	0.835	0.683
Coefficient	0.9995	0.9811
Calc. conc.	19.9 S	-0.6 +

066	-08	M0S		1.00x	17 MAY 89	17:37

	As-S	Se-S
Value	01.61	00.15
Spike added	0.00	0.00

067	-08	M1S		1.00x	17 MAY 89	17:41

	As-S	Se-S
Value	10.63	03.70
Spike added	10.00	5.00

068	-08	M2S		1.00x	17 MAY 89	17:43

	As-S	Se-S
Value	19.40	06.80
Spike added	20.00	10.00

069	-08	M3S		1.00x	17 MAY 89	17:46

	As-S	Se-S
Value	29.32	11.99
Spike added	30.00	15.00
Intercept	1.455	-0.133
Slope	0.919	0.772
Coefficient	0.9996	0.9934
Calc. conc.	1.6 S	-0.1 +

070	-09	M0S		1.00x	17 MAY 89	17:48

	As-S	Se-S
Value	12.40	-01.59
Spike added	0.00	0.00

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
071	-09	M1S		1.00x	17 MAY 89	17:50

	As-S	Se-S
Value	20.78	-00.29
Spike added	10.00	5.00

072	-09	M2S		1.00x	17 MAY 89	17:52

	As-S	Se-S
Value	30.33	03.20
Spike added	20.00	10.00

073	-09	M3S		1.00x	17 MAY 89	17:54

	As-S	Se-S
Value	41.41	05.83
Spike added	30.00	15.00
Intercept	11.743	-2.075
Slope	0.966	0.515
Coefficient	0.9980	0.9866
Calc. conc.	12.2 S	-3.9 +

074	50 PPB	CCV 4		1.00x	17 MAY 89	17:56

	As-S	Se-S
Value	47.33	46.01
Check	***	***

075	CAL BLK	CCB 4		1.00x	17 MAY 89	17:59

	As-S	Se-S
Value	-00.85	00.29
Check	OK	OK

076	-07	MOS		1.00x	17 MAY 89	18:01

	As-S	Se-S
Value	~~15.78~~	00.15
Spike added	0.00	0.00

SN 5-18-89

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
077	-07	M1S		1.00x	17 MAY 89	18:03
		As-S		Se-S		
	Value	25.14		03.27		
	Spike added	10.00		5.00		
078	-07	M2S		1.00x	17 MAY 89	18:05
		As-S		Se-S		
	Value	32.86		06.12		
	Spike added	20.00		10.00		
079	-07	M3S		1.00x	17 MAY 89	18:07
		As-S		Se-S		
	Value	42.71		10.23		
	Spike added	30.00		15.00		
	Intercept	15.846		-0.021		
	Slope	0.885		0.662		
	Coefficient	0.9990		0.9967		
	Calc. conc.	17.9 S		0.0 S		
080	-11	M0S		1.00x	17 MAY 89	18:09
		As-S		Se-S		
	Value	-00.37		-00.56		
	Spike added	0.00		0.00		
081	-11	M1S		1.00x	17 MAY 89	18:12
		As-S		Se-S		
	Value	09.58		04.20		
	Spike added	10.00		5.00		
082	-11	M2S		1.00x	17 MAY 89	18:14
		As-S		Se-S		
	Value	16.86		08.25		
	Spike added	20.00		10.00		

SP 5.18.89

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
083	-11	M3S		1.00x	17 MAY 89	18:16

	As-S	Se-S
Value	27.27	13.08
Spike added	30.00	15.00
Intercept	-0.195	-0.503
Slope	0.902	0.899
Coefficient	0.9979	0.9994
Calc. conc.	-0.1 S	-0.5 S

084	-10	M0S		1.00x	17 MAY 89	18:18

	As-S	Se-S
Value	12.09	-00.52
Spike added	0.00	0.00

085	-10	M1S		1.00x	17 MAY 89	18:20

	As-S	Se-S
Value	20.39	02.61
Spike added	10.00	5.00

086	-10	M2S		1.00x	17 MAY 89	18:22

	As-S	Se-S
Value	28.90	05.71
Spike added	20.00	10.00

087	-10	M3S		1.00x	17 MAY 89	18:25

	As-S	Se-S
Value	39.11	09.57
Spike added	30.00	15.00
Intercept	11.687	-0.663
Slope	0.896	0.667
Coefficient	0.9987	0.9985
Calc. conc.	13.0 S	-0.9 S

088	50 PPB	CCV 5		1.00x	17 MAY 89	18:29

	As-S	Se-S
Value	52.41	50.78
Check	***	***

Instrument code: F4
Run ID: 8913702

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
089	CAL BLK	CCB 5		1.00x	17 MAY 89	18:31

	As-S	Se-S
Value	-01.32	-00.38
Check	OK	OK

END OF RUN
SN 5-18-89

C L P M E T A L S 2 02

Run id: Fe 8913851 Acquired: 05/18/89 by PPP
THERMO TARRELL-ASH VIDEO 22E (#4) Crunched: 05/19/89 by RPP
Time: 1836
Element: Processing protocol: 7/87

	Example	Code	Preparation Method	Client ID	Date	Time
1	ICV-1	ICV		ICV	05/18/89	10:08
2	CAL BLK	ICB		ICB	05/18/89	10:10
3	CRA	CRAO		CRAO	05/18/89	10:12
4	8905056-08	M0S	Furnace	46068-8AO	05/18/89	10:15
5	8905056-08	M1S	Furnace	46068-8A	05/18/89	10:17
6	8905056-08	M2S	Furnace	46068-8A	05/18/89	10:19
7	8905056-08	M3S	Furnace	46068-8A	05/18/89	10:21
8	8905056-09	M0S	Furnace	46068-9AO	05/18/89	10:23
9	8905056-09	M1S	Furnace	46068-9A	05/18/89	10:25
10	8905056-09	M2S	Furnace	46068-9A	05/18/89	10:28
11	8905056-09	M3S	Furnace	46068-9A	05/18/89	10:30
12	50 PPB	CCV		CCV	05/18/89	10:35
13	CAL BLK	CCB		CCB	05/18/89	10:37
14	0 PPB	WS0		S0	05/18/89	
15	5 PPB	WS1		S5	05/18/89	
16	50 PPB	WS2		S50	05/18/89	
17	100 PPB	WS3		S100	05/18/89	

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 553 Instrument ID: F_1, F_2, F_3, F_4 Page 1 of 1

Date: 5-18-89 Reviewed by: Instruments Method #: 150

Operator: SN Standards Prepared: 5-18-89 800

Background: BS BD

Time Calibrated: 9:53 Standards Source:

1. Calibration: 10 PPM
2. ICV: ICV-2 (4:100)
3. CCV: 50 PPB

disc # 206

acq 89050056

SKINNER AND SHERMAN

A	B
Run ID: 8913801	Run ID: 8913851
Element: As Pb	Element: Se Tl
Wavelength (nm): 197.2	Wavelength (nm): 196.0
Slitwidth (nm): 2.0	Slitwidth (nm): 2.0
Integration Time (sec): 3.0	Integration Time (sec): 3.0
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	Se	CRA		
4	only	08		
5		+5		
6		+10		
7		+15		
8		09		
9		+5		
10		+10		
11		+15		
12		CCV		
13		CCB		
14				
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35				
36				
37				
38				
39				

Normal Calibration

RINSE

		As-S	Se-S
Standard Z STD 1 0/0			
Abs	1	0.002	0.004
Mean		0.002	0.004
P/H		0.004	0.008
Abs	2	0.000	0.009
Mean		0.001	0.006
P/H		0.005	0.009

AUTO ZERO
09:53:33
Thu 18 MAY 1989

		As-S	Se-S
Standard C STD 2 10/5			
Abs	1	0.041	0.016
Mean		0.041	0.016
P/H		0.095	0.018
Abs	2	0.047	0.020
Mean		0.044	0.018
P/H		0.080	0.013
		As-S	Se-S
Mean		0.044	0.018
SD		0.004	0.003
RSD		09.54	15.55
		As-S	Se-S
Standard 1 STD 3 50/49			
Abs	1	0.249	0.199
Mean		0.249	0.199
P/H		0.409	0.341
Abs	2	0.250	0.193
Mean		0.249	0.196
P/H		0.384	0.333
		As-S	Se-S
Mean		0.249	0.196
SD		0.001	0.004
RSD		00.40	02.14
		As-S	Se-S
Standard 2 STD 4 100/100			
Abs	1	0.447	0.332
Mean		0.447	0.332
P/H		0.655	0.447
Abs	2	0.450	0.328
Mean		0.448	0.330
P/H		0.639	0.436
		As-S	Se-S
Mean		0.448	0.330
SD		0.002	0.003
RSD		00.49	00.84

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	10.00	0.044
1	50.00	0.249
2	99.99	0.448

APP CONC

STD Z	00.00
STD C	08.34
STD 1	50.69
STD 2	99.78

Instrument code: F4
Run ID: 8913801

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-2	ICV 2		1.25x	18 MAY 89	10:08
		As-S		Se-S		
	Value	SN 5-18-89 ~~40.40~~		79.63		
002	CAL BLK	ICB 2		1.00x	18 MAY 89	10:10
		As-S		Se-S		
	Value	00.35		-00.24		
	Check		OK	OK		
003	CRA	CRA0		1.00x	18 MAY 89	10:12
		As-S		Se-S		
	Value	10.55		04.74		
004	8905056-08	M0S	4606B-8A	1.00x	18 MAY 89	10:15
		As-S		Se-S		
	Value	01.38		00.93		
005	-08	M1S	4606B-8A	1.00x	18 MAY 89	10:17
		As-S		Se-S		
	Value	11.47		03.61		
	Spike added	5.00		5.00		
006	-08	M2S	4606B-8A	1.00x	18 MAY 89	10:19
		As-S		Se-S		
	Value	22.20		08.43		
	Spike added	10.00		10.00		
007	-08	M3S	4606B-8A	1.00x	18 MAY 89	10:21
		As-S		Se-S		
	Value	31.17		11.88		
	Spike added	15.00		15.00		
	Intercept	0.574		-0.089		
	Slope	2.085		0.809		
	Coefficient	0.9985		0.9979		
	Calc. conc.	0.3 S		0.0 S		

Instrument code: F4
Run ID: 8913801

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
008	-09	MOS	4606B-9A	1.00x	18 MAY 89	10:23
		As-S		Se-S		
	Value	12.44		02.30		
	Spike added	0.00		0.00		
009	-09	M1S	4606B-9A	1.00x	18 MAY 89	10:25
		As-S		Se-S		
	Value	22.84		02.63		
	Spike added	5.00		5.00		
010	-09	M2S	4606B-9A	1.00x	18 MAY 89	10:28
		As-S		Se-S		
	Value	32.31		06.24		
	Spike added	10.00		10.00		
011	-09	M3S	4606B-9A	1.00x	18 MAY 89	10:30
		As-S		Se-S		
	Value	42.06		09.33		
	Spike added	15.00		15.00		
	Intercept	12.663		1.420		
	Slope	1.967		0.494		
	Coefficient	0.9998		0.9595		
	Calc. conc.	6.4 S		2.9 +		
012	50 PPB	CCV		1.00x	18 MAY 89	10:35
		As-S		Se-S		
	Value	46.81		46.77		
	Check	***		***		
013	CAL BLK	CCB		1.00x	18 MAY 89	10:37
		As-S		Se-S		
	Value	00.04		-00.48		
	Check	OK		OK		

SN 5-18-89

END OF RUN
SN 5-18-89

C L P M E T A L S 2.02

Run id: F5 8913601
PERKIN-ELMER 3030B

Acquired: 05/16/89 by DNF
Crunched: 05/18/89 by DNF
Time: 0940
Processing protocol: 7/87

Element: Ba

Pos.	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	05/16/89	
2	1000 PPB	WS1		S1000	05/16/89	
3	2000 PPB	WS2		S2000	05/16/89	
4	5000 PPB	WS3		S5000	05/16/89	
5	ICV1	ICV		ICV	05/16/89	
6	CAL BLK	ICB		ICB	05/16/89	
7	PB	DBW		DBW	05/16/89	
8	LCSFW	LCSW		LCSW	05/16/89	
9	8905056-01	MOS	Furnace	4606B-1AO	05/16/89	
10	8905056-01	M1S	Furnace	4606B-1A	05/16/89	
11	8905056-01	M2S	Furnace	4606B-1A	05/16/89	
12	8905056-01	M3S	Furnace	4606B-1A	05/16/89	
13	8905056-01	MOS2	Furnace	4606B-1ADO	05/16/89	
14	8905056-01	M1S2	Furnace	4606B-1AD	05/16/89	
15	8905056-01	M2S2	Furnace	4606B-1AD	05/16/89	
16	8905056-01	M3S2	Furnace	4606B-1AD	05/16/89	
21	2000 PPB	CCV		CCV	05/16/89	
22	CAL BLK	CCB		CCB	05/16/89	
23	8905056-02	MOS	Furnace	4606B-2AO	05/16/89	
24	8905056-02	M1S	Furnace	4606B-2A	05/16/89	
25	8905056-02	M2S	Furnace	4606B-2A	05/16/89	
26	8905056-02	M3S	Furnace	4606B-2A	05/16/89	
31	8905056-04	MOS	Furnace	4606B-4AO	05/16/89	
32	8905056-04	M1S	Furnace	4606B-4A	05/16/89	
33	8905056-04	M2S	Furnace	4606B-4A	05/16/89	
34	8905056-04	M3S	Furnace	4606B-4A	05/16/89	
35	8905056-05	MOS	Furnace	4606B-5AO	05/16/89	
36	8905056-05	M1S	Furnace	4606B-5A	05/16/89	
37	8905056-05	M2S	Furnace	4606B-5A	05/16/89	
38	8905056-05	M3S	Furnace	4606B-5A	05/16/89	
39	8905056-06	MOS	Furnace	4606B-6AO	05/16/89	
40	8905056-06	M1S	Furnace	4606B-6A	05/16/89	
41	8905056-06	M2S	Furnace	4606B-6A	05/16/89	
42	8905056-06	M3S	Furnace	4606B-6A	05/16/89	
43	2000 PPB	CCV		CCV	05/16/89	
44	CAL BLK	CCB		CCB	05/16/89	
45	8905056-07	MOS	Furnace	4606B-7AO	05/16/89	
46	8905056-07	M1S	Furnace	4606B-7A	05/16/89	
47	8905056-07	M2S	Furnace	4606B-7A	05/16/89	
48	8905056-07	M3S	Furnace	4606B-7A	05/16/89	
49	8905056-08	MOS	Furnace	4606B-8AO	05/16/89	
50	8905056-08	M1S	Furnace	4606B-8A	05/16/89	
51	8905056-08	M2S	Furnace	4606B-8A	05/16/89	

Pos	Sample	Code	Preparation Method	Client ID	
52	8905056-03	M3S	Furnace	4606B-8A	05/16/89
53	8905056-09	M0S	Furnace	4606B-9AD	05/16/89
54	8905056-09	M1S	Furnace	4606B-9A	05/16/89
55	8905056-09	M2S	Furnace	4606B-9A	05/16/89
56	8905056-09	M3S	Furnace	4606B-9A	05/16/89
57	8905056-10	M0S	Furnace	EXTRACTION DUB	05/16/89
58	8905056-10	M1S	Furnace	EXTRACTION DUB	05/16/89
59	8905056-10	M2S	Furnace	EXTRACTION DUB	05/16/89
60	8905056-10	M3S	Furnace	EXTRACTION DUB	05/16/89
61	8905056-11	M0S	Furnace	EXTRACTION BLD	05/16/89
62	8905056-11	M1S	Furnace	EXTRACTION BLD	05/16/89
63	8905056-11	M2S	Furnace	EXTRACTION BLD	05/16/89
64	8905056-11	M3S	Furnace	EXTRACTION BLD	05/16/89
65	2000 PPB	CCV		CCV	05/16/89
66	CAL BLK	CCB		CCB	05/16/89
67	8905056-01	M0S2	Furnace	4606B-1AD0	05/16/89
68	8905056-01	M1S2	Furnace	4606B-1AD	05/16/89
69	8905056-01	M2S2	Furnace	4606B-1AD	05/16/89
70	8905056-01	M3S2	Furnace	4606B-1AD	05/16/89
71	8905056-01	M0DS	Furnace	4606B-1ASD	05/16/89
72	8905056-01	M1DS	Furnace	4606B-1AS	05/16/89
73	8905056-01	M2DS	Furnace	4606B-1AS	05/16/89
74	8905056-01	M3DS	Furnace	4606B-1AS	05/16/89
75	8905056-02	M0S	Furnace	4606B-2AD	05/16/89
76	8905056-02	M1S	Furnace	4606B-2A	05/16/89
77	8905056-02	M2S	Furnace	4606B-2A	05/16/89
78	8905056-02	M3S	Furnace	4606B-2A	05/16/89
79	8905056-03	M0S	Furnace	4606B-3AD	05/16/89
80	8905056-03	M1S	Furnace	4606B-3A	05/16/89
81	8905056-03	M2S	Furnace	4606B-3A	05/16/89
82	8905056-03	M3S	Furnace	4606B-3A	05/16/89
83	8905056-04	M0S	Furnace	4606B-4AD	05/16/89
84	8905056-04	M1S	Furnace	4606B-4A	05/16/89
85	8905056-04	M2S	Furnace	4606B-4A	05/16/89
86	8905056-04	M3S	Furnace	4606B-4A	05/16/89
87	2000 PPB	CCV		CCV	05/16/89
88	CAL BLK	CCB		CCB	05/16/89
89	8905056-05	M0S	Furnace	4606B-5AD	05/16/89
90	8905056-05	M1S	Furnace	4606B-5A	05/16/89
91	8905056-05	M2S	Furnace	4606B-5A	05/16/89
92	8905056-05	M3S	Furnace	4606B-5A	05/16/89
93	8905056-06	M0S	Furnace	4606B-6AD	05/16/89
94	8905056-06	M1S	Furnace	4606B-6A	05/16/89
95	8905056-06	M2S	Furnace	4606B-6A	05/16/89
96	8905056-06	M3S	Furnace	4606B-6A	05/16/89
97	8905056-07	M0S	Furnace	4606B-7AD	05/16/89
98	8905056-07	M1S	Furnace	4606B-7A	05/16/89
99	8905056-07	M2S	Furnace	4606B-7A	05/16/89
100	8905056-07	M3S	Furnace	4606B-7A	05/16/89
101	8905056-08	M0S	Furnace	4606B-8AD	05/16/89
102	8905056-08	M1S	Furnace	4606B-8A	05/16/89
103	8905056-08	M2S	Furnace	4606B-8A	05/16/89

Pos	Sample	Code	Preparation Method	Client ID	
104	8905056-08	M3S	Furnace	46068-3A	05/16/89
105	8905056-09	M0S	Furnace	46068-9A0	05/16/89
106	8905056-09	M1S	Furnace	46068-9A	05/16/89
107	8905056-09	M2S	Furnace	46068-9A	05/16/89
108	8905056-09	M3S	Furnace	46068-9A	05/16/89
109	2000 PPB	CCV		CCV	05/16/89
110	CAL BLK	CCB		CCB	05/16/89
111	8905056-10	M0S	Furnace	EXTRACTION DUB	05/16/89
112	8905056-10	M1S	Furnace	EXTRACTION DUB	05/16/89
113	8905056-10	M2S	Furnace	EXTRACTION DUB	05/16/89
114	8905056-10	M3S	Furnace	EXTRACTION DUB	05/16/89
115	8905056-01	M0DS	Furnace	46068-1ASD	05/16/89
116	8905056-01	M1DS	Furnace	46068-1AS	05/16/89
117	8905056-01	M2DS	Furnace	46068-1AS	05/16/89
118	8905056-01	M3DS	Furnace	46068-1AS	05/16/89
119	2000 PPB	CCV		CCV	05/16/89
120	CAL BLK	CCB		CCB	05/16/89

PROGRAMMING MODE USER METH # 02 - BA DATE: 89/05/16

ELEMENT: BA WAVELENGTH (NM): 553.6 SLIT (NM): 0.2
FLAME: NITROUS OXIDE-ACETYLENE, REDUCING (RICH, RED)
CHAR CONC: 0.46 SENS. CHECK (MG/L): 20.0 LINEAR TO (MG/L): 20.0

1. TECHNIQUE: AA
2. LAMP CURRENT (MA): 20
3. SIGNAL PROCESSING: HOLD
4. CALIBRATION: AUTO SELECT
5. NOMINAL WEIGHT: 1.0
6. STATISTICS: 3 AVG, % SD & CV
7. TIME (SECONDS): 7.0
8. READ DELAY (SECONDS): 0.0
9. SCREEN FORMAT: SUPPL. DATA
10. PRINTER: MAIN SUPPL
11. RECORDER SIGNAL: 0.2 CONT ABS
12. RECORDER EXP: 1000

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

TIME: 16:23

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 24
Date: 5/16/89
Operator: [illegible]
Background: BS (BD)
Time Calibrated: 9:30

disc # _____

acq _____

Instrument ID: F_1, F_2, F_3, F_4 (F_4)
Reviewed by: _____

Page 1 of 3
Instruments Method #: 8
Standards Prepared: 8:00 5/16/89
Standards Source:
1. Calibration: 1000 ppm
2. ICV: ICV-1
3. CCV: 2 ppm

8905056

SKINNER AND SHERMAN

A	B
Run ID: 8913601	Run ID:
Element: As Pb (Bs)	Element: Se Tl
Wavelength (nm): 553.6	Wavelength (nm):
Slitwidth (nm): 0.2	Slitwidth (nm):
Integration Time (sec): 7	Integration Time (sec):
STD1: 0 STD2: 1 ppm	STD1: STD2:
STD3: 2 ppm STD4: 5 ppm	STD3: STD4:

	COMMENTS	SAMPLE ID	DILUTION	COMMENTS
1		ICV		
2		ICB		
3		~~CRA~~ PB		
4		LCW		
5		01		
6	r=.9959	+1		
7		+2		
8		+3		
9		010		
10	r=.9926	+1		
11	rerun	+2		
12		+3		
13		015		
14		+1	High	deleted [illegible] 5/16/89
15	High	+2		
16		+3		
17		CCW		
18		CCB		
19		02		
20	rerun	+1		
21	r=.9256	+2		
22		+3		
23		03		
24	del	+1	High	deleted [illegible] 5/16/89
25		+2		
26		+3		
27		04		
28	r=.9570	+1		
29	rerun	+2		
30		+3		
31		05		
32	rerun r=.9874	+1		
33		+2		
34		+3		
35		06		
36		+1		
37	rerun r=.9855	+2		
38		+3		
39		CCB		

GFAA RUN BENCH SHEET

AA SEQUENCE #: 24

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	CCB		
	41	07		
	42	+1		
r=0.9927	43	+2		
	44	+3		
	45	08		
	46	+1		
r=.9907	47	+2		
	48	+3		
	49	09		
	50	+1		
r=.9386	51	+2		
	52	+3		
	53	10		
	54	+1		
r=.9942	55	+2		
	56	+3		
	57	11		
	58	+1		
r=.9998	59	+2		
	60	+3		
	61	CCV		
	62	CCB		
	63	01D		
	64	+1		
	65	+2		
	66	+3		
	67	01S		
	68	+1	1:1	
	69	+2		
	70	+3		
	71	02		
	72	+1		
	73	+2		
	74	+3		
	75	03		
	76	+1	1:1	
	77	+2		
	78	+3		
	79	04		
	80	+1		
	81	+2		
	82	+3		
	83	CCV		
	84	CCB		
	85	05		

GFAA RUN BENCH SHEET

AA SEQUENCE #: 24

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	86	+1		
	87	+2		
	88	+3		
	89	06		
	90	+1		
	91	+2		
	92	+3		
	93	07		
	94	+1		
	95	+2		
	96	+3		
	97	08		
	98	+1		
	99	+2		
	100	+3		
	101	09		
	102	+1		
	103	+2		
	104	+3		
	105	CCV		
	106	CCB		
	107	10		
	108	+1		
	109	+2		
	110	+3		
	111	015		
	112	+1	1.7	
	113	+2		
	114	+3		
	115	CCV		
	116	CCB		
	117			
	118			
	119			
	120			
	121			
	122			
	123			
	124			
	125			
	126			
	127			
	128			
	129			
	130			
	131			

EA STD1 0

	AA	AA-BG	BG
ABSORBANCE	0.003		
0.003			

	AA	AA-BG	BG
ABSORBANCE	0.002		
0.003			

	AA	AA-BG	BG
ABSORBANCE	0.002		
0.003			

MEAN= 0.002 STD.DEV.= 0.001 COEF.VAR.= 23.88 %

****

0.000 AUTOZERO

****

EA STD2 1ppm

	AA	AA-BG	BG
ABSORBANCE	0.005		
0.005			

	AA	AA-BG	BG
ABSORBANCE	0.007		
0.007			

	AA	AA-BG	BG
ABSORBANCE	0.007		
0.007			

MEAN= 0.006 STD.DEV.= 0.001 COEF.VAR.= 14.53 %

****

1.00 STANDARD 1

****

EA STD3 2ppm

	AA	AA-BG	BG
ABSORBANCE	0.012		
1.79			

	AA	AA-BG	BG
ABSORBANCE	0.013		
1.85			

	AA	AA-BG	BG
ABSORBANCE	0.015		

(CONTINUED)

2.29

MEAN= 2.01 STD.DEV.= 0.25 COEF.VAR.= 12.47 %

2.00 STANDARD 2

EA STD4 ~~3ppm~~ 5ppm 9:30

	AA	AA-BG	BG
ABSORBANCE	0.092		

4.23

	AA	AA-BG	BG
ABSORBANCE	0.081		

4.73

	AA	AA-BG	BG
ABSORBANCE	0.027		

4.15

MEAN= 4.59 STD.DEV.= 0.37 COEF.VAR.= 8.12 %

5.00 STANDARD 3

paper advanced
MF 5/18/89

BA 0001 ICV1 9:30

	AA	AA-BC	BC
ABSORBANCE	0.015		
1.85			

	AA	AA-BC	BC
ABSORBANCE	0.014		
1.80			

	AA	AA-BC	BC
ABSORBANCE	0.015		
1.91			

MEAN= 1.85 STD.DEV.= 0.05 COEF.VAR.= 3.25 %

****

BA 0002 ICB1 9:30

	AA	AA-BC	BC
ABSORBANCE	0.003		
0.37			

	AA	AA-BC	BC
ABSORBANCE	0.002		
0.27			

	AA	AA-BC	BC
ABSORBANCE	0.003		
0.40			

MEAN= 0.35 STD.DEV.= 0.07 COEF.VAR.= 19.89 %

****

BA 0003 IB

	AA	AA-BC	BC
ABSORBANCE	0.002		
0.26			

	AA	AA-BC	BC
ABSORBANCE	0.002		
0.20			

	AA	AA-BC	BC
ABSORBANCE	0.002		
0.28			

MEAN= 0.24 STD.DEV.= 0.04 COEF.VAR.= 18.19 %

****

BA 0004

0004 CCSW (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.010		
1.19			

	AA	AA-BG	BG
ABSORBANCE	0.009		
1.06			

	AA	AA-BG	BG
ABSORBANCE	0.011		
1.20			

MEAN= 1.19 STD.DEV.= 0.12 COEF.VAR.= 10.46 %

****

BA 0005 01 ++ 46066B-1A

MF 5/18/89

	AA	AA-BG	BG
ABSORBANCE	-0.001		
-0.13			

y = 1.1280x + -22.000
r = .9959
x = 19.5035

	AA	AA-BG	BG
ABSORBANCE	0.000		
0.03			

	AA	AA-BG	BG
ABSORBANCE	0.000		
0.01			

MEAN= -0.03 STD.DEV.= 0.08 COEF.VAR.= 99.99 %

****

BA 0006 01+1 46066B-1A

	AA	AA-BG	BG
ABSORBANCE	0.006		
1.06			

	AA	AA-BG	BG
ABSORBANCE	0.009		
1.56			

	AA	AA-BG	BG
ABSORBANCE	0.006		
1.02			

MEAN= 1.21 STD.DEV.= 0.31 COEF.VAR.= 25.38 %

****

BA 0007

ABSORBANCE 0.012

01 +2 46068-1A

2.03

AA AA-BC BC

ABSORBANCE 0.013

2.27

AA AA-BC BC

ABSORBANCE 0.011

1.86

MEAN= 2.05 STD.DEV.= 0.21 COEF.VAR.= 10.47 %

****

EA 0008 01 +3 46068-1A

0008 (CONTINUED)

AA AA-BC BC

ABSORBANCE 0.020

3.41

AA AA-BC BC

ABSORBANCE 0.021

3.63

AA AA-BC BC

ABSORBANCE 0.019

3.31

MEAN= 3.45 STD.DEV.= 0.17 COEF.VAR.= 5.07 %

****

EA 0009 01D 46068-1A D

AA AA-BC BC

ABSORBANCE -0.001

y = 1.4830 x + -237.000
x = 159.8112
r = .5926

-0.20

AA AA-BC BC

ABSORBANCE 0.000

0.02

AA AA-BC BC

ABSORBANCE 0.000

0.05

MEAN= -0.04 STD.DEV.= 0.13 COEF.VAR.= 99.99 %

****

EA 0010

ABSORBANCE 01D +1 4606B-1AD 0.007

1.09

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.14

	AA	AA-BG	BG
ABSORBANCE	0.006		

0.95

MEAN= 1.06 STD.DEV.= 0.10 COEF.VAR.= 9.53 %

****

BA 0011 01D+1 4606B-1AD

0011 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.018		

2.25

	AA	AA-BG	BG
ABSORBANCE	0.016		

2.73

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.54

MEAN= 2.51 STD.DEV.= 0.26 COEF.VAR.= 10.19 %

****

BA 0012 01D+2 4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.020		

3.54

	AA	AA-BG	BG
ABSORBANCE	0.026		

4.62

	AA	AA-BG	BG
ABSORBANCE	0.028		

5.13

MEAN= 4.42 STD.DEV.= 0.88 COEF.VAR.= 20.02 %

****

BA 0013

ABSORBANCE 0.014

015 4606B-01AS

2.99

	AA	AA-BG	BG
ABSORBANCE	0.017		

2.97

	AA	AA-BG	BG
ABSORBANCE	0.016		

2.75

MEAN= 2.70 STD.DEV.= 0.31 COEF.VAR.= 11.64 %

****

BA 0014 015 r 1 4606B-01AS

0014 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.023		

4.00

	AA	AA-BG	BG
ABSORBANCE	0.017		

2.89

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.61

MEAN= 3.16 STD.DEV.= 0.78 COEF.VAR.= 24.81 %

****

BA 0015 015 +2 4606B-01AS

	AA	AA-BG	BG
ABSORBANCE	0.036		

6.63

	AA	AA-BG	BG
ABSORBANCE	0.034		

6.38

	AA	AA-BG	BG
ABSORBANCE	0.031		

5.73

MEAN= 6.24 STD.DEV.= 0.52 COEF.VAR.= 8.29 %

****

6.24 E-25: READING GREATER THAN HIGHEST STANDARD.

BA 0016

DIST3

4606B-01AS

	AA	AA-BG	BG
ABSORBANCE	0.035		
6.44			
	AA	AA-BG	BG
ABSORBANCE	0.032		
5.84			
	AA	AA-BG	BG
ABSORBANCE	0.031		
5.70			

BA 0016 (CONTINUED)

MEAN= 5.99 STD.DEV.= 0.44 COEF.VAR.= 7.30 %

****

5.99 E425: READING GREATER THAN HIGHEST STANDARD.

****

BA 0017 CCV1 9:37

	AA	AA-BG	BG
ABSORBANCE	0.013		
1.68			
	AA	AA-BG	BG
ABSORBANCE	0.015		
1.94			
	AA	AA-BG	BG
ABSORBANCE	0.015		
2.03			

MEAN= 1.88 STD.DEV.= 0.19 COEF.VAR.= 10.01 %

****

BA 0018 CCB1 9:37

	AA	AA-BG	BG
ABSORBANCE	0.002		
0.31			
	AA	AA-BG	BG
ABSORBANCE	0.003		
0.40			
	AA	AA-BG	BG
ABSORBANCE	0.003		

MEAN= 0.38 STD.DEV.= 0.07 COEF.VAR.= 17.63 %

****

BA 0019 02 4606B-2A

	AA	AA-BC	BC
ABSORBANCE	-0.005		
0.65			

y = .9270x + 232000
x = 200.2697
r = .6988

	AA	AA-BC	BC
ABSORBANCE	-0.008		
0.54			

	AA	AA-BC	BC
ABSORBANCE	-0.010		
1.19			

MEAN= -0.98 STD.DEV.= 0.25 COEF.VAR.= 26.95 %

****

BA 0020 02 +1 4606B-2A

0020 (CONTINUED)

	AA	AA-BC	BC
ABSORBANCE	0.001		
0.13			

	AA	AA-BC	BC
ABSORBANCE	-0.001		
0.09			

	AA	AA-BC	BC
ABSORBANCE	0.006		
0.73			

MEAN= 0.27 STD.DEV.= 0.42 COEF.VAR.= 99.99 %

****

BA 0021 02 +2 4606B-2A

	AA	AA-BC	BC
ABSORBANCE	0.017		
2.28			

	AA	AA-BC	BC
ABSORBANCE	0.018		
2.37			

	AA	AA-BC	BC
ABSORBANCE	0.021		

MEAN= 2.49 STD.DEV.= 0.33 COEF.VAR.= 13.79 %

BA 0022 02 +3 46068-2A

	AA	AA-BG	BG
ABSORBANCE	0.015		
2.01			
ABSORBANCE	0.015		
2.03			
ABSORBANCE	0.020		
2.65			

MEAN= 2.23 STD.DEV.= 0.39 COEF.VAR.= 17.36 %

BA 0023 03 4606B-03 A

0023 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.008		
1.04			
ABSORBANCE	0.008		
1.09			
ABSORBANCE	0.007		
0.89			

MEAN= 1.01 STD.DEV.= 0.11 COEF.VAR.= 10.47 %

BA 0024 03 +1 4606B-03 A

	AA	AA-BG	BG
ABSORBANCE	0.015		
2.03			
ABSORBANCE	0.012		
1.57			
ABSORBANCE	0.009		

MEAN= 1.57 STD.DEV.= 0.49 COEF.VAR.= 30.47 %

****

BA 0025 03+2 46068-03A

	AA	AA-BG	BG
ABSORBANCE	0.019		
2.48			

	AA	AA-BG	BG
ABSORBANCE	0.015		
1.99			

	AA	AA-BG	BG
ABSORBANCE	0.015		
2.07			

MEAN= 2.19 STD.DEV.= 0.25 COEF.VAR.= 11.41 %

****

BA 0026 03+3 46068-03A

0026 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.045		
5.95			

	AA	AA-BG	BG
ABSORBANCE	0.039		
5.72			

	AA	AA-BG	BG
ABSORBANCE	0.028		
3.94			

MEAN= 5.50 STD.DEV.= 1.72 COEF.VAR.= 31.21 %

****

5.50 E-25: READING GREATER THAN HIGHEST STANDARD.

****

BA 0027 04 46068-04A

	AA	AA-BG	BG
ABSORBANCE	-0.007		
-0.93			

$y = 1.2010x + -904.000$

$x = 752.7061$

$r = .9970$

	AA	AA-BG	BG
ABSORBANCE	-0.005		
-0.61			

	AA	AA-BG	BG
ABSORBANCE	-0.009		

1.11

MEAN= -0.85 STD.DEV.= 0.24 COEF.VAR.= 28.63 %

BA 0028 04+1 4606B-04A

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.35

	AA	AA-BG	BG
ABSORBANCE	0.001		

0.18

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.39

BA 0028 (CONTINUED)

MEAN= 0.30 STD.DEV.= 0.11 COEF.VAR.= 36.28 %

BA 0029 04+2 4606B-04A

	AA	AA-BG	BG
ABSORBANCE	0.006		

0.77

	AA	AA-BG	BG
ABSORBANCE	0.014		

1.83

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.41

MEAN= 1.33 STD.DEV.= 0.56 COEF.VAR.= 41.53 %

BA 0030 04+3 4606B-04A

	AA	AA-BG	BG
ABSORBANCE	0.026		

3.52

	AA	AA-BG	BG
ABSORBANCE	0.020		

2.70

	AA	AA-BG	BG

2.13

MEAN= 2.81 STD.DEV.= 0.81 COEF.VAR.= 28.71 %

BA 0031 05 4606B-05A

	AA	AA-BC	BC
ABSORBANCE	-0.002		

y = 1.4140 x + -261.000
x = 184.5827
r = .9874

0.19

	AA	AA-BC	BC
ABSORBANCE	-0.002		

0.26

	AA	AA-BC	BC
ABSORBANCE	-0.001		

0.15

BA 0031 (CONTINUED)

MEAN= -0.03 STD.DEV.= 0.23 COEF.VAR.= 99.99 %

BA 0032 05 +1 4606B-05A

	AA	AA-BC	BC
ABSORBANCE	0.004		

0.47

	AA	AA-BC	BC
ABSORBANCE	0.008		

1.01

	AA	AA-BC	BC
ABSORBANCE	0.006		

0.72

MEAN= 0.73 STD.DEV.= 0.28 COEF.VAR.= 37.74 %

BA 0033 05 +2 4606B-05A

	AA	AA-BC	BC
ABSORBANCE	0.024		

3.33

	AA	AA-BC	BC
ABSORBANCE	0.017		

2.29

	AA	AA-BC	BC

2.56

MEAN= 2.72 STD.DEV.= 0.58 COEF.VAR.= 21.35 %

BA 0034 05+3 4606B-05A

	AA	AA-BC	BC
ABSORBANCE	0.030		

MF slinky

4.23

	AA	AA-BC	BC
ABSORBANCE	0.029		

4.06

	AA	AA-BC	BC
ABSORBANCE	0.027		

3.73

BA 0034 (CONTINUED)

MEAN= 4.02 STD.DEV.= 0.30 COEF.VAR.= 7.55 %

BA 0035 06 4606B-06A

	AA	AA-BC	BC
ABSORBANCE	0.000		

y = 1.1560x + -74.0000
x = 64.0138
r = .9855

0.00

	AA	AA-BC	BC
ABSORBANCE	-0.003		

-0.41

	AA	AA-BC	BC
ABSORBANCE	0.001		

0.09

MEAN= -0.11 STD.DEV.= 0.27 COEF.VAR.= 99.99 %

BA 0036 06 +1 4606B-06A

	AA	AA-BC	BC
ABSORBANCE	0.009		

1.12

	AA	AA-BC	BC
ABSORBANCE	0.008		

1.10

	AA	AA-BC	BC

1.72

MEAN= 1.81 STD.DEV.= 0.39 COEF.VAR.= 27.55 %

****

BA 0037 06 + 2 4606B-6A

	AA	AA-BC	BC
ABSORBANCE	0.013		

1.78

	AA	AA-BC	BC
ABSORBANCE	0.011		

1.50

	AA	AA-BC	BC
ABSORBANCE	0.018		

2.41

BA 0037 (CONTINUED)

MEAN= 1.89 STD.DEV.= 0.49 COEF.VAR.= 25.81 %

****

BA 0038 06 + 3 4606B-6A

	AA	AA-BC	BC
ABSORBANCE	0.029		

4.07

	AA	AA-BC	BC
ABSORBANCE	0.028		

3.94

	AA	AA-BC	BC
ABSORBANCE	0.020		

2.89

MEAN= 3.55 STD.DEV.= 0.83 COEF.VAR.= 23.43 %

****

BA 0039 CCV2 9:47

	AA	AA-BC	BC
ABSORBANCE	0.011		

1.89

	AA	AA-BC	BC
ABSORBANCE	0.012		

2.06

	AA	AA-BC	BC

1.80

MEAN= 1.91 STD.DEV.= 0.13 COEF.VAR.= 7.04 %

****

BA 0040 CCB2 9:47

	AA	AA-BG	BG
ABSORBANCE	-0.002		

-0.34

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.19

	AA	AA-BG	BG
ABSORBANCE	-0.002		

-0.25

MEAN= -0.26 STD.DEV.= 0.07 COEF.VAR.= -27.40 %

****

BA 0041 07 4606B-7A

	AA	AA-BG	BG
ABSORBANCE	-0.007		

$y = 1.5080x + -1087.000$
$x = 720.8223$
$r = .9922$

-1.10

	AA	AA-BG	BG
ABSORBANCE	-0.009		

-1.42

	AA	AA-BG	BG
ABSORBANCE	-0.009		

-1.34

MEAN= -1.31 STD.DEV.= 0.19 COEF.VAR.= 14.18 %

****

BA 0042 07 +1 4606B-7A

0042 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.002		

0.31

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.14

	AA	AA-BG	BG

0.55

MEAN= 0.67 STD.DEV.= 0.43 COEF.VAR.= 65.11 %

****

BA 0043 07 +2 4606B-7A

	AA	AA-BG	BG
ABSORBANCE	0.017		

2.91

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.82

	AA	AA-BG	BG
ABSORBANCE	0.009		

1.51

MEAN= 2.10 STD.DEV.= 0.75 COEF.VAR.= 35.80 %

****

BA 0044 07 +3 4606B-7A

	AA	AA-BG	BG
ABSORBANCE	0.020		

3.54

	AA	AA-BG	BG
ABSORBANCE	0.020		

3.54

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.65

MEAN= 3.24 STD.DEV.= 0.55 COEF.VAR.= 16.98 %

****

BA 0045 08 4606B-8A

0045 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.000		

$y = 1.3270x + -8.000$

$x = 6.0286$

$r = .9907$

-0.04

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.21

	AA	AA-BG	BG

-0.05

MEAN= -0.10 STD.DEV.= 0.09 COEF.VAR.= 91.12 %

BA 0046 08 +1 4606B-8A

	AA	AA-BG	BG
ABSORBANCE	0.008		

1.28

	AA	AA-BG	BG
ABSORBANCE	0.008		

1.41

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.17

MEAN= 1.29 STD.DEV.= 0.13 COEF.VAR.= 9.86 %

BA 0047 08 T2 4606B-8A

	AA	AA-BG	BG
ABSORBANCE	0.020		

3.44

	AA	AA-BG	BG
ABSORBANCE	0.017		

2.93

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.57

MEAN= 2.98 STD.DEV.= 0.46 COEF.VAR.= 15.58 %

BA 0048 08 T3 4606B-8A

0048 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.026		

4.73

	AA	AA-BG	BG
ABSORBANCE	0.021		

3.53

	AA	AA-BG	BG

2.94

MEAN= 3.76 STD.DEV.= 0.97 COEF.VAR.= 25.84 %

****

BA 0049 09 4606B-9A

	AA	AA-BG	BG
ABSORBANCE	-0.008		

$y = 1.2620x + -1908$
$x = 1511.8859$
$r = .9386$

-1.33

	AA	AA-BG	BG
ABSORBANCE	-0.013		

-2.03

	AA	AA-BG	BG
ABSORBANCE	-0.017		

-2.57

MEAN= -1.98 STD.DEV.= 0.59 COEF.VAR.= 29.98 %

****

BA 0050 09+1 4606B-9A

	AA	AA-BG	BG
ABSORBANCE	0.002		

0.30

	AA	AA-BG	BG
ABSORBANCE	-0.014		

-2.08

	AA	AA-BG	BG
ABSORBANCE	-0.007		

-1.07

MEAN= -0.97 STD.DEV.= 1.17 COEF.VAR.= 99.99 %

****

BA 0051 09+2 4606B-9A

0051 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.55

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.93

	AA	AA-BG	BG

0.04

MEAN= 1.48 STD.DEV.= 1.35 COEF.VAR.= 90.95 %

****

BA 0052 09+3 4606B-9A

	AA	AA-BG	BG
ABSORBANCE	0.013		
2.29			

	AA	AA-BG	BG
ABSORBANCE	0.009		
1.49			

	AA	AA-BG	BG
ABSORBANCE	0.003		
0.49			

MEAN= 1.41 STD.DEV.= 0.93 COEF.VAR.= 65.79 %

****

BA 0053 10 extraction dup

	AA	AA-BG	BG
ABSORBANCE	0.009		
1.37			

$y = 1.6740x + 7641.00$

$x = 980.2867$

$r = .9942$

	AA	AA-BG	BG
ABSORBANCE	-0.010		
-1.57			

	AA	AA-BG	BG
ABSORBANCE	-0.009		
-1.35			

MEAN= -1.43 STD.DEV.= 0.12 COEF.VAR.= 8.32 %

****

BA 0054 10+1 extraction dup

0054 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	-0.007		
-1.06			

	AA	AA-BG	BG
ABSORBANCE	0.003		
0.52			

	AA	AA-BG	BG

-0.33

MEAN= -0.30 STD.DEV.= 0.78 COEF.VAR.= 99.99 %

****

BA 0055 10 +2 extraction dup

	AA	AA-BG	BG
ABSORBANCE	0.014		
2.34			

	AA	AA-BG	BG
ABSORBANCE	0.008		
1.42			

	AA	AA-BG	BG
ABSORBANCE	0.009		
1.48			

MEAN= 1.74 STD.DEV.= 0.54 COEF.VAR.= 30.76 %

****

BA 0056 10 +3 extraction dup.

	AA	AA-BG	BG
ABSORBANCE	0.024		
4.28			

	AA	AA-BG	BG
ABSORBANCE	0.026		
4.61			

	AA	AA-BG	BG
ABSORBANCE	0.010		
1.65			

MEAN= 3.47 STD.DEV.= 1.74 COEF.VAR.= 50.12 %

****

BA 0057 11 extraction blk. $y = 1.2530x + 123.000$

$x = 98.1644$

$r = .9998$

0057 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.000		
0.06			

	AA	AA-BG	BG
ABSORBANCE	0.000		
0.04			

	AA	AA-BG	BG

0.21

MEAN= 0.10 STD.DEV.= 0.09 COEF.VAR.= 92.26 %

****

BA 0058 11 +1 extraction blk

	AA	AA-BG	BG
ABSORBANCE	0.010		
1.60			
	AA	AA-BG	BG
ABSORBANCE	0.008		
1.27			
	AA	AA-BG	BG
ABSORBANCE	0.008		
1.30			

MEAN= 1.39 STD.DEV.= 0.18 COEF.VAR.= 13.31 %

****

BA 0059 11 +2 extraction blk

	AA	AA-BG	BG
ABSORBANCE	0.022		
3.90			
	AA	AA-BG	BG
ABSORBANCE	0.016		
2.76			
	AA	AA-BG	BG
ABSORBANCE	0.008		
1.42			

MEAN= 2.67 STD.DEV.= 1.31 COEF.VAR.= 49.12 %

****

BA 0060 11 +3 extraction blk

0060 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.027		
4.89			
	AA	AA-BG	BG
ABSORBANCE	0.024		
4.27			
	AA	AA-BG	BG

2.46

MEAN= 3.85 STD.DEV.= 1.36 COEF.VAR.= 35.33 %

****

BA 0061 CCU3 9:57

	AA	AA-BG	BG
ABSORBANCE	0.014		
2.01			
ABSORBANCE	0.015		
2.13			
ABSORBANCE	0.016		
2.20			

MEAN= 2.12 STD.DEV.= 0.10 COEF.VAR.= 4.78 %

****

BA 0062 CCB3 9:57

	AA	AA-BG	BG
ABSORBANCE	0.001		
0.17			
ABSORBANCE	0.002		
0.27			
ABSORBANCE	0.002		
0.25			

MEAN= 0.23 STD.DEV.= 0.05 COEF.VAR.= 23.22 %

****

paper advanced
mF 5/18/89

BA 0063 01D 4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.000		

y = .6960x + -237.000
x = 425.2874
r = .9995

0.08

	AA	AA-BG	BG
ABSORBANCE	0.002		

0.34

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.45

MEAN= 0.31 STD.DEV.= 0.21 COEF.VAR.= 69.59 %

****

BA 0064 01D +1 4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.14

	AA	AA-BG	BG
ABSORBANCE	0.006		

1.00

	AA	AA-BG	BG
ABSORBANCE	0.005		

0.83

MEAN= 0.99 STD.DEV.= 0.16 COEF.VAR.= 15.90 %

****

BA 0065 01D +2 4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.010		

1.55

	AA	AA-BG	BG
ABSORBANCE	0.010		

1.62

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.77

MEAN= 1.55 STD.DEV.= 0.12 COEF.VAR.= 7.20 %

****

BA 0066

0066 (CONTINUED)

	AA	AA-BC	BC
ABSORBANCE	0.014		

01D t3

46068-1AD

2.34

	AA	AA-BC	BC
ABSORBANCE	0.014		

2.35

	AA	AA-BC	BC
ABSORBANCE	0.015		

2.56

MEAN= 2.41 STD.DEV.= 0.13 COEF.VAR.= 5.34 %

****

BA 0067 01S 1.1

	AA	AA-BC	BC
ABSORBANCE	0.005		

y = 1.0020x + 1407.000

x = 2808.3832

r = .9802

46068-01AS

MF 5/18/85

0.88

	AA	AA-BC	BC
ABSORBANCE	0.006		

1.01

	AA	AA-BC	BC
ABSORBANCE	0.010		

1.60

MEAN= 1.16 STD.DEV.= 0.39 COEF.VAR.= 33.79 %

****

BA 0068 01S 1.1

+1

	AA	AA-BC	BC
ABSORBANCE	0.016		

46068-1AS

2.63

	AA	AA-BC	BC
ABSORBANCE	0.017		

2.82

	AA	AA-BC	BC
ABSORBANCE	0.016		

2.72

MEAN= 2.72 STD.DEV.= 0.10 COEF.VAR.= 3.53 %

****

BA 0069

0069 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.020		

015 1.1 4606B-1AS

+2

3.36

	AA	AA-BG	BG
ABSORBANCE	0.021		

3.54

	AA	AA-BG	BG
ABSORBANCE	0.022		

3.70

MEAN= 3.53 STD.DEV.= 0.19 COEF.VAR.= 5.18 %

****

BA 0070

015 1.1

	AA	AA-BG	BG
ABSORBANCE	0.023		

+3

4606B-1AS

4.02

	AA	AA-BG	BG
ABSORBANCE	0.025		

4.32

	AA	AA-BG	BG
ABSORBANCE	0.025		

4.34

MEAN= 4.23 STD.DEV.= 0.19 COEF.VAR.= 4.57 %

****

BA 0071 02 4606B-2A ~~NA~~ mF 5/18/89

	AA	AA-BG	BG
ABSORBANCE	0.007		

y = .6690x + 1149.000

x = 1717.4888

r = .9967

1.07

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.19

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.08

MEAN= 1.11 STD.DEV.= 0.07 COEF.VAR.= 6.33 %

****

BA 0072

0072 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.012		

02 +1

4606B-2A

1.96

	AA	AA-BG	BG
ABSORBANCE	0.012		

1.92

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.85

MEAN= 1.91 STD.DEV.= 0.06 COEF.VAR.= 2.91 %

****

BA 0073 02 +2 4606B-2A

	AA	AA-BG	BG
ABSORBANCE	0.014		

2.32

	AA	AA-BG	BG
ABSORBANCE	0.014		

2.37

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.58

MEAN= 2.42 STD.DEV.= 0.14 COEF.VAR.= 5.98 %

****

BA 0074 02 +3 4606B-2A

	AA	AA-BG	BG
ABSORBANCE	0.020		

3.43

	AA	AA-BG	BG
ABSORBANCE	0.018		

3.09

	AA	AA-BG	BG
ABSORBANCE	0.018		

2.98

MEAN= 3.17 STD.DEV.= 0.25 COEF.VAR.= 7.92 %

****

BA 0075

0075 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE 03 1:1	0.010		
4606B-3A			
1.55			

	AA	AA-BG	BG
ABSORBANCE y=.7950x + 1325.00	0.009		
x= 3836.4780			
1.51 r= .9967			

	AA	AA-BG	BG
ABSORBANCE	0.010		
1.64			

MEAN= 1.50 STD.DEV.= 0.08 COEF.VAR.= 5.02 %

****

BA 0076 03 +1 1:1

	AA	AA-BG	BG
ABSORBANCE 4606B-3A	0.013		
2.21			

	AA	AA-BG	BG
ABSORBANCE	0.013		
2.15			

	AA	AA-BG	BG
ABSORBANCE	0.014		
2.36			

MEAN= 2.24 STD.DEV.= 0.11 COEF.VAR.= 5.04 %

****

BA 0077 03 +2 1:1

	AA	AA-BG	BG
ABSORBANCE 4606B-3A	0.019		
3.15			

	AA	AA-BG	BG
ABSORBANCE	0.018		
2.95			

	AA	AA-BG	BG
ABSORBANCE	0.018		
3.05			

MEAN= 3.05 STD.DEV.= 0.11 COEF.VAR.= 3.47 %

****

BA 0078

0078 (CONTINUED)

	AA	AA-BG	BC
ABSORBANCE	0.023		

03 T3 1:1

4606B-3A 1:1

3.99

	AA	AA-BG	BC
ABSORBANCE	0.023		

3.99

	AA	AA-BG	BC
ABSORBANCE	0.023		

4.01

MEAN= 3.98 STD.DEV.= 0.05 COEF.VAR.= 1.14 %

****

BA 0079 04 4606B-4A

	AA	AA-BG	BC
ABSORBANCE	0.008		

y = .8010x + 1256.00
x = 1568.0400
r = .9978

1.28

	AA	AA-BG	BC
ABSORBANCE	0.007		

1.15

	AA	AA-BG	BC
ABSORBANCE	0.009		

1.43

MEAN= 1.28 STD.DEV.= 0.15 COEF.VAR.= 11.48 %

****

BA 0080 04 +1 4606B-4A

	AA	AA-BG	BC
ABSORBANCE	0.014		

2.25

	AA	AA-BG	BC
ABSORBANCE	0.013		

2.13

	AA	AA-BG	BC
ABSORBANCE	0.011		

1.84

MEAN= 2.07 STD.DEV.= 0.22 COEF.VAR.= 10.67 %

****

BA 0081

0081 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.017		

04 +2 4A

4606B-~~4A~~ mF 5/18/81

2.79

	AA	AA-BG	BG
ABSORBANCE	0.016		

2.75

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.74

MEAN= 2.76 STD.DEV.= 0.03 COEF.VAR.= 1.04 %

****

BA 0082 04+3

	AA	AA-BG	BG
ABSORBANCE	0.021		

4606B-4A

3.60

	AA	AA-BG	BG
ABSORBANCE	0.022		

3.83

	AA	AA-BG	BG
ABSORBANCE	0.022		

3.73

MEAN= 3.72 STD.DEV.= 0.13 COEF.VAR.= 3.37 %

****

BA 0083 CCV4 10:07

	AA	AA-BG	BG
ABSORBANCE	0.014		

2.09

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.74

	AA	AA-BG	BG
ABSORBANCE	0.013		

1.96

MEAN= 1.93 STD.DEV.= 0.18 COEF.VAR.= 9.35 %

****

BA 0084

ABSORBANCE 0.002

CCB4 10:07

0.24

AA AA-BG BG

ABSORBANCE 0.002

0.24

AA AA-BG BG

ABSORBANCE 0.003

0.40

MEAN= 0.30 STD.DEV.= 0.09 COEF.VAR.= 30.81 %

****

BA 0085 05 4606B-5A

AA AA-BG BG

ABSORBANCE 0.002

y = .7060x + 46.0000
x = 65.1558
r = .9866

0.33

AA AA-BG BG

ABSORBANCE 0.000

0.06

AA AA-BG BG

ABSORBANCE 0.001

0.14

MEAN= 0.18 STD.DEV.= 0.14 COEF.VAR.= 77.55 %

****

BA 0086 06 +1 4606B-5A

0086 (CONTINUED)

AA AA-BG BG

ABSORBANCE 0.003

0.39

AA AA-BG BG

ABSORBANCE 0.005

0.70

AA AA-BG BG

ABSORBANCE 0.005

0.76

MEAN= 0.61 STD.DEV.= 0.20 COEF.VAR.= 32.33 %

****

BA 0087

ABSORBANCE 0.008

05+2 4606B-5A

1.19

	AA	AA-BG	BG
ABSORBANCE	0.009		

1.41

	AA	AA-BG	BG
ABSORBANCE	0.009		

1.49

MEAN= 1.34 STD.DEV.= 0.14 COEF.VAR.= 10.80 %

****

BA 0088 05+3 4606B-5A

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.24

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.35

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.25

MEAN= 2.29 STD.DEV.= 0.06 COEF.VAR.= 2.83 %

****

BA 0089 06 4606B-6A

0089 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.002		

y=.7160x + 146.000
x=203.9106
r=.9918

0.32

	AA	AA-BG	BG
ABSORBANCE	0.001		

0.16

	AA	AA-BG	BG
ABSORBANCE	0.002		

0.23

MEAN= 0.24 STD.DEV.= 0.08 COEF.VAR.= 34.73 %

****

BA 0090

ABSORBANCE 0.005

06+1 4606B-6A

0.80

AA AA-BG BG

ABSORBANCE 0.004

0.88

AA AA-BG BG

ABSORBANCE 0.004

0.92

MEAN= 0.89 STD.DEV.= 0.09 COEF.VAR.= 13.35 %

****

BA 0091 06+2 4606B-6A

AA AA-BG BG

ABSORBANCE 0.010

1.51

AA AA-BG BG

ABSORBANCE 0.011

1.67

AA AA-BG BG

ABSORBANCE 0.011

1.72

MEAN= 1.54 STD.DEV.= 0.11 COEF.VAR.= 5.95 %

****

BA 0092 06+3 4606B-6A

0092 (CONTINUED)

AA AA-BG BG

ABSORBANCE 0.016

2.49

AA AA-BG BG

ABSORBANCE 0.015

2.25

AA AA-BG BG

ABSORBANCE 0.014

2.18

MEAN= 2.31 STD.DEV.= 0.18 COEF.VAR.= 7.60 %

****

BA 0093

ABSORBANCE 07 0.000

4606 B-7A

-0.05

ABSORBANCE $y = .7890x + -31.000$ AA -0.001 AA-BG BG

$x = 39.2902$

-0.14 $r = .9942$

ABSORBANCE AA 0.000 AA-BG BG

0.03

MEAN= -0.05 STD.DEV.= 0.08 COEF.VAR.= 99.99 %

****

BA 0094 07+1 4606B-7A

ABSORBANCE AA 0.007 AA-BG BG

0.98

ABSORBANCE AA 0.005 AA-BG BG

0.73

ABSORBANCE AA 0.005 AA-BG BG

0.87

MEAN= 0.86 STD.DEV.= 0.13 COEF.VAR.= 14.75 %

****

BA 0095 07+2 4606B-7A

0095 (CONTINUED)

ABSORBANCE AA 0.010 AA-BG BG

1.53

ABSORBANCE AA 0.009 AA-BG BG

1.31

ABSORBANCE AA 0.009 AA-BG BG

1.36

MEAN= 1.40 STD.DEV.= 0.12 COEF.VAR.= 8.49 %

****

BA 0096

ABSORBANCE 07+3 4606B-7A 2.014

2.18

	AA	AA-BG	BG
ABSORBANCE	0.016		

2.54

	AA	AA-BG	BG
ABSORBANCE	0.016		

2.49

MEAN= 2.40 STD.DEV.= 0.21 COEF.VAR.= 8.56 %

****

BA 0097 08 4606B-8A

	AA	AA-BG	BG
ABSORBANCE	0.003		

y = .7050x + 395.000
x = 560.2837
r = .9998

0.43

	AA	AA-BG	BG
ABSORBANCE	0.002		

0.31

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.49

MEAN= 0.41 STD.DEV.= 0.09 COEF.VAR.= 22.59 %

****

BA 0098 68+1 4606B-8A

0098 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.03

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.07

	AA	AA-BG	BG
ABSORBANCE	0.008		

1.15

MEAN= 1.08 STD.DEV.= 0.06 COEF.VAR.= 5.96 %

****

BA 0099

ABSORBANCE 0.012

08 +2
4606B-8A

1.80

AA AA-BG BG

ABSORBANCE 0.013

1.98

AA AA-BG BG

ABSORBANCE 0.011

1.62

MEAN= 1.80 STD.DEV.= 0.19 COEF.VAR.= 10.33 %

****

BA 0100 08+3 4606B-8A

AA AA-BG BG

ABSORBANCE 0.017

2.60

AA AA-BG BG

ABSORBANCE 0.016

2.42

AA AA-BG BG

ABSORBANCE 0.016

2.55

MEAN= 2.52 STD.DEV.= 0.10 COEF.VAR.= 3.95 %

****

BA 0101 09 4606B-9A y=.6560x+46.000
x=70.1220
r=.9913

0101 (CONTINUED)

AA AA-BG BG

ABSORBANCE 0.000

-0.01

AA AA-BG BG

ABSORBANCE 0.000

-0.05

AA AA-BG BG

ABSORBANCE 0.000

-0.06

MEAN= -0.04 STD.DEV.= 0.02 COEF.VAR.= 60.57 %

****

BA 0102

09 +1 4606B-9A

1.05

	AA	AA-BG	BG
ABSORBANCE	0.006		

0.83

	AA	AA-BG	BG
ABSORBANCE	0.003		

0.44

MEAN= 0.77 STD.DEV.= 0.31 COEF.VAR.= 40.80 %

****

BA 0103 09+2 4606B-9A

	AA	AA-BG	BG
ABSORBANCE	0.008		

1.27

	AA	AA-BG	BG
ABSORBANCE	0.010		

1.46

	AA	AA-BG	BG
ABSORBANCE	0.011		

1.72

MEAN= 1.48 STD.DEV.= 0.23 COEF.VAR.= 15.52 %

****

BA 0104 09+3 4606B-9A

0104 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.014		

2.08

	AA	AA-BG	BG
ABSORBANCE	0.014		

2.09

	AA	AA-BG	BG
ABSORBANCE	0.010		

1.58

MEAN= 1.91 STD.DEV.= 0.31 COEF.VAR.= 16.04 %

****

BA 0105 CCV5 10:17

	AA	AA-BG	BG
ABSORBANCE	0.013		

2.15

	AA	AA-BG	BG
ABSORBANCE	0.012		

1.97

	AA	AA-BG	BG
ABSORBANCE	0.012		

2.01

MEAN= 2.01 STD.DEV.= 0.14 COEF.VAR.= 7.13 %

****

BA 0106 CCB5 10:17

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.08

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.17

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.19

MEAN= -0.15 STD.DEV.= 0.06 COEF.VAR.= 38.78 %

****

BA 0107 10 ~~46~~ extraction dup

MF 5/18/89

	AA	AA-BG	BG
ABSORBANCE	-0.002		

y = 1.0290 x + 567.000

-0.24

x = 551.5564

r = .9620

	AA	AA-BG	BG
ABSORBANCE	-0.001		

-0.20

	AA	AA-BG	BG
ABSORBANCE	-0.002		

-0.25

MEAN= -0.23 STD.DEV.= 0.03 COEF.VAR.= 11.70 %

****

BA 0108

0108 (CONTINUED)

10+1 extraction dup.

	AA	AA-BG	BG
ABSORBANCE	0.002		
0.27			

	AA	AA-BG	BG
ABSORBANCE	0.000		
0.04			

	AA	AA-BG	BG
ABSORBANCE	0.000		
-0.01			

MEAN= 0.10 STD.DEV.= 0.15 COEF.VAR.= 99.99 %

****

BA 0109 10 +2 extraction dup.

	AA	AA-BG	BG
ABSORBANCE	0.007		
1.12			

	AA	AA-BG	BG
ABSORBANCE	0.006		
0.98			

	AA	AA-BG	BG
ABSORBANCE	0.009		
1.50			

MEAN= 1.20 STD.DEV.= 0.27 COEF.VAR.= 22.59 %

****

BA 0110 10 +3 extraction dup.

	AA	AA-BG	BG
ABSORBANCE	0.017		
2.79			

	AA	AA-BG	BG
ABSORBANCE	0.016		
2.68			

	AA	AA-BG	BG
ABSORBANCE	0.018		
3.01			

MEAN= 2.83 STD.DEV.= 0.18 COEF.VAR.= 6.30 %

****

BA 0111

0 1 1 1 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.009		

OIS 1:1
4606B-1AS

1.40

	AA	AA-BG	BG
ABSORBANCE	0.009		

y = .7050 x + 1105.0000
r = 3,34.7518
r = .9634

1.48

	AA	AA-BG	BG
ABSORBANCE	0.007		

1.13

MEAN= 1.34 STD.DEV.= 0.19 COEF.VAR.= 14.10 %

****

BA 0 1 1 2 OIS 1:1 4606B-1AS

	AA	AA-BG	BG
ABSORBANCE	0.009		

+1

1.50

	AA	AA-BG	BG
ABSORBANCE	0.008		

1.34

	AA	AA-BG	BG
ABSORBANCE	0.010		

1.58

MEAN= 1.46 STD.DEV.= 0.11 COEF.VAR.= 7.53 %

****

BA 0 1 1 3 OIS 1:1 4606B-1AS

	AA	AA-BG	BG
ABSORBANCE	0.016		

+2

2.57

	AA	AA-BG	BG
ABSORBANCE	0.015		

2.42

	AA	AA-BG	BG
ABSORBANCE	0.016		

2.55

MEAN= 2.51 STD.DEV.= 0.08 COEF.VAR.= 3.34 %

****

BA 0 1 1 4

0114 (CONTINUED)

		AA	AA-BG	BG
ABSORBANCE	0.019			
3.16				

OIS + 3
1:1
4606 B-1 AJ

		AA	AA-BG	BG
ABSORBANCE	0.022			
3.59				

		AA	AA-BG	BG
ABSORBANCE	0.020			
3.28				

MEAN= 3.34 STD.DEV.= 0.24 COEF.VAR.= 7.21 %

****

BA 0115 CCV 6 10:21

		AA	AA-BG	BG
ABSORBANCE	0.015			
2.23				

		AA	AA-BG	BG
ABSORBANCE	0.013			
1.90				

		AA	AA-BG	BG
ABSORBANCE	0.013			
1.89				

MEAN= 2.01 STD.DEV.= 0.20 COEF.VAR.= 9.90 %

****

BA 0116 CCB 6 10:21

		AA	AA-BG	BG
ABSORBANCE	0.000			
-0.01				

		AA	AA-BG	BG
ABSORBANCE	0.001			
0.09				

		AA	AA-BG	BG
ABSORBANCE	0.001			
0.13				

MEAN= 0.07 STD.DEV.= 0.07 COEF.VAR.= 99.99 %

****

C L P M E T A L S 2.02

Run ID: F5 8913702
PERKIN-ELMER 3030B

Acquired: 05/17/89 by DNF
Crunched: 05/19/89 by DNF
Time: 1603
Processing protocol: 7/87

Element: Cd.

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	05/17/89	
2	1 PPB	WS1		S1	05/17/89	
3	5 PPB	WS2		S5	05/17/89	
4	10 PPB	WS3		S10	05/17/89	
5	ICV1	ICV		ICV	05/17/89	
6	CAL BLK	ICB		ICB	05/17/89	
7	CRA	CRA0		CRA0	05/17/89	
8	PB	DBW		DBW	05/17/89	
9	PB	ASDBW		ASDBW	05/17/89	
10	LCSFW	LCSW		LCSW	05/17/89	
11	LCSFW	ASLCSW		ASLCSW	05/17/89	
12	5 PPB	CCV		CCV	05/17/89	
13	CAL BLK	CCB		CCB	05/17/89	
14	8905056-01	M0S	Furnace	4606B-1A0	05/17/89	
15	8905056-01	M1S	Furnace	4606B-1A	05/17/89	
16	8905056-01	M2S	Furnace	4606B-1A	05/17/89	
17	8905056-01	M3S	Furnace	4606B-1A	05/17/89	
26	8905056-02	M0S	Furnace	4606B-2A0	05/17/89	
27	8905056-02	M1S	Furnace	4606B-2A	05/17/89	
28	8905056-02	M2S	Furnace	4606B-2A	05/17/89	
29	8905056-02	M3S	Furnace	4606B-2A	05/17/89	
30	8905056-03	M0S	Furnace	4606B-3A0	05/17/89	
31	8905056-03	M1S	Furnace	4606B-3A	05/17/89	
32	8905056-03	M2S	Furnace	4606B-3A	05/17/89	
33	8905056-03	M3S	Furnace	4606B-3A	05/17/89	
34	5 PPB	CCV		CCV	05/17/89	
35	CAL BLK	CCB		CCB	05/17/89	
36	8905056-04	M0S	Furnace	4606B-4A0	05/17/89	
37	8905056-04	M1S	Furnace	4606B-4A	05/17/89	
38	8905056-04	M2S	Furnace	4606B-4A	05/17/89	
39	8905056-04	M3S	Furnace	4606B-4A	05/17/89	
40	8905056-05	M0S	Furnace	4606B-5A0	05/17/89	
41	8905056-05	M1S	Furnace	4606B-5A	05/17/89	
42	8905056-05	M2S	Furnace	4606B-5A	05/17/89	
43	8905056-05	M3S	Furnace	4606B-5A	05/17/89	
44	8905056-06	M0S	Furnace	4606B-6A0	05/17/89	
45	8905056-06	M1S	Furnace	4606B-6A	05/17/89	
46	8905056-06	M2S	Furnace	4606B-6A	05/17/89	
47	8905056-06	M3S	Furnace	4606B-6A	05/17/89	
48	8905056-07	M0S	Furnace	4606B-7A0	05/17/89	
49	8905056-07	M1S	Furnace	4606B-7A	05/17/89	
50	8905056-07	M2S	Furnace	4606B-7A	05/17/89	
51	8905056-07	M3S	Furnace	4606B-7A	05/17/89	

Pos	Sample	Code	Preparation Method	Client ID	
52	8905056-08	M0S	Furnace	4606B-8AD	05/17/89
53	8905056-08	M1S	Furnace	4606B-8A	05/17/89
54	8905056-08	M2S	Furnace	4606B-8A	05/17/89
55	8905056-08	M3S	Furnace	4606B-8A	05/17/89
56	5 PPB	CCV		CCV	05/17/89
57	CAL BLK	CCB		CCB	05/17/89
58	8905056-09	M0S	Furnace	4606B-9AD	05/17/89
59	8905056-09	M1S	Furnace	4606B-9A	05/17/89
60	8905056-09	M2S	Furnace	4606B-9A	05/17/89
61	8905056-09	M3S	Furnace	4606B-9A	05/17/89
62	8905056-10	M0S	Furnace	EXTRACTION DUB	06/17/89
63	8905056-10	M1S	Furnace	EXTRACTION DUB	05/17/89
64	8905056-10	M2S	Furnace	EXTRACTION DUB	05/17/89
65	8905056-10	M3S	Furnace	EXTRACTION DUB	05/17/89
66	8905056-11	M0S	Furnace	EXTRACTION BL	06/17/89
67	8905056-11	M1S	Furnace	EXTRACTION BL	05/17/89
68	8905056-11	M2S	Furnace	EXTRACTION BL	05/17/89
69	8905056-11	M3S	Furnace	EXTRACTION BL	05/17/89
70	8905056-01	M0S2	Furnace	4606B-1ADD	05/17/89
71	8905056-01	M1S2	Furnace	4606B-1AD	05/17/89
72	8905056-01	M2S2	Furnace	4606B-1AD	05/17/89
73	8905056-01	M3S2	Furnace	4606B-1AD	05/17/89
74	8905056-01	M0DS	Furnace	4606B-1ASD	05/17/89
75	8905056-01	M1DS	Furnace	4606B-1AS	05/17/89
76	8905056-01	M2DS	Furnace	4606B-1AS	05/17/89
77	8905056-01	M3DS	Furnace	4606B-1AS	05/17/89
78	5 PPB	CCV		CCV	05/17/89
79	CAL BLK	CCB		CCB	05/17/89
80	8905056-02	M0S	Furnace	4606B-2AD	05/17/89
81	8905056-02	M1S	Furnace	4606B-2A	05/17/89
82	8905056-02	M2S	Furnace	4606B-2A	05/17/89
83	8905056-02	M3S	Furnace	4606B-2A	05/17/89
84	8905056-03	M0S	Furnace	4606B-3AD	05/17/89
85	8905056-03	M1S	Furnace	4606B-3A	05/17/89
86	8905056-03	M2S	Furnace	4606B-3A	05/17/89
87	8905056-03	M3S	Furnace	4606B-3A	05/17/89
88	8905056-04	M0S	Furnace	4606B-4AD	05/17/89
89	8905056-04	M1S	Furnace	4606B-4A	05/17/89
90	8905056-04	M2S	Furnace	4606B-4A	05/17/89
91	8905056-04	M3S	Furnace	4606B-4A	05/17/89
92	8905056-05	M0S	Furnace	4606B-5AD	05/17/89
93	8905056-05	M1S	Furnace	4606B-5A	05/17/89
94	8905056-05	M2S	Furnace	4606B-5A	05/17/89
95	8905056-05	M3S	Furnace	4606B-5A	05/17/89
96	8905056-06	M0S	Furnace	4606B-6AD	05/17/89
97	8905056-06	M1S	Furnace	4606B-6A	05/17/89
98	8905056-06	M2S	Furnace	4606B-6A	05/17/89
99	8905056-06	M3S	Furnace	4606B-6A	05/17/89
100	5 PPB	CCV		CCV	05/17/89
101	CAL BLK	CCB		CCB	05/17/89
102	8905056-09	M0S	Furnace	4606B-9AD	05/17/89
103	8905056-09	M1S	Furnace	4606B-9A	05/17/89

Pos	Sample	Code	Preparation Method	Client ID	
104	8905056-09	M2S	Furnace	4606B-9A	05/17/89
105	8905056-09	M3S	Furnace	4606B-9A	05/17/89
106	8905056-10	M0S	Furnace	EXTRACTION DUB	05/17/89
107	8905056-10	M1S	Furnace	EXTRACTION DUB	05/17/89
108	8905056-10	M2S	Furnace	EXTRACTION DUB	05/17/89
109	8905056-10	M3S	Furnace	EXTRACTION DUB	05/17/89
110	8905056-01	M0DS	Furnace	4606B-1ASD	05/17/89
111	8905056-01	M1DS	Furnace	4606B-1AS	05/17/89
112	8905056-01	M2DS	Furnace	4606B-1AS	05/17/89
113	8905056-01	M3DS	Furnace	4606B-1AS	05/17/89
114	5 PPB	CCV		CCV	05/17/89
115	CAL BLK	CCB		CCB	05/17/89

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 26 Instrument ID: F_1, F_2, F_3, F_4 F_5 Page 1 of 3 mf 5/22/89

Date: 5/17/1989 Reviewed by: _____ Instruments Method #: 28

Operator: [illegible] Standards Prepared: 8:00 5/17/89

Background: BS BD

Time Calibrated: 15:54

Standards Source:

1. Calibration: 1ppm
2. ICV: ICV1 (1:100)
3. CCV: 5ppb

disc # _____

acq _____

8905056

SKINNER AND SHERMAN

A	B
Run ID: 8913702	Run ID:
Element: As Pb Cd	Element: Se Tl
Wavelength (nm): 228.8	Wavelength (nm):
Slitwidth (nm): 0.7	Slitwidth (nm):
Integration Time (sec): 3	Integration Time (sec):
STD1: 0 STD2: 1	STD1: STD2:
STD3: 5 STD4: 10	STD3: STD4:

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV 1:9		
	2	ICB		
	3	CRA (1ppb)		
	4	PB		
	5	PBA		
	6	LCSW		
	7	LCSWA		
	8	CCV		
	9	CCB		
	10	01 01+1	7 mixed up order	all 1:1 dilution because no spike recovery straight
	11	+1 01		
r=.9973	12	+2		
	13	+3		
	14	~~020~~ 010		
dil	15	+1		
	16	+2		
	17	+3		
	18	015		
dil	19	+1		
	20	+2		
	21	+3		
	22	~~01~~ 02		
rem	23	+5 +1		
r=.9652	24	+10 +2		
	25	+3		
	26	03		
	27	+1		
rem r=.9625	28	+2		
	29	+3		
	30	CCV		
	31	CCB		
	32	04		
rem r=.9579	33	+1		
	34	+2		
	35	+3		
	36	05		
	37	+1		
r=.9000	38	+2		
	39	+3		

GFAA RUN BENCH SHEET

AA SEQUENCE #: 26

PAGE 2 OF 23 mfs 5/22/89

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	06	1:1	
	41	+1		
r=.9812	42	+2		
	43	+3		
	44	07		
r=.9980	45	+1		
	46	+2		
	47	+3		
	48	08		
	49	+1		
r=.9955	50	+2		
	51	+3		
	52	CCV		
	53	CCB		
	54	09		
	55	+1		
	56	+2		
r=.9755	57	+3		
	58	10		
	59	+1		
	60	+2		
r=.3671	61	+3		
	62	11		
	63	+1		
r=.9989	64	+2		
	65	+3		
	66	010	1:9	
	67	+1		
r=.9972	68	+2		
	69	+3		
	70	015	1:5	
	71	+1		
r=.9808	72	+2		
	73	+3		
	74	04 CCV		
	75	+1 CCB		
	76	+2 02	1:1	
	77	+3 +1		
	78	+2		
	79	+3		
	80	03		
	81	+1		
	82	+2		
	83	+3		
	84	04		
	85	+1		

GFAA RUN BENCH SHEET

AA SEQUENCE #: 26

SKINNER AND SHERMAN

	A COMMENTS	SAMPLE ID	DILUTION	B COMMENTS
86		+2	1:1	
87		+3		
88		05		
89		+1		
90		+2		
91		+3		
92		06		
93		+1		
94		+2		
95		+3		
96		CCV		
97		CCB		
98		09	1:1	
99		+1		
100		+2		
101		+3		
102		10	1:4	
103		+1		
104		+2		
105		+3		
106		013	1:4	
107		+1	1:4	
108		+2		
109		+3		
110		CCV		
111		CCB		
112				
113				
114				
115				
116				
117				
118				
119				
120				
121				
122				
123				
124				
125				
126				
127				
128				
129				
130				
131				

CD

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.060	0.048	0.053
PEAK AREA (ABS-SECONDS)	0.058	0.002	0.055

STD 1

READ: 0.002

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.079	0.045	0.061
PEAK AREA (ABS-SECONDS)	0.076	0.016	0.060

READ: 0.016

MEAN= 0.009 STD.DEV.= 0.010 COEF.VAR.= 99.99 %

****

0.000 AUTOZERO

****

CD

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.137	0.124	0.041
PEAK AREA (ABS-SECONDS)	0.134	0.095	0.039

STD 2

READ: 0.086

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.112	0.101	0.041
PEAK AREA (ABS-SECONDS)	0.081	0.044	0.037

READ: 0.035

MEAN= 0.061 STD.DEV.= 0.036 COEF.VAR.= 59.42 %

****

1.00 STANDARD 1

****

CD

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.490	0.498	0.040
PEAK AREA (ABS-SECONDS)	0.503	0.477	0.026

STD 3

READ: 7.70

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.485	0.487	0.040
PEAK AREA (ABS-SECONDS)	0.493	0.463	0.029

READ: 7.48

MEAN= 7.59 STD.DEV.= 0.16 COEF.VAR.= 2.06 %

****

7.59

E-50: READING GREATER THAN HIGHEST STANDARD

****

5.00 STANDARD 2

****

CD

15:54

STD 4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.925	0.919	0.040
PEAK AREA (ABS-SECONDS)	0.945	0.919	0.026

READ: 7.13

(CONTINUED)	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.950	0.946	0.004
PEAK AREA (ABS-SECONDS)	0.945	0.910	0.035

READ: 7.11

MEAN= 7.12 STD.DEV.= 0.03 COEF.VAR.= 0.36 %

****

7.12

E-50: READING GREATER THAN HIGHEST STANDARD

****

9.88 STANDARD 3

E-54: S-SHAPED CURVE. 2-COEF EQUATION USED

****

5/17/89

CD 0001 (CV) 16:00

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.502	0.499	0.036
PEAK AREA (ABS-SECONDS)	0.504	0.479	0.025

READ: 5.17

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.502	0.494	0.032
PEAK AREA (ABS-SECONDS)	0.501	0.478	0.022

READ: 5.17

MEAN= 5.17 STD.DEV.= 0.00 COEF.VAR.= 0.01 %

****

CD 0002 (CB) 16:06

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.050	0.037	0.048
PEAK AREA (ABS-SECONDS)	0.040	0.006	0.034

READ: -0.03

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.049	0.044	0.055
PEAK AREA (ABS-SECONDS)	0.046	0.008	0.054

READ: -0.18

MEAN= -0.11 STD.DEV.= 0.11 COEF.VAR.= 99.99 %

****

CD 0003 (RA)

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.145	0.142	0.040
PEAK AREA (ABS-SECONDS)	0.127	0.101	0.026

READ: 1.01

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.140	0.152	0.032
PEAK AREA (ABS-SECONDS)	0.131	0.109	0.022

READ: 1.11

MEAN= 1.06 STD.DEV.= 0.07 COEF.VAR.= 6.34 %

****

CD 0004 PB

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.059	0.056	0.043
PEAK AREA (ABS-SECONDS)	0.034	0.000	0.035

READ: -0.10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.058	0.046	0.057
PEAK AREA (ABS-SECONDS)	0.061	0.008	0.058

READ: -0.01

MEAN= -0.05 STD.DEV.= 0.06 COEF.VAR.= 99.99 %

****

CD 0005 PBA 87.0%

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.087	0.139	0.040
PEAK AREA (ABS-SECONDS)	0.117	0.089	0.028

READ: 0.89

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.132	0.144	0.037
PEAK AREA (ABS-SECONDS)	0.118	0.086	0.032

READ: 0.85

MEAN= 0.87 STD.DEV.= 0.02 COEF.VAR.= 2.80 %

****

CD 0006 LCSW

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.538	0.538	0.032
PEAK AREA (ABS-SECONDS)	0.516	0.494	0.022

Syrb

READ: 5.34

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.551	0.532	0.034
PEAK AREA (ABS-SECONDS)	0.508	0.483	0.025

READ: 5.22

MEAN= 5.28 STD.DEV.= 0.09 COEF.VAR.= 1.61 %

****

CD 0007 LCSWA

107.0%

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.640	0.630	0.036
PEAK AREA (ABS-SECONDS)	0.610	0.583	0.028

READ: 6.32

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.656	0.650	0.040
PEAK AREA (ABS-SECONDS)	0.611	0.589	0.022

READ: 6.39

MEAN= 6.35 STD.DEV.= 0.05 COEF.VAR.= 0.75 %

****

CD 0008 CCV 1

16:42

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.529	0.534	0.046
PEAK AREA (ABS-SECONDS)	0.508	0.481	0.027

READ: 5.19

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.549	0.533	0.037
PEAK AREA (ABS-SECONDS)	0.508	0.481	0.027

READ: 5.20

MEAN= 5.20 STD.DEV.= 0.00 COEF.VAR.= 0.08 %

****

CD 0009

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) CCB1	0.055	0.038	0.047
PEAK AREA (ABS-SECONDS)	0.045	0.001	0.044

READ: -0.09 16:48

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.065	0.051	0.052
PEAK AREA (ABS-SECONDS)	0.050	-0.005	0.055

READ: -0.15

MEAN= -0.12 STD.DEV.= 0.05 COEF.VAR.= 39.72 %

****

CD 0010 ~~[illegible]~~ 46068-1A 2x

5/17/85 ~~MDS~~

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) MIS	0.762	0.746	0.071
PEAK AREA (ABS-SECONDS) +1	0.771	0.684	0.087

7.44

****

CD 0011 MDS 46068-1A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.602	0.577	0.072
PEAK AREA (ABS-SECONDS)	0.701	0.595	0.106

6.46

****

CD 0012 MLS 46068-1A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) +2	0.804	0.784	0.076
PEAK AREA (ABS-SECONDS)	0.852	0.749	0.103

8.15

****

CD 0013 M3S 46068-1A 2x

+3

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) r=0.9973	0.827	0.822	0.077
PEAK AREA (ABS-SECONDS)	0.944	0.845	0.098

X=-7.1958 Slope=0.8990 Y intercept=6.4690

9.22

****

CD 0014

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) High dilute	1.792	1.734	0.100
PEAK AREA (ABS-SECONDS)	1.758	1.598	0.159

17.55

E-50: READING GREATER THAN HIGHEST STANDARD

****

CD 0015 5/17/85

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.675	0.664	0.079
PEAK AREA (ABS-SECONDS)	0.791	0.674	0.116

7.33

****

CD 0016

High dilutio

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.738	0.710	0.076
PEAK AREA (ABS-SECONDS)	0.882	0.761	0.121

8.29

****

CD 0017

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.791	0.756	0.085
PEAK AREA (ABS-SECONDS)	0.942	0.820	0.122

5/17/89

8.94

****

CD 0018

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	1.079	1.015	0.105
PEAK AREA (ABS-SECONDS)	1.075	0.919	0.156

10.03

****

CD 0019

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.982	0.964	0.091
PEAK AREA (ABS-SECONDS)	1.169	1.054	0.114

11.53

E-50: READING GREATER THAN HIGHEST STANDARD

****

CD 0020

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	1.044	1.009	0.088
PEAK AREA (ABS-SECONDS)	1.168	1.041	0.127

11.88

E-50: READING GREATER THAN HIGHEST STANDARD

****

CD 0021

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	1.118	1.094	0.077
PEAK AREA (ABS-SECONDS)	1.231	1.110	0.121

12.14

E-50: READING GREATER THAN HIGHEST STANDARD

****

CD 0022 mos 46068-2A 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.387	0.326	0.130
PEAK AREA (ABS-SECONDS)	0.369	0.163	0.206

$y = 0.8060X + 1.6060$ $r = .9652$

$X = 1.9526$

1.70

****

CD 0023 mis 46068-2A +1 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.388	0.340	0.134
PEAK AREA (ABS-SECONDS)	0.406	0.200	0.206

2.10

****

CD 0024 m2S 46068-2A +2 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.458	0.404	0.145
PEAK AREA (ABS-SECONDS)	0.563	0.333	0.231

9.55

****

CD 0025 m3S 46068-2A +3 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.517	0.459	0.117
PEAK AREA (ABS-SECONDS)	0.581	0.363	0.218

~~r=0.9672~~ ~~y=0.8500x+5.5800~~ ~~x=-6.5647~~ 5/17/89

8.90

****

CD 0026 m0S 46068-3A 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.566	0.528	0.034
PEAK AREA (ABS-SECONDS)	0.640	0.499	0.141

r=.9672

y=0.8500x+5.5800

x=-6.5647

5.39

****

CD 0027 m1S 46068-3A +1 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.668	0.616	0.096
PEAK AREA (ABS-SECONDS)	0.789	0.629	0.160

6.83

****

CD 0028 m2S 46068-3A +2 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.704	0.670	0.103
PEAK AREA (ABS-SECONDS)	0.799	0.648	0.150

7.05

****

CD 0029 m3S 46068-3A +3 2X

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.791	0.742	0.098
PEAK AREA (ABS-SECONDS)	0.900	0.748	0.152

8.15

****

CD 0030 CW2 17:50 ~~2X~~ 5/17/89

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.426	0.410	0.049
PEAK AREA (ABS-SECONDS)	0.503	0.438	0.065

4.73

****

CD 0031 CCB2 17:53 ~~2X~~ 5/17/89

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.074	0.036	0.083
PEAK AREA (ABS-SECONDS)	0.096	-0.004	0.100

-0.14

****

CD 0032 mos 4606B-4A

PEAK HEIGHT (ABSORBANCE)	0.484	2x	0.419
PEAK AREA (ABS-SECONDS)	0.507	0.287	0.220

r=.9579 mf5/22/81

y= ~~0.9577~~ x + 3.1640 x = -9.1977 m = .3440

3.05

****

CD 0033 m1s 4606B-4A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.563	0.503	0.113
PEAK AREA (ABS-SECONDS)	0.558	0.345	0.213

+1 2x

3.70

****

CD 0034 m2s 4606B-4A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.592	0.520	0.118
PEAK AREA (ABS-SECONDS)	0.571	0.352	0.219

+2 2x

3.78

****

CD 0035 m3s 4606B-4A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.664	0.559	0.108
PEAK AREA (ABS-SECONDS)	0.598	0.389	0.209

+3

4.18

****

CD 0036 mos 4606B-5A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.539	0.466	0.128
PEAK AREA (ABS-SECONDS)	0.542	0.334	0.208

r=.9006

x= -3.5315

y= 0.8730x + 3.0830

3.58

****

CD 0037 m1s 4606B-5A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.602	0.533	0.108
PEAK AREA (ABS-SECONDS)	0.485	0.298	0.187

+1

3.19

****

CD 0038 m2s 4606B-5A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.618	0.556	0.128
PEAK AREA (ABS-SECONDS)	0.659	0.451	0.208

+2

4.87

****

CD 0039 m3s 4606B-5A 2x

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.711	0.644	0.123
PEAK AREA (ABS-SECONDS)	0.748	0.547	0.201

+3

5.93

****

CD 0040 M0S 4606B-6A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.894	0.813	0.107
PEAK AREA (ABS-SECONDS)	0.742	0.548	0.194

r = 0.9812
X = -11.1583
y = 0.5370X + 5.9920

5.94

****

CD 0041 M1S 4606B-6A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) +1	0.958	0.881	0.112
PEAK AREA (ABS-SECONDS)	0.777	0.600	0.177

6.51

****

CD 0042 M2S 4606B-6A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) +2	1.043	0.980	0.122
PEAK AREA (ABS-SECONDS)	0.858	0.662	0.191

7.26

****

CD 0043 M3S 4606B-6A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) +3	1.033	0.970	0.103
PEAK AREA (ABS-SECONDS)	0.882	0.688	0.195

7.48

****

CD 0044 M0S 4606B-7A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.530	0.459	0.120
PEAK AREA (ABS-SECONDS)	0.599	0.390	0.209

X = -8.7254
r = 0.9980
y = 0.4770X + 4.1620

4.19

****

CD 0045 M1S 4606B-7A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) +1	0.608	0.541	0.128
PEAK AREA (ABS-SECONDS)	0.635	0.429	0.206

4.62

****

CD 0046 M2S 4606B-7A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) +2	0.709	0.651	0.137
PEAK AREA (ABS-SECONDS)	0.684	0.469	0.215

5.07

****

CD 0047 M3S 4606B-7A 2X

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) +3	0.701	0.644	0.129
PEAK AREA (ABS-SECONDS)	0.726	0.520	0.205

5.63

****

CD 0048 m03

		AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	4606B-8A	0.163	0.146	0.057
PEAK AREA (ABS-SECONDS)	r5/11/89 ~~0.9600~~	0.211	0.141	0.070

r=.9955

1.45 y= 0.9600X + 1.4250 X= -1.4844

****

CD 0049 m1S 4606B-8A

		AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	+1	0.216	0.213	0.063
PEAK AREA (ABS-SECONDS)		0.296	0.215	0.081

2.27

****

CD 0050 m2S 4606B-8A

		AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	+2	0.329	0.316	0.058
PEAK AREA (ABS-SECONDS)		0.400	0.326	0.073

3.50

****

CD 0051 m3S 4606B-8A

		AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	+3	0.392	0.380	0.058
PEAK AREA (ABS-SECONDS)		0.472	0.394	0.077

4.24

****

CD 0052 CCV 3

		AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	18:56	0.396	0.391	0.050
PEAK AREA (ABS-SECONDS)		0.512	0.456	0.056

4.92

****

CD 0053 CCB 3

		AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	18:59	0.079	0.048	0.034
PEAK AREA (ABS-SECONDS)		0.102	0.015	0.087

0.06

****

CD 0054 09 46068-9A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) 1.1	0.354	0.238	0.144
PEAK AREA (ABS-SECONDS)	0.379	0.142	0.237

y = .3050 x + 1.420 r = .9355
x = -4.6557

1.47

****

CD 0055 09 +1 1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.360	0.291	0.138
PEAK AREA (ABS-SECONDS)	0.379	0.150	0.229

1.59

****

CD 0056 09+2 1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.480	0.389	0.145
PEAK AREA (ABS-SECONDS)	0.437	0.210	0.227

2.21

****

CD 0057 09+3 1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.504	0.429	0.162
PEAK AREA (ABS-SECONDS)	0.455	0.215	0.239

2.27

****

CD 0058 10 1.1 extraction dup.

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.556	0.479	0.160
PEAK AREA (ABS-SECONDS)	0.547	0.301	0.246

y = .1160 x + 3.2110
x = 27.6810
r = .3671

3.21

****

CD 0059 10 +1 1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.562	0.480	0.138
PEAK AREA (ABS-SECONDS)	0.512	0.287	0.225

3.06

****

CD 0060 10 +2 1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.638	0.568	0.135
PEAK AREA (ABS-SECONDS)	0.599	0.370	0.229

3.98

****

CD 0061 10 +3 1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.696	0.601	0.145
PEAK AREA (ABS-SECONDS)	0.523	0.308	0.215

3.29

****

CD 0062 11 extraction blk, 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.128	0.072	0.111
PEAK AREA (ABS-SECONDS)	0.209	0.057	0.152

y = .969 x + .4640
x = .4788
r = .9984

0.53

****

CD 0063 11 +1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.184	0.166	0.110
PEAK AREA (ABS-SECONDS)	0.280	0.132	0.148

1.35

****

CD 0064 11 +2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.264	0.238	0.107
PEAK AREA (ABS-SECONDS)	0.359	0.224	0.135

2.37

****

CD 0065 11 +3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.345	0.334	0.097
PEAK AREA (ABS-SECONDS)	0.426	0.320	0.106

3.42

****

CD 0066 01D 1:9 ~~4606B~~ mF5123689 4606B-1AD

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.205	0.173	0.123
PEAK AREA (ABS-SECONDS)	0.306	0.136	0.171

y = .834 x + 1.444
x = 1.7314 r = .9972

1.39

****

CD 0067 01D+1 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.240	0.233	0.110
PEAK AREA (ABS-SECONDS)	0.354	0.219	0.135

2.31

****

CD 0068 01D+2 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.337	0.311	0.110
PEAK AREA (ABS-SECONDS)	0.436	0.301	0.135

3.21

****

CD 0069 01D+3 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.354	0.343	0.116
PEAK AREA (ABS-SECONDS)	0.490	0.361	0.130

3.87

****

CD 0070 01S 1:9 4606B-1AS

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.272	0.245	0.096
PEAK AREA (ABS-SECONDS)	0.344	0.217	0.137

y=.8970 x+2.4920

2.29 x=2.1782 r=.9808

****

CD 0071 01S+1 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.354	0.328	0.104
PEAK AREA (ABS-SECONDS)	0.464	0.346	0.118

3.72

****

CD 0072 01S+2 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.403	0.389	0.107
PEAK AREA (ABS-SECONDS)	0.517	0.393	0.124

4.23

****

CD 0073 01S+3 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.527	0.508	0.108
PEAK AREA (ABS-SECONDS)	0.590	0.473	0.118

5.11

****

CD 0074 CCV4 19:56

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.457	0.443	0.056
PEAK AREA (ABS-SECONDS)	0.496	0.431	0.065

4.65

****

CD 0075 CCB4 19:59

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.110	0.054	0.124
PEAK AREA (ABS-SECONDS)	0.154	0.005	0.149

-0.04

****

CD 0076 02 4606B-2A 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.394	0.334	0.143
PEAK AREA (ABS-SECONDS)	0.429	0.229	0.200

y=.395x+2.3550

x=6.8261

2.42 r=.7502

****

CD 0077 02+1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.435	0.374	0.131
PEAK AREA (ABS-SECONDS)	0.429	0.221	0.207

2.34

****

CD 0078 02+2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.566	0.504	0.133
PEAK AREA (ABS-SECONDS)	0.563	0.333	0.230

3.57

****

CD 0079 02+3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.568	0.489	0.128
PEAK AREA (ABS-SECONDS)	0.505	0.296	0.209

3.19

****

CD 0080 03 1:1 4606B-3A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.598	0.548	0.133
PEAK AREA (ABS-SECONDS)	0.736	0.547	0.189

$y = -.709x + 5.9390$

$x = -8.3766$

$r = .9989$

5.93

****

CD 0081 03+1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.659	0.619	0.108
PEAK AREA (ABS-SECONDS)	0.780	0.616	0.164

6.69

****

CD 0082 03+2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.705	0.644	0.108
PEAK AREA (ABS-SECONDS)	0.840	0.672	0.168

7.30

****

CD 0083 03+3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.784	0.736	0.132
PEAK AREA (ABS-SECONDS)	0.931	0.743	0.188

8.09

****

CD 0084 04 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.525	0.451	0.137
PEAK AREA (ABS-SECONDS)	0.556	0.328	0.228

$y = .012x + 3.5520$

$x = -296.0$

$r = .3162$

3.51

****

CD 0085 04+1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.560	0.487	0.130
PEAK AREA (ABS-SECONDS)	0.560	0.337	0.223

3.61

****

CD 0086 04+2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.625	0.539	0.128
PEAK AREA (ABS-SECONDS)	0.558	0.337	0.221

3.61

****

CD 0087 04+3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.655	0.562	0.125
PEAK AREA (ABS-SECONDS)	0.543	0.331	0.211

3.55

****

CD 0088 05 1:1 4606B-5A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.523	0.458	0.134
PEAK AREA (ABS-SECONDS)	0.473	0.260	0.214

2.76

****

CD 0089 05+1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.578	0.497	0.132
PEAK AREA (ABS-SECONDS)	0.550	0.453	0.198

y = .849x + 3.299
x = 3.8858
r = .8875

4.99

****

CD 0090 05+2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.645	0.583	0.132
PEAK AREA (ABS-SECONDS)	0.691	0.475	0.216

5.13

****

CD 0091 05+3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.813	0.755	0.129
PEAK AREA (ABS-SECONDS)	0.726	0.509	0.217

5.51

****

CD 0092 06 1:1 4606B-6A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.820	0.741	0.131
PEAK AREA (ABS-SECONDS)	0.633	0.441	0.192

y = .778x + 4.938
x = 6.3470
r = .7839

4.76

****

CD 0093 06+1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	1.020	0.939	0.117
PEAK AREA (ABS-SECONDS)	0.784	0.599	0.185

6.50

****

CD 0094 06+2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.939	0.882	0.112
PEAK AREA (ABS-SECONDS)	0.683	0.504	0.178

5.46

****

CD 0095 06+3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	1.084	1.024	0.113
PEAK AREA (ABS-SECONDS)	0.898	0.707	0.191

7.70

****

CD 0096 CCV 5 20:56

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.418	0.405	0.060
PEAK AREA (ABS-SECONDS)	0.506	0.438	0.068

4.72

****

CD 0097 CCB 5 20:59

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.085	0.039	0.090
PEAK AREA (ABS-SECONDS)	0.111	0.015	0.097

0.06

****

CD 0098 09 1:1 4606B-9A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.299	0.221	0.108
PEAK AREA (ABS-SECONDS)	0.309	0.104	0.205

$y = .232x + 1.218$

$x = 5.1177$

$r = .8556$

1.05

****

CD 0099 09+1 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.393	0.326	0.117
PEAK AREA (ABS-SECONDS)	0.359	0.165	0.194

1.72

****

CD 0100 09+2 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.358	0.286	0.097
PEAK AREA (ABS-SECONDS)	0.343	0.161	0.182

1.67

****

CD 0101 09+3 1:1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.439	0.357	0.105
PEAK AREA (ABS-SECONDS)	0.372	0.178	0.194

1.86

****

CD 0102 10 1:4 extraction dup

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.233	0.192	0.082
PEAK AREA (ABS-SECONDS)	0.259	0.131	0.127

y = .806 x + 1.3010
x = 1.6141 r = .9987

1.35

****

CD 0103 10+1 1:4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.319	0.271	0.037
PEAK AREA (ABS-SECONDS)	0.333	0.195	0.138

2.05

****

CD 0104 10+2 1:4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.424	0.384	0.092
PEAK AREA (ABS-SECONDS)	0.410	0.271	0.139

2.98

****

CD 0105 10+3 1:4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.461	0.436	0.092
PEAK AREA (ABS-SECONDS)	0.488	0.351	0.138

3.76

****

CD 0106 015 1:9 4606B-1AS

y = 1.011 x + 2.4510
x = -2.4243
r = .9965

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.228	0.214	0.083
PEAK AREA (ABS-SECONDS)	0.320	0.223	0.097

2.35

****

CD 0107 015+1 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.329	0.312	0.093
PEAK AREA (ABS-SECONDS)	0.432	0.334	0.099

3.58

****

CD 0108 015+2 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.424	0.403	0.081
PEAK AREA (ABS-SECONDS)	0.517	0.421	0.096

4.54

****

CD 0109 015+3 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.528	0.504	0.095
PEAK AREA (ABS-SECONDS)	0.619	0.499	0.120

5.40

****

CD 0110 CCV4 21:35

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.420	0.414	0.050
PEAK AREA (ABS-SECONDS)	0.503	0.448	0.055

4.94

****

CD 0111 CCB6 21:38

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.097	0.052	0.099
PEAK AREA (ABS-SECONDS)	0.118	0.020	0.098

0.12

****

CD 0112

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.068	0.053	0.094
PEAK AREA (ABS-SECONDS)	0.126	0.013	0.113

0.05

****

CD 0113

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.105	0.045	0.094
PEAK AREA (ABS-SECONDS)	0.123	-0.007	0.129

-0.17

end of mn MF 5/22/85

****

CD 0114

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.098	0.052	0.080
PEAK AREA (ABS-SECONDS)	0.109	0.003	0.106

-0.07

****

CD 0115

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.108	0.065	0.092
PEAK AREA (ABS-SECONDS)	0.137	0.037	0.100

0.31

****

CD 0116

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.109	0.056	0.083
PEAK AREA (ABS-SECONDS)	0.121	0.014	0.107

0.05

****

CD 0117

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.095	0.048	0.096
PEAK AREA (ABS-SECONDS)	0.130	0.024	0.106

0.16

****

C L P M E T A L S 2.02

Run id: F5 8913801
PERKIN-ELMER 3030B

Element:

Acquired: 05/18/89 by DNP
Crunched: 05/19/89 by DNP
Time: 1449
Processing protocol: 7/87

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	05/17/89	
2	10 PPB	WS1		S10	05/17/89	
3	50 PPB	WS2		S50	05/17/89	
4	100 PPB	WS3		S100	05/17/89	
5	ICV1	ICV		ICV	05/17/89	
6	CAL BLK	ICB		ICB	05/17/89	
7	CRA	CRA0		CRA0	05/17/89	
10	LCSFW	LCSW		LCSW	05/17/89	
11	LCSFW	ASLCSW		ASLCSW	05/17/89	
12	50 PPB	CCV		CCV	05/17/89	
13	CAL BLK	CCB		CCB	05/17/89	
14	8905056-01	M1S	Furnace	4606B-1A	05/17/89	
15	8905056-01	M0S	Furnace	4606B-1A0	05/17/89	
16	8905056-01	M2S	Furnace	4606B-1A	05/17/89	
17	8905056-01	M3S	Furnace	4606B-1A	05/17/89	
18	8905056-01	M0S2	Furnace	4606B-1A00	05/17/89	
19	8905056-01	M1S2	Furnace	4606B-1A0	05/17/89	
20	8905056-01	M2S2	Furnace	4606B-1A0	05/17/89	
21	8905056-01	M3S2	Furnace	4606B-1A0	05/17/89	
22	8905056-01	M0DS	Furnace	4606B-1AS0	05/17/89	
23	8905056-01	M1DS	Furnace	4606B-1AS	05/17/89	
24	8905056-01	M2DS	Furnace	4606B-1AS	05/17/89	
25	8905056-01	M3DS	Furnace	4606B-1AS	05/17/89	
26	8905056-02	M0S	Furnace	4606B-2A0	05/17/89	
27	8905056-02	M1S	Furnace	4606B-2A	05/17/89	
28	8905056-02	M2S	Furnace	4606B-2A	05/17/89	
29	8905056-02	M3S	Furnace	4606B-2A	05/17/89	
34	50 PPB	CCV		CCV	05/17/89	
35	CAL BLK	CCB		CCB	05/17/89	
36	8905056-04	M0S	Furnace	4606B-4A0	05/17/89	
37	8905056-04	M1S	Furnace	4606B-4A	05/17/89	
38	8905056-04	M2S	Furnace	4606B-4A	05/17/89	
39	8905056-04	M3S	Furnace	4606B-4A	05/17/89	
40	8905056-05	M0S	Furnace	4606B-5A0	05/17/89	
41	8905056-05	M1S	Furnace	4606B-5A	05/17/89	
42	8905056-05	M2S	Furnace	4606B-5A	05/17/89	
43	8905056-05	M3S	Furnace	4606B-5A	05/17/89	
44	8905056-06	M0S	Furnace	4606B-6A0	05/17/89	
45	8905056-06	M1S	Furnace	4606B-6A	05/17/89	
46	8905056-06	M2S	Furnace	4606B-6A	05/17/89	
47	8905056-06	M3S	Furnace	4606B-6A	05/17/89	
48	8905056-07	M0S	Furnace	4606B-7A0	05/17/89	
49	8905056-07	M1S	Furnace	4606B-7A	05/17/89	

Pos	Sample	Code	Preparation Method	Client ID	
50	8905056-07	M2S	Furnace	4606B-7A	05/17/89
51	8905056-07	M3S	Furnace	4606B-7A	05/17/89
52	8905056-08	M0S	Furnace	4606B-8A0	05/17/89
53	8905056-08	M1S	Furnace	4606B-8A	05/17/89
54	8905056-08	M2S	Furnace	4606B-8A	05/17/89
55	8905056-08	M3S	Furnace	4606B-8A	05/17/89
56	50 PPB	CCV		CCV	05/17/89
57	CAL BLK	CCB		CCB	05/17/89
58	8905056-09	M0S	Furnace	4606B-9A0	05/17/89
59	8905056-09	M1S	Furnace	4606B-9A	05/17/89
60	8905056-09	M2S	Furnace	4606B-9A	05/17/89
61	8905056-09	M3S	Furnace	4606B-9A	05/17/89
62	8905056-10	M0S	Furnace	EXTRACTION DU	05/17/89
63	8905056-10	M1S	Furnace	EXTRACTION DU	05/17/89
64	8905056-10	M2S	Furnace	EXTRACTION DU	05/17/89
65	8905056-10	M3S	Furnace	EXTRACTION DU	05/17/89
66	8905056-11	M0S	Furnace	EXTRACTION BL	05/17/89
67	8905056-11	M1S	Furnace	EXTRACTION BL	05/17/89
68	8905056-11	M2S	Furnace	EXTRACTION BL	05/17/89
69	8905056-11	M3S	Furnace	EXTRACTION BL	05/17/89
70	8905056-03	M0S	Furnace	4606B-3A0	05/17/89
71	8905056-03	M1S	Furnace	4606B-3A	05/17/89
72	8905056-03	M2S	Furnace	4606B-3A	05/17/89
73	8905056-03	M3S	Furnace	4606B-3A	05/17/89
74	50 PPB	CCV		CCV	05/17/89
75	CAL BLK	CCB		CCB	05/17/89

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 27 Instrument ID: F_1, F_2, F_3, F_4 (F5) Page 1 of 1

Date: 5-18-89 Reviewed by: _____ Instruments Method #: 22

Operator: MF Standards Prepared: 5-18-89

Background: BS (BD) 8:00

Time Calibrated: 12:00 Standards Source:

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

disc # _____

acq _____

SKINNER AND SHERMAN

A	B
Run ID: 891380 1	Run ID:
Element: As Pb (Cr)	Element: Se Tl
Wavelength (nm): 357.6	Wavelength (nm):
Slitwidth (nm): 0.7	Slitwidth (nm):
Integration Time (sec): 3.5	Integration Time (sec):
STD1: 0 STD2: 10	STD1: STD2:
STD3: 50 STD4: 100	STD3: STD4:

8905056

	COMMENTS	SAMPLE ID	DILUTION	COMMENTS
1		ICV		
2		ICB		
3		CRA		
4	rerun	PB		
5		PBA		
6		LCSW		
7		LCSWA		
8		CCU		
9		CCB		
10		01		
11		+10		
12	r=.9985	+20		
13		+30		
14		01D		
15		+10		
16	r=.9978	+20		
17		+30		
18		01S		
19	r=.9991	+10		
20		+20		
21		+30		
22		02		
23		+10		
24	r=.9998	+20		
25		+30		
26		03		
27		+10		
28		+20		
29		+30		
30		CCU		
31		CCB		
32		04		
33	r=.9994	+10		
34	rerun	+20		
35		+30		
36		05		
37		+10		
38	r=.9994	+20		
39		+30		

GFAA RUN BENCH SHEET

AA SEQUENCE #: _____ PAGE 2 OF _____

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	06		
	41	+10		
r=.9863	42	+20		
rerun	43	+30		
	44	07		
	45	+10		
r=.9959	46	+20		
	47	+30		
	48	08		
	49	+10		
r=.9939	50	+20		
rerun	51	+30		
	52	CCU		
	53	CCB		
	54	09		
	55	+10		
r=.9991	56	+20		
	57	+30		
	58	10		
	59	+10		
r=.9907	60	+20		
rerun	61	+30		
	62	11		
	63	+10		
r=.9874	64	+20		
rerun	65	+30		
	66	03		
	67	+10	>1.9	
r=.9989	68	+20		
	69	+30		
	70	AFCCU		
	71	F CCB		
	72			
	73			
	74			
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
	84			
	85			

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.064	0.098	0.038
PEAK AREA (ABS-SECONDS)	-0.054	-0.006	-0.059

READ: -0.054

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.106	0.130	0.012
PEAK AREA (ABS-SECONDS)	-0.064	0.002	-0.065

READ: -0.046

MEAN= -0.050 STD.DEV.= 0.005 COEF.VAR.= 10.22 %

****

0.000 AUTOZERO STD1

****

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.116	0.106	0.022
PEAK AREA (ABS-SECONDS)	0.021	0.083	-0.062

READ: 0.085

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.098	0.101	0.029
PEAK AREA (ABS-SECONDS)	0.018	0.078	-0.061

READ: 0.081

MEAN= 0.083 STD.DEV.= 0.003 COEF.VAR.= 4.03 %

****

10.0 STANDARD 1 STD2

****

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.316	0.291	0.060
PEAK AREA (ABS-SECONDS)	0.287	0.348	-0.060

READ: 42.2

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.355	0.326	0.031
PEAK AREA (ABS-SECONDS)	0.301	0.360	-0.059

READ: 43.6

MEAN= 42.9 STD.DEV.= 1.0 COEF.VAR.= 2.35 %

****

42.9

E-50: READING GREATER THAN HIGHEST STANDARD

****

50.0 STANDARD 2 STD3

****

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.527	0.525	0.027
PEAK AREA (ABS-SECONDS)	0.585	0.642	-0.057

READ: 109.7

(CONTINUED)

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.541	0.548	0.036
PEAK AREA (ABS-SECONDS)	0.608	0.664	-0.056

READ: 115.4

MEAN= 112.5 STD.DEV.= 5.2 COEF.VAR.= 4.64 %

112.5

E-50: READING GREATER THAN HIGHEST STANDARD

100.0 STANDARD 3 STD4 13:00

CR 0001 ICV1 13:06

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.350	0.346	0.033
PEAK AREA (ABS-SECONDS)	0.341	0.391	-0.050

READ: 56.0

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.337	0.344	0.038
PEAK AREA (ABS-SECONDS)	0.322	0.369	-0.047

READ: 52.4

MEAN= 54.2 STD.DEV.= 2.7 COEF.VAR.= 4.96 %

CR 0002 ICB1 13:12

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.070	0.102	0.030
PEAK AREA (ABS-SECONDS)	-0.048	0.013	-0.062

READ: 1.7

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.051	0.076	0.028
PEAK AREA (ABS-SECONDS)	-0.055	0.013	-0.068

READ: 1.7

MEAN= 1.7 STD.DEV.= 0.0 COEF.VAR.= 1.02 %

CR 0003 CLA

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.111	0.108	0.029
PEAK AREA (ABS-SECONDS)	0.010	0.068	-0.059

READ: 8.4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.137	0.113	0.031
PEAK AREA (ABS-SECONDS)	0.018	0.078	-0.060

READ: 9.7

MEAN= 9.0 STD.DEV.= 1.0 COEF.VAR.= 10.52 %

CR 0004 PB

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.087	0.084	0.030
PEAK AREA (ABS-SECONDS)	-0.078	-0.012	-0.066

READ: -1.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.074	0.092	0.023
PEAK AREA (ABS-SECONDS)	-0.068	-0.008	-0.060

READ: -0.7

MEAN= -0.9 STD.DEV.= 0.3 COEF.VAR.= 29.87 %

****

CR 0005 DBA 69.0%

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.111	0.107	0.028
PEAK AREA (ABS-SECONDS)	0.000	0.064	-0.065

READ: 7.9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.096	0.110	0.030
PEAK AREA (ABS-SECONDS)	-0.007	0.049	-0.056

READ: 6.0

MEAN= 6.9 STD.DEV.= 1.4 COEF.VAR.= 19.72 %

****

CR 0006 LCSW

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.303	0.304	0.024
PEAK AREA (ABS-SECONDS)	0.278	0.334	-0.056

READ: 46.9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.307	0.289	0.020
PEAK AREA (ABS-SECONDS)	0.274	0.339	-0.065

READ: 47.7

MEAN= 47.3 STD.DEV.= 0.6 COEF.VAR.= 1.28 %

****

CR 0007 LCSWA 103.0%

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.373	0.379	0.035
PEAK AREA (ABS-SECONDS)	0.338	0.397	-0.058

READ: 56.9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.370	0.369	0.054
PEAK AREA (ABS-SECONDS)	0.343	0.406	-0.062

READ: 58.4

MEAN= 57.6 STD.DEV.= 1.1 COEF.VAR.= 1.89 %

****

CR 0008 CCV1 13:42

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.374	0.343	0.031
PEAK AREA (ABS-SECONDS)	0.281	0.351	-0.070

READ: 49.5

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.280	0.288	0.026
PEAK AREA (ABS-SECONDS)	0.275	0.330	-0.055

READ: 46.2

MEAN= 47.9 STD.DEV.= 2.5 COEF.VAR.= 5.19 %

****

CR 0009 CCB1 13:48

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.088	0.104	0.034
PEAK AREA (ABS-SECONDS)	-0.056	0.006	-0.061

READ: 0.9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.062	0.059	0.027
PEAK AREA (ABS-SECONDS)	-0.064	-0.001	-0.063

READ: 0.1

MEAN= 0.5 STD.DEV.= 0.5 COEF.VAR.= 99.99 %

****

CR 0010 01 4606B-1A y = 1.130 x + 14.850 x = 13.1416

r = .9985

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.128	0.122	0.032
PEAK AREA (ABS-SECONDS)	0.059	0.112	-0.053

14.1

****

CR 0011 01 +10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.156	0.153	0.031
PEAK AREA (ABS-SECONDS)	0.141	0.205	-0.064

27.2

****

CR 0012 01+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.185	0.182	0.046
PEAK AREA (ABS-SECONDS)	0.211	0.274	-0.063

37.6

****

CR 0013 01+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.244	0.240	0.033
PEAK AREA (ABS-SECONDS)	0.287	0.343	-0.056

48.3

****

46068-1AD y = 1.093 x + 11.580 r = .9978
x = 10.5947

CR 0014 01D

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.122	0.113	0.018
PEAK AREA (ABS-SECONDS)	0.039	0.092	-0.053

11.4

****

CR 0015 01D +10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.134	0.143	0.024
PEAK AREA (ABS-SECONDS)	0.112	0.179	-0.067

23.4

****

CR 0016 01D +20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.170	0.155	0.040
PEAK AREA (ABS-SECONDS)	0.183	0.239	-0.056

32.2

****

CR 0017 01D +30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.218	0.217	0.021
PEAK AREA (ABS-SECONDS)	0.261	0.322	-0.060

44.9

****

CR 0018 01S 46068-1AS

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) r=.9991	0.108	0.116	0.034
PEAK AREA (ABS-SECONDS)	0.044	0.105	-0.061

y = 1.018 x + 13.030
x = 12.7996

13.2

****

CR 0019 01S+10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.153	0.142	0.029
PEAK AREA (ABS-SECONDS)	0.112	0.173	-0.061

22.6

****

CR 0020 01S +20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.191	0.182	0.030
PEAK AREA (ABS-SECONDS)	0.187	0.252	-0.064

34.1

****

CR 0021 01S +30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.226	0.204	0.033
PEAK AREA (ABS-SECONDS)	0.248	0.311	-0.063

43.3

****

4606B-2A y=.949 x + 4.390
x=4.62592

CR 0022 02 r=.9998

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.054	0.079	0.035
PEAK AREA (ABS-SECONDS)	-0.022	0.034	-0.059

4.2

****

CR 0023 02+10

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.105	0.101	0.039
PEAK AREA (ABS-SECONDS)	0.053	0.112	-0.060

14.2

****

CR 0024 02+20

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.131	0.130	0.044
PEAK AREA (ABS-SECONDS)	0.116	0.178	-0.061

28.9

****

CR 0025 02+30

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.234	0.218	0.039
PEAK AREA (ABS-SECONDS)	0.186	0.243	-0.056

82.9

****

CR 0026 03 4606B-3A

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.498	0.487	0.030
PEAK AREA (ABS-SECONDS)	0.811	0.866	-0.055

137.5

E-50: READING GREATER THAN HIGHEST STANDARD

****

CR 0027 03+10

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.551	0.576	0.034
PEAK AREA (ABS-SECONDS)	0.832	0.885	-0.053

140.8

E-50: READING GREATER THAN HIGHEST STANDARD

****

CR 0028 03+20

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.544	0.552	0.040
PEAK AREA (ABS-SECONDS)	0.933	0.980	-0.047

157.9

E-50: READING GREATER THAN HIGHEST STANDARD

****

CR 0029 03+30

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.555	0.666	0.033
PEAK AREA (ABS-SECONDS)	0.963	1.002	-0.039

181.9

E-50: READING GREATER THAN HIGHEST STANDARD

****

CR 0030 CCV+2 14:48

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) mF	0.291	0.309	0.023
PEAK AREA (ABS-SECONDS) slight	0.304	0.364	-0.060

51.7

****

CR 0031 CCB+2 14:54
mF slight

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.085	0.095	0.042
PEAK AREA (ABS-SECONDS)	-0.039	0.025	-0.064

8.0

****

CR 0032 04 4606B-4A y=.963 x+5.330

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) r=.9894 x=5.5348	0.094	0.097	0.029
PEAK AREA (ABS-SECONDS)	0.007	0.057	-0.050

7.0

****

CR 0033 04+10

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.096	0.086	0.027
PEAK AREA (ABS-SECONDS)	0.033	0.099	-0.066

12.4

****

CR 0034 04+20

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.152	0.137	0.040
PEAK AREA (ABS-SECONDS)	0.141	0.188	-0.048

24.7

****

CR 0035 04+30

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.194	0.210	0.033
PEAK AREA (ABS-SECONDS)	0.196	0.257	-0.061

35.0

****

CR 0036 05 4606B-5A

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) y=1.273 x+6.680	0.096	0.107	0.043
PEAK AREA (ABS-SECONDS) x=5.2475	0.009	0.053	-0.044

6.4 r=.9984

****

CR 0037

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.148	0.144	0.030
PEAK AREA (ABS-SECONDS)	0.098	0.158	-0.060

05+10

20.4

****

CR 0038 05+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.178	0.160	0.039
PEAK AREA (ABS-SECONDS)	0.171	0.231	-0.060

31.0

****

CR 0039 05+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.214	0.202	0.035
PEAK AREA (ABS-SECONDS)	0.265	0.324	-0.058

45.3

****

CR 0040 06 4606B-6A

$y = 1.138x + 7.080$

$x = 5.9596$

$r = .9863$

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.094	0.092	0.038
PEAK AREA (ABS-SECONDS)	0.006	0.068	-0.062

8.3

****

CR 0041 06+10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.128	0.126	0.050
PEAK AREA (ABS-SECONDS)	0.088	0.147	-0.059

18.9

****

CR 0042 06+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.189	0.182	0.035
PEAK AREA (ABS-SECONDS)	0.148	0.206	-0.058

27.3

****

CR 0043 06+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.222	0.208	0.032
PEAK AREA (ABS-SECONDS)	0.270	0.323	-0.053

45.1

****

CR 0044 ~~08~~ 07 4606B-~~8A~~ 7A

mf 5/19/89

$y = .973x + 9.730$

$x = 10.000$

$r = .9959$

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.109	0.102	0.054
PEAK AREA (ABS-SECONDS)	0.023	0.072	-0.049

8.8

****

CR 0045 ~~08~~ 07 +10

mf 5/19/89

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.130	0.133	0.060
PEAK AREA (ABS-SECONDS)	0.100	0.157	-0.056

20.3

****

CR 0046 ~~08~~ 07 +20

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) mf 5/17/85	0.159	0.166	0.034
PEAK AREA (ABS-SECONDS)	0.167	0.226	-0.059

30.3

****

CR 0047 ~~08~~ 07 +30 mf 5/17/85

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.178	0.180	0.030
PEAK AREA (ABS-SECONDS)	0.219	0.277	-0.058

37.9

****

CR 0048 08 4606B-8A

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE) r=.9939	0.106	0.096	0.037
PEAK AREA (ABS-SECONDS) y=1.043 x+2.630	-0.033	0.029	-0.063

3.6 x=2.5216

****

CR 0049 08 +10

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.112	0.108	0.049
PEAK AREA (ABS-SECONDS)	0.038	0.089	-0.051

11.0

****

CR 0050 08 +20

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.150	0.160	0.041
PEAK AREA (ABS-SECONDS)	0.129	0.188	-0.058

24.7

****

CR 0051 08 +30

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.187	0.188	0.053
PEAK AREA (ABS-SECONDS)	0.190	0.250	-0.060

33.8

****

CR 0052 CCV3 15:54

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.280	0.293	0.037
PEAK AREA (ABS-SECONDS)	0.313	0.380	-0.066

54.2

****

CR 0053 CCB3 16:00

	AA	AA-BC	BC
PEAK HEIGHT (ABSORBANCE)	0.080	0.099	0.027
PEAK AREA (ABS-SECONDS)	-0.034	0.025	-0.059

3.1

****

CR 0054 09 4606B-9A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) r=.9991	0.130	0.139	0.038
PEAK AREA (ABS-SECONDS)	-0.022	0.042	-0.064

5.1 y=1.029 x+5.1900 x=5.0437

****

CR 0055 09+10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.121	0.127	0.030
PEAK AREA (ABS-SECONDS)	0.070	0.120	-0.050

15.2

****

CR 0056 09+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.153	0.146	0.028
PEAK AREA (ABS-SECONDS)	0.145	0.201	-0.056

26.6

****

CR 0057 09+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.178	0.177	0.043
PEAK AREA (ABS-SECONDS)	0.207	0.261	-0.054

35.6

****

CR 0058 10 extraction dup.

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) r=.9367	0.101	0.109	0.030
PEAK AREA (ABS-SECONDS)	-0.015	0.055	-0.070

6.7 y=1.016 x+5.9100 x=5.8169

****

CR 0059 10+10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.124	0.135	0.030
PEAK AREA (ABS-SECONDS)	0.030	0.093	-0.063

11.6

****

CR 0060 10+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.207	0.170	0.042
PEAK AREA (ABS-SECONDS)	0.188	0.243	-0.055

32.8

****

CR 0061 10+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.186	0.185	0.028
PEAK AREA (ABS-SECONDS)	0.194	0.247	-0.053

38.5

****

CR 0062 11 extraction std

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE) y=1.02x+2.700	0.088	0.093	0.035
PEAK AREA (ABS-SECONDS) x=2.6471	-0.035	0.034	-0.069

4.1 r=.9874

****

CR 0063 11 +10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.184	0.162	0.034
PEAK AREA (ABS-SECONDS)	0.042	0.097	-0.056

12.1

****

CR 0064 11 +20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.115	0.118	0.023
PEAK AREA (ABS-SECONDS)	0.101	0.158	-0.057

20.5

****

CR 0065 11 +30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.212	0.203	0.027
PEAK AREA (ABS-SECONDS)	0.187	0.260	0.072

35.3

****

CR 0066 03 1:9 4606B-3A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.096	0.096	0.027
PEAK AREA (ABS-SECONDS)	0.030	0.091	-0.060

r=.9989 y=.747x+11.070
x= 14.8193

11.3

****

CR 0067 03 +10 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.154	0.147	0.032
PEAK AREA (ABS-SECONDS)	0.082	0.144	-0.062

18.5

****

CR 0068 03 +20 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.174	0.195	0.034
PEAK AREA (ABS-SECONDS)	0.110	0.193	-0.082

25.4

****

CR 0069 03 +30 1:9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.168	0.179	0.033
PEAK AREA (ABS-SECONDS)	0.191	0.250	-0.059

33.9

****

CR 0070 CCV4 16:48

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.304	0.325	0.036
PEAK AREA (ABS-SECONDS)	0.306	0.367	-0.061

52.2

****

CR 0071 CCB4 16:54

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.054	0.085	0.027
PEAK AREA (ABS-SECONDS)	-0.036	0.032	-0.059

4.0

****

end of run
MF 5/19/89

C L P M E T A L S 2.02

Run Id: F5 8913901
PERKIN-ELMER 3030B

Element:

Acquired: 05/19/89 by DNP
Crunched: 05/19/89 by DNP
Time: 1549
Processing protocol: 7/87

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	05/19/89	
2	10 PPB	WS1		S10	05/19/89	
3	50 PPB	WS2		S50	05/19/89	
4	100 PPB	WS3		S100	05/19/89	
5	ICV1	ICV		ICV	05/19/89	
6	CAL BLK	ICB		ICB	05/19/89	
7	CRA	CRA0		CRA0	05/19/89	
8	PB	DBW		DBW	05/19/89	
9	PB	ASDBW		ASDBW	05/19/89	
10	50 PPB	CCV		CCV	05/19/89	
11	CAL BLK	CCB		CCB	05/19/89	
12	8905056-04	M0S	Furnace	4606B-4A0	05/19/89	
13	8905056-04	M1S	Furnace	4606B-4A	05/19/89	
14	8905056-04	M2S	Furnace	4606B-4A	05/19/89	
15	8905056-04	M3S	Furnace	4606B-4A	05/19/89	
16	8905056-06	M0S	Furnace	4606B-6A0	05/19/89	
17	8905056-06	M1S	Furnace	4606B-6A	05/19/89	
18	8905056-06	M2S	Furnace	4606B-6A	05/19/89	
19	8905056-06	M3S	Furnace	4606B-6A	05/19/89	
20	8905056-08	M0S	Furnace	4606B-8A0	05/19/89	
21	8905056-08	M1S	Furnace	4606B-8A	05/19/89	
22	8905056-08	M2S	Furnace	4606B-8A	05/19/89	
23	8905056-08	M3S	Furnace	4606B-8A	05/19/89	
24	8905056-10	M0S	Furnace	EXTRACTION DUB	05/19/89	
25	8905056-10	M1S	Furnace	EXTRACTION DUB	05/19/89	
26	8905056-10	M2S	Furnace	EXTRACTION DUB	05/19/89	
27	8905056-10	M3S	Furnace	EXTRACTION DUB	05/19/89	
28	8905056-11	M0S	Furnace	EXTRACTION BLB	05/19/89	
29	8905056-11	M1S	Furnace	EXTRACTION BLB	05/19/89	
30	8905056-11	M2S	Furnace	EXTRACTION BLB	05/19/89	
31	8905056-11	M3S	Furnace	EXTRACTION BLB	05/19/89	
32	50 PPB	CCV		CCV	05/19/89	
33	CAL BLK	CCB		CCB	05/19/89	

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 22 Instrument ID: F_1,F_2,F_3,F_4 F5 Page 1 of 1

Date: 5-19-89 Reviewed by: Instruments Method #: 22

Operator: MF Standards Prepared: 5-19-89 8:00

Background: BS (BD)

Time Calibrated: 9:40 Standards Source:

1. Calibration: 10ppm
2. ICV: ICV
3. CCV: 50ppb

disc # ____

acq ____

SKINNER AND SHERMAN

A	B
Run ID: 8913901	Run ID:
Element: As Pb (Cr)	Element: Se Tl
Wavelength (nm): 357.9	Wavelength (nm):
Slitwidth (nm): 0.7	Slitwidth (nm):
Integration Time (sec): 3.5	Integration Time (sec):
STD1: 0 STD2: 10	STD1: STD2:
STD3: 50 STD4: 100	STD3: STD4:

8905056

	COMMENTS	SAMPLE ID	DILUTION	COMMENTS
1		ICV		
2		ICB		
3		CRA		
4		PB		
5		PBA		
6		CCV		
7		CCB		
8		04		
9	r=.9999	+10		
10		+20		
11		+30		
12		06		
13	r=.9996	+10		
14		+20		
15		+30		
16		08		
17	r=.9947	+10		
18		+20		
19		+30		
20		10		
21	r=.9892	+10		
22		+20		
23		+30		
24	r=.9995	11		
25		+10		
26		+20		
27		+30		
28		CCV		
29		CCB		
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.088	0.090	0.019
PEAK AREA (ABS-SECONDS)	-0.085	0.009	-0.095

READ: 0.009

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.078	0.130	0.025
PEAK AREA (ABS-SECONDS)	-0.089	0.001	-0.089

READ: 0.001

MEAN= 0.005 STD.DEV.= 0.006 COEF.VAR.= 99.99 %

****

0.000 AUTOZERO STD1 0

****

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.105	0.129	0.065
PEAK AREA (ABS-SECONDS)	-0.030	0.065	-0.096

READ: 0.061

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.092	0.095	0.025
PEAK AREA (ABS-SECONDS)	-0.042	0.052	-0.093

READ: 0.047

MEAN= 0.054 STD.DEV.= 0.010 COEF.VAR.= 17.87 %

****

10.0 STANDARD 1 STD2 10

****

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.198	0.226	0.026
PEAK AREA (ABS-SECONDS)	0.153	0.251	-0.099

READ: 45.7

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.258	0.252	0.017
PEAK AREA (ABS-SECONDS)	0.178	0.275	-0.098

READ: 50.3

MEAN= 48.0 STD.DEV.= 3.3 COEF.VAR.= 6.78 %

****

48.0

E-50: READING GREATER THAN HIGHEST STANDARD

****

50.0 STANDARD 2 STD3

****

CR

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.396	0.388	0.023
PEAK AREA (ABS-SECONDS)	0.384	0.480	-0.097

READ: 96.4

180

(CONTINUED)

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.340	0.342	0.022
PEAK AREA (ABS-SECONDS)	0.397	0.480	-0.084

READ: 96.4

MEAN= 96.4 STD.DEV.= 0.0 COEF.VAR.= 0.01 %

****

96.4

E-50: READING GREATER THAN HIGHEST STANDARD

****

100.0 STANDARD 3 STD4 9:40

****

CR 0001 ICV2 9:46

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.227	0.256	0.018
PEAK AREA (ABS-SECONDS)	0.178	0.269	-0.092

READ: 51.4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.276	0.272	0.045
PEAK AREA (ABS-SECONDS)	0.172	0.263	-0.091

READ: 50.1

MEAN= 50.7 STD.DEV.= 1.0 COEF.VAR.= 2.00 %

****

CR 0002 ICB2 9:52

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.072	0.100	0.026
PEAK AREA (ABS-SECONDS)	-0.084	0.016	-0.100

READ: 2.1

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.065	0.089	0.027
PEAK AREA (ABS-SECONDS)	-0.070	0.020	-0.090

READ: 2.7

MEAN= 2.4 STD.DEV.= 0.5 COEF.VAR.= 19.07 %

****

CR 0003 CRA

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.106	0.102	0.024
PEAK AREA (ABS-SECONDS)	-0.046	0.050	-0.096

READ: 8.2

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.110	0.101	0.024
PEAK AREA (ABS-SECONDS)	-0.033	0.059	-0.092

READ: 9.8

MEAN= 9.0 STD.DEV.= 1.2 COEF.VAR.= 12.86 %

****

CR 0004 PB

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.056	0.095	0.017
PEAK AREA (ABS-SECONDS)	-0.075	0.023	-0.098

READ: 3.4

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.068	0.101	0.024
PEAK AREA (ABS-SECONDS)	-0.081	0.013	-0.094

READ: 1.4

MEAN= 2.4 STD.DEV.= 1.4 COEF.VAR.= 58.10 %

****

CR 0005 PBA 87.0%

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.074	0.114	0.038
PEAK AREA (ABS-SECONDS)	-0.043	0.054	-0.097

READ: 9.0

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.085	0.102	0.028
PEAK AREA (ABS-SECONDS)	-0.042	0.051	-0.094

READ: 8.4

MEAN= 8.7 STD.DEV.= 0.4 COEF.VAR.= 4.67 %

****

CR 0006 CCV1 10:10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.220	0.223	0.020
PEAK AREA (ABS-SECONDS)	0.161	0.248	-0.087

READ: 46.9

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.207	0.221	0.039
PEAK AREA (ABS-SECONDS)	0.167	0.253	-0.086

READ: 48.1

MEAN= 47.5 STD.DEV.= 0.9 COEF.VAR.= 1.91 %

****

CR 0007 CCB1 10:16

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.090	0.102	0.017
PEAK AREA (ABS-SECONDS)	-0.078	0.016	-0.094

READ: 2.0

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.075	0.089	0.025
PEAK AREA (ABS-SECONDS)	-0.091	0.003	-0.094

READ: -0.2

MEAN= 0.9 STD.DEV.= 1.6 COEF.VAR.= 99.99 %

****

CR 0008 04 4606B-4A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.102	0.101	0.017

y= 1.106 x+5.6600 x= 5.1175
r= .9999

5.6

****

CR 0009 04+10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.106	0.097	0.013
PEAK AREA (ABS-SECONDS)	0.017	0.095	-0.079

16.6

****

CR 0010 04+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.170	0.135	0.056
PEAK AREA (ABS-SECONDS)	0.067	0.153	-0.086

27.6

****

CR 0011 04+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.170	0.153	0.046
PEAK AREA (ABS-SECONDS)	0.119	0.210	-0.090

39.0

****

CR 0012 06 4606B-6A

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.070	0.092	0.040
PEAK AREA (ABS-SECONDS)	-0.031	0.045	-0.076

y=1.07 x+7.2500
x= 6.7757
r= .9996

7.2

****

CR 0013 06 +10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.123	0.110	0.045
PEAK AREA (ABS-SECONDS)	0.021	0.105	-0.083

18.3

****

CR 0014 06 +20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.129	0.132	0.025
PEAK AREA (ABS-SECONDS)	0.089	0.155	-0.067

29.1

****

CR 0015 06 +30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.155	0.165	0.029
PEAK AREA (ABS-SECONDS)	0.131	0.212	-0.082

39.6

****

CR 0016

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	[illegible]	[illegible]	0.030

08 4606B - 8A y = .9500 x + 1.100 r = .9947
x = 1.1579

2.3

****

CR 0017 08 +10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.084	0.113	0.022
PEAK AREA (ABS-SECONDS)	-0.031	0.055	-0.087

9.1

****

CR 0018 08 +20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.114	0.127	0.041
PEAK AREA (ABS-SECONDS)	0.029	0.111	-0.082

19.5

****

CR 0019 08 +30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.143	0.166	0.029
PEAK AREA (ABS-SECONDS)	0.080	0.168	-0.087

30.5

****

CR 0020 10 extraction dup.

y = 1.30x + 1.200
x = .9231
r = .9892

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.074	0.090	0.029
PEAK AREA (ABS-SECONDS)	-0.055	0.023	-0.078

3.4

****

CR 0021 10 +10

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.078	0.109	0.024
PEAK AREA (ABS-SECONDS)	-0.010	0.070	-0.080

11.9

****

CR 0022 10 +20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.114	0.114	0.033
PEAK AREA (ABS-SECONDS)	0.056	0.141	-0.085

25.2

****

CR 0023 10 +30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.166	0.150	0.029
PEAK AREA (ABS-SECONDS)	0.132	0.226	-0.094

42.3

****

010

CR 0024

	AA	AA-BG	BG

extraction blk

11

3.4

****

CR 0025 11+10 y = 1.026 x + 3.560

x = 3.4698 r = .9995

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.116	0.126	0.035
PEAK AREA (ABS-SECONDS)	0.002	0.083	-0.081

14.3

****

CR 0026 11+20

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.119	0.127	0.017
PEAK AREA (ABS-SECONDS)	0.044	0.132	-0.088

23.6

****

CR 0027 11+30

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.162	0.161	0.020
PEAK AREA (ABS-SECONDS)	0.108	0.187	-0.079

34.5

****

CR 0028 CCV2 11:16

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.256	0.232	0.032
PEAK AREA (ABS-SECONDS)	0.191	0.276	-0.085

52.9

****

CR 0029 CCB 11:19

	AA	AA-BG	BG
PEAK HEIGHT (ABSORBANCE)	0.089	0.095	0.022
PEAK AREA (ABS-SECONDS)	-0.078	0.016	-0.094

2.0

****

end of run

MF 5/19/89

C L P M E T A L S 2.02

Run id: F2 8913602
THERMO JARRELL-ASH VIDEO 22E (#2)

Element:

Acquired: 05/16/89 by RPP
Crunched: 05/19/89 by RPP
Time: 1214
Processing protocol: 7/87

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	05/16/89	11:46
2	CAL BLK	ICB		ICB	05/16/89	11:51
3	CRA	CRA0		CRA0	05/16/89	11:55
6	LCSFW	LCSW		LCSW	05/16/89	12:06
7	LCSFW	ASLCSW		ASLCSW	05/16/89	12:12
8	50 PPB	CCV		CCV	05/16/89	12:17
9	CAL BLK	CCB		CCB	05/16/89	12:21
10	8905056-01	M0S	Furnace	4606B-1A0	05/16/89	12:27
11	8905056-01	M1S	Furnace	4606B-1A	05/16/89	12:29
12	8905056-01	M2S	Furnace	4606B-1A	05/16/89	12:32
13	8905056-01	M3S	Furnace	4606B-1A	05/16/89	12:34
22	8905056-02	M0S	Furnace	4606B-2A0	05/16/89	12:56
23	8905056-02	M1S	Furnace	4606B-2A	05/16/89	12:59
24	8905056-02	M2S	Furnace	4606B-2A	05/16/89	13:01
25	8905056-02	M3S	Furnace	4606B-2A	05/16/89	13:04
30	50 PPB	CCV		CCV	05/16/89	13:16
31	CAL BLK	CCB		CCB	05/16/89	13:19
32	8905056-01	M0S	Furnace	4606B-1A0	05/16/89	13:24
33	8905056-01	M1S	Furnace	4606B-1A	05/16/89	13:27
34	8905056-01	M2S	Furnace	4606B-1A	05/16/89	13:29
35	8905056-01	M3S	Furnace	4606B-1A	05/16/89	13:32
36	8905056-01	M0S2	Furnace	4606B-1A00	05/16/89	13:34
37	8905056-01	M1S2	Furnace	4606B-1A0	05/16/89	13:37
38	8905056-01	M2S2	Furnace	4606B-1A0	05/16/89	13:39
39	8905056-01	M3S2	Furnace	4606B-1A0	05/16/89	13:42
40	8905056-07	M0S	Furnace	4606B-7A0	05/16/89	13:44
41	8905056-07	M1S	Furnace	4606B-7A	05/16/89	13:47
42	8905056-07	M2S	Furnace	4606B-7A	05/16/89	13:49
43	8905056-07	M3S	Furnace	4606B-7A	05/16/89	13:52
44	8905056-03	M0S	Furnace	4606B-3A0	05/16/89	13:54
45	8905056-03	M1S	Furnace	4606B-3A	05/16/89	13:57
46	8905056-03	M2S	Furnace	4606B-3A	05/16/89	13:59
47	8905056-03	M3S	Furnace	4606B-3A	05/16/89	14:02
48	8905056-03	M0S	Furnace	4606B-3A0	05/16/89	14:05
49	8905056-03	M1S	Furnace	4606B-3A	05/16/89	14:07
50	8905056-03	M2S	Furnace	4606B-3A	05/16/89	14:10
51	8905056-03	M3S	Furnace	4606B-3A	05/16/89	14:12
52	50 PPB	CCV		CCV	05/16/89	14:14
53	CAL BLK	CCB		CCB	05/16/89	14:17
54	8905056-01	M0DS	Furnace	4606B-1AS0	05/16/89	14:20
55	8905056-01	M1DS	Furnace	4606B-1AS	05/16/89	14:23
56	8905056-01	M2DS	Furnace	4606B-1AS	05/16/89	14:25
57	8905056-01	M3DS	Furnace	4606B-1AS	05/16/89	14:28

Pos	Sample	Code	Preparation Method	Client ID		
70	8905056-03	M0S	Furnace	46068-8A0	05/16/89	15:00
71	8905056-03	M1S	Furnace	46068-8A	05/16/89	15:02
72	8905056-03	M2S	Furnace	46068-8A	05/16/89	15:05
73	8905056-03	M3S	Furnace	46068-8A	05/16/89	15:07
74	50 PPB	CCV		CCV	05/16/89	15:10
75	CAL BLK	CCB		CCB	05/16/89	15:12
76	8905056-04	M0S	Furnace	46068-4A0	05/16/89	15:15
77	8905056-04	M1S	Furnace	46068-4A	05/16/89	15:17
78	8905056-04	M2S	Furnace	46068-4A	05/16/89	15:20
79	8905056-04	M3S	Furnace	46068-4A	05/16/89	15:22
80	8905056-05	M0S	Furnace	46068-5A0	05/16/89	15:25
81	8905056-05	M1S	Furnace	46068-5A	05/16/89	15:27
82	8905056-05	M2S	Furnace	46068-5A	05/16/89	15:30
83	8905056-05	M3S	Furnace	46068-5A	05/16/89	15:32
92	8905056-10	M0S	Furnace	EXTRACTION DU	05/16/89	15:55
93	8905056-10	M1S	Furnace	EXTRACTION DU	05/16/89	15:58
94	8905056-10	M2S	Furnace	EXTRACTION DU	05/16/89	16:00
95	8905056-10	M3S	Furnace	EXTRACTION DU	05/16/89	16:03
96	50 PPB	CCV		CCV	05/16/89	16:05
97	CAL BLK	CCB		CCB	05/16/89	16:08
98	8905056-06	M0S	Furnace	46068-6A0	05/16/89	16:10
99	8905056-06	M1S	Furnace	46068-6A	05/16/89	16:13
100	8905056-06	M2S	Furnace	46068-6A	05/16/89	16:15
101	8905056-06	M3S	Furnace	46068-6A	05/16/89	16:18
102	8905056-09	M0S	Furnace	46068-9A0	05/16/89	16:20
103	8905056-09	M1S	Furnace	46068-9A	05/16/89	16:23
104	8905056-09	M2S	Furnace	46068-9A	05/16/89	16:28
105	8905056-09	M3S	Furnace	46068-9A	05/16/89	16:31
106	8905056-09	M0S	Furnace	46068-9A0	05/16/89	16:33
107	8905056-09	M1S	Furnace	46068-9A	05/16/89	16:36
108	8905056-09	M2S	Furnace	46068-9A	05/16/89	16:38
109	8905056-09	M3S	Furnace	46068-9A	05/16/89	16:41
110	8905056-11	M0S	Furnace	EXTRACTION BL	05/16/89	16:43
111	8905056-11	M1S	Furnace	EXTRACTION BL	05/16/89	16:46
112	8905056-11	M2S	Furnace	EXTRACTION BL	05/16/89	16:48
113	8905056-11	M3S	Furnace	EXTRACTION BL	05/16/89	16:51
114	50 PPB	CCV		CCV	05/16/89	16:57
115	CAL BLK	CCB		CCB	05/16/89	16:59
116	0 PPB	WS0		S0	05/16/89	
117	5 PPB	WS1		S5	05/16/89	
118	50 PPB	WS2		S50	05/16/89	
119	100 PPB	WS3		S100	05/16/89	

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 1002 Instrument ID: F_1, F_2, F_3, F_4 Page 1 of 3

Date: 5-16-89 Reviewed by: _____ Instruments Method #: 162

Operator: MF Standards Prepared: 5-16-89

Background: BS BD 8:00

Time Calibrated: 10:35 Standards Source:

1. Calibration: 10ppm

disc # 21 2. ICV: ICV-4(S 100)

acq _____ 3. CCV: 50ppb

SKINNER AND SHERMAN

A	B
Run ID: 8913601 02 P2/5/18	Run ID: 8913651
Element: As Pb	Element: Se Tl
Wavelength (nm): 283.3	Wavelength (nm): 276.8
Slitwidth (nm): 1.0	Slitwidth (nm): 1.0
Integration Time (sec): 3.0	Integration Time (sec): 3.0
STD1: 0 STD2: 5	STD1: 0 STD2: 10
STD3: 50 STD4: 100	STD3: 50 STD4: 100

8905056

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	CRA		
rerun	4	PB		
	5	PBA		
	6	LCSW		
	7	LCSWA		Pb only
	8	CCU		
	9	CCB		
	10	01		
rerun	11	+10		
d.1 (61)	12	+20		
	13	+30		
	14	01D		
	15	+10		
d.1	16	+20		
(61)	17	+30		
	18	~~025~~ 01S MF 5/16/89		
	19	+10		
d.1	20	+20		
(78)	21	+30		
	22	02		
	23	+10		
r=.9979	24	+20		
	25	+30		
	26	03		
	27	+10		
d.1	28	+20		
(200)	29	+30		
	30	CCU		
	31	CCB		
	32	01		
r=.9997	33	+10	1:4	
	34	+20		
	35	+30		
	36	01D		
r=.9963	37	+10	1:4	
	38	+20		
	39	+30		

GFAA RUN BENCH SHEET

AA SEQUENCE #: 1002

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	07 mfs/16/89		Pb
	41	+10	1:4	only
r = .9980	42	+20		
	43	+30		
	44	03		
r = .9839	45	+10		
remn	46	+20	1:99	
	47	+30		
	48	03		
	49	+10		
	50	+20	1:99	
	51	+30		
	52	CCV		
	53	CCB		
	54	01		
	55	+10	1:4	
r = .9996	56	+20		
	57	+30		
	58	04		
	59	+10		
dil	60	+20		
	61	+30		
	62	05		
dil	63	+10		
	64	+20		
	65	+30		
	66	06		
dil	67	+10		
	68	+20		
	69	+30		
	70	08		
	71	+10		
r = .9996	72	+20		
	73	+30		
	74	CCV		
	75	CCB		
	76	04		
r = .9957	77	+10	1:4	
	78	+20		
	79	+30		
	80	05		
r = .9975	81	+10	1:4	
	82	+20		
	83	+30		
dil	84	06		
	85	+10	1:19	

GFAA RUN BENCH SHEET

AA SEQUENCE #: 1002

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
bil	86	06+20	1:19	
	87	+30		
	88	29		
bil	89	+10		
	90	+20		
	91	+30		
	92	10		
	93	+10		
r=.9950	94	+20		Pb only
	95	+30		
	96	✓ CCV		
	97	CCB		
	98	06		
	99	+10	1:49	
r=.9972	100	+20		
	101	+30		
	102	09		
	103	+10	1:4	
r=.9853	104	+20		
rerun	105	+30		
	106	09		
	107	+10	1:4	
	108	+20		
	109	+30		
	110	11		
r=.9989	111	+10		
	112	+20		
	113	+30		
	114	✓ CCV		
	115	CCB		
	116			
	117			
	118			
	119			
	120			
	121			
	122			
	123			
	124			
	125			
	126			
	127			
	128			
	129			
	130			
	131			

Normal Calibration

RINSE

		Pb-S	Tl-S
Standard	Z STD1 0/0		
Abs	1	0.005	-0.002
Mean		0.005	-0.002
P/H		0.000	0.000
Abs	2	0.003	0.002
Mean		0.004	0.000
P/H		-0.001	0.003

AUTO ZERO
10:35:05
Tue 16 MAY 1989

		Pb-S	Tl-S
Standard	C STD2 5/10		
Abs	1	0.016	0.022
Mean		0.016	0.022
P/H		0.016	0.037
Abs	2	0.013	0.023
Mean		0.014	0.022
P/H		0.018	0.035
		Pb-S	Tl-S
Mean		0.014	0.022
SD		0.002	0.001
RSD		15.71	04.54
		Pb-S	Tl-S
Standard	1 STD3 50/50		
Abs	1	0.173	0.124
Mean		0.173	0.124
P/H		0.223	0.197
Abs	2	0.174	0.124
Mean		0.173	0.124
P/H		0.229	0.199
		Pb-S	Tl-S
Mean		0.173	0.124
SD		0.001	0.000
RSD		00.57	00.00
		Pb-S	Tl-S
Standard	2 STD4 100/100		
Abs	1	0.315	0.232
Mean		0.315	0.232
P/H		0.399	0.342
Abs	2	0.302	0.227
Mean		0.308	0.229
P/H		0.387	0.342
		Pb-S	Tl-S
Mean		0.308	0.229
SD		0.009	0.004
RSD		02.98	01.57

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	05.00	0.014
1	50.00	0.173
2	99.99	0.308

APP CONC

STD Z	00.00
STD C	03.70
STD 1	50.25

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-4	ICV 1		2.00x	16 MAY 89	11:46

	Pb-S	T1-S
Burn 1	46.35	46.44
Burn 2	46.57	48.19
Mean	46.46 =	47.31 =
RSD	00.33	02.61

SP 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
002	CAL BLK	ICB 1		1.00x	16 MAY 89	11:51

	Pb-S	T1-S
Burn 1	-00.33	-00.12
Burn 2	00.73	01.03
Mean	00.20 =	00.45 =
RSD	DIG HI	DIG HI
Check	OK	OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
003	CRA	CRAO		1.00x	16 MAY 89	11:55

	Pb-S	T1-S
Burn 1	05.93	09.54
Burn 2	05.70	08.74
Mean	05.81 =	09.14 =
RSD	02.78	06.18

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
004	PB	DBW		1.00x	16 MAY 89	11:59

	Pb-S	T1-S
Burn 1	00.75	00.85
Burn 2	00.96	00.02
Mean	00.85 =	00.43 =
RSD	17.41	DIG HI

SP 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
005	PB	ASDBW		1.00x	16 MAY 89	12:04

	Pb-S	T1-S
Burn 1	14.90	21.84
Burn 2	13.90	19.92
Mean	14.40 =	20.88 =
RSD	04.90	06.49
Sample value	1.10U	1.50U
Spike added	10.00	20.00
Spike recovery, %	~~144.0~~	104.4

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	LCSFW	LCSW		1.00x	16 MAY 89	12:08

	Pb-S		Tl-S	
Burn 1	51.31		49.59	
Burn 2	50.93		51.33	
Mean	51.12	=	50.46	=
RSD	00.52		02.43	

SP 5/17-89

007	LCSFW	ASLCSW		1.00x	16 MAY 89	12:12

	Pb-S		Tl-S	
Burn 1	68.63		71.62	
Burn 2	64.85		70.56	
Mean	66.74	=	71.09	=
RSD	04.00		01.05	
Sample value	51.12		50.46	
Spike added	10.00		20.00	
Spike recovery, %	156.2		103.2	

008	50 PPB	CCV		1.00x	16 MAY 89	12:17

	Pb-S		Tl-S	
Burn 1	48.91		50.95	
Burn 2	49.89		49.21	
Mean	49.40	=	50.08	=
RSD	01.40		02.45	
Check	OK		OK	

009	CAL BLK	CCB		1.00x	16 MAY 89	12:21

	Pb-S		Tl-S	
Burn 1	00.38		00.63	
Burn 2	00.83		-00.23	
Mean	00.60	=	00.20	=
RSD	53.00		DIG HI	
Check	OK		OK	

010	8905056-01	MOS	4606B-1A	1.00x	16 MAY 89	12:27

	Pb-S	Tl-S
Value	61.52	-00.59
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
011	-01	M1S	4606B-1A	1.00x	16 MAY 89	12:29
		Pb-S		Tl-S		
	Value	75.50		17.03		
	Spike added	10.00		10.00		
012	-01	M2S	4606B-1A	1.00x	16 MAY 89	12:32
		Pb-S		Tl-S		
	Value	87.61		31.01		
	Spike added	20.00		20.00		
013	-01	M3S	4606B-1A	1.00x	16 MAY 89	12:34
		Pb-S		Tl-S		
	Value	HIGH		47.05		
	Spike added	30.00		30.00		
	Intercept	82.025		0.090		
	Slope	-1.725		1.569		
	Coefficient	0.5719		0.9991		
	Calc. conc.	-47.5 +		0.1 S		
014	-01	MOS2	4606B-1A	1.00x	16 MAY 89	12:37
		Pb-S		Tl-S		
	Value	61.29		00.48		
	Spike added	0.00		0.00		
015	-01	M1S2	4606B-1A	1.00x	16 MAY 89	12:39
		Pb-S		Tl-S		
	Value	75.29		15.07		
	Spike added	10.00		10.00		
016	-01	M2S2	4606B-1A	1.00x	16 MAY 89	12:42
		Pb-S		Tl-S		
	Value	84.48		31.53		
	Spike added	20.00		20.00		

5.17.89

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
017	-01	M3S2	4606B-1A	1.00x	16 MAY 89	12:44

	Pb-S	Tl-S
Value	HIGH	46.59
Spike added	30.00	30.00
Intercept	81.467	0.199
Slope	-1.747	1.548
Coefficient	0.5926	0.9998
Calc. conc.	-46.5 +	0.1 S

SP 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
018	-01	MODS	4606B-1A	1.00x	16 MAY 89	12:47

	Pb-S	Tl-S
Value	78.47	37.09
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
019	-01	M1DS	4606B-1A	1.00x	16 MAY 89	12:49

	Pb-S	Tl-S
Value	HIGH	52.93
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
020	-01	M2DS	4606B-1A	1.00x	16 MAY 89	12:51

	Pb-S	Tl-S
Value	HIGH	68.17
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
021	-01	M3DS	4606B-1A	1.00x	16 MAY 89	12:54

	Pb-S	Tl-S
Value	HIGH	83.27
Spike added	30.00	30.00
Intercept	93.493	37.298
Slope	-2.262	1.538
Coefficient	0.7322	0.9999
Calc. conc.	-41.2 +	24.2 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
022	-02	MOS	4606B-2A	1.00x	16 MAY 89	12:56

	Pb-S	Tl-S
Value	55.96	00.13
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
023	-02	M1S	4606B-2A	1.00x	16 MAY 89	12:59
		Pb-S		Tl-S		
	Value	72.96		14.93		
	Spike added	10.00		10.00		
024	-02	M2S	4606B-2A	1.00x	16 MAY 89	13:01
		Pb-S		Tl-S		
	Value	84.88		33.59		
	Spike added	20.00		20.00		
025	-02	M3S	4606B-2A	1.00x	16 MAY 89	13:04
		Pb-S		Tl-S		
	Value	99.96		43.87		
	Spike added	30.00		30.00		
	Intercept	56.852		0.648		
	Slope	1.439		1.499		
	Coefficient	0.9979		0.9944		
	Calc. conc.	39.5 S		0.4 +		
026	-03	MOS	4606B-3A	1.00x	16 MAY 89	13:06
		Pb-S		Tl-S		
	Value	HIGH		00.59		
	Spike added	0.00		0.00		
027	-03	M1S	4606B-3A	1.00x	16 MAY 89	13:09
		Pb-S		Tl-S		
	Value	HIGH		17.06		
	Spike added	10.00		10.00		
028	-03	M2S	4606B-3A	1.00x	16 MAY 89	13:11
		Pb-S		Tl-S		
	Value	HIGH		32.94		
	Spike added	20.00		20.00		

SP 5-17-89

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
029	-03	M3S	4606B-3A	1.00x	16 MAY 89	13:14

	Pb-S	Tl-S
Value	HIGH	50.87
Spike added	30.00	30.00
Intercept	56.852	0.357
Slope	1.439	1.667
Coefficient	0.9979	0.9997
Calc. conc.	39.5 S	0.2 S

SR 5.17.89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
030	50 PPB	CCV 2		1.00x	16 MAY 89	13:16

	Pb-S	Tl-S
Value	46.14	47.63
Check	***	***

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
031	CAL BLK	CCB 2		1.00x	16 MAY 89	13:19

	Pb-S	Tl-S
Value	00.48	01.30
Check	OK	OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
032	-01	M0S	4606B-1A	5.00x	16 MAY 89	13:24

	Pb-S	Tl-S
Value	11.83	00.20
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
033	-01	M1S	4606B-1A	5.00x	16 MAY 89	13:27

	Pb-S	Tl-S
Value	25.03	17.07
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
034	-01	M2S	4606B-1A	5.00x	16 MAY 89	13:29

	Pb-S	Tl-S
Value	38.09	35.28
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
035	-01	M3S	4606B-1A	5.00x	16 MAY 89	13:32

	Pb-S	Tl-S
Value	50.03	49.48
Spike added	30.00	30.00
Intercept	12.096	0.608
Slope	1.277	1.660
Coefficient	0.9997	0.9988
Calc. conc.	9.5 S	0.4 S

SP 5/17/89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
036	-01	M0S2	4606B-1A	5.00x	16 MAY 89	13:34

	Pb-S	Tl-S
Value	12.08	-00.02
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
037	-01	M1S2	4606B-1A	5.00x	16 MAY 89	13:37

	Pb-S	Tl-S
Value	25.55	15.82
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
038	-01	M2S2	4606B-1A	5.00x	16 MAY 89	13:39

	Pb-S	Tl-S
Value	37.22	32.91
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
039	-01	M3S2	4606B-1A	5.00x	16 MAY 89	13:42

	Pb-S	Tl-S
Value	54.85	51.33
Spike added	30.00	30.00
Intercept	11.428	-0.661
Slope	1.400	1.711
Coefficient	0.9963	0.9994
Calc. conc.	8.2 S	-0.3 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
040	-07	M0S	4606B-7A	5.00x	16 MAY 89	13:44

	Pb-S	Tl-S
Value	25.28	-00.56
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
041	-07	M1S	4606B-7A	5.00x	16 MAY 89	13:47

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	Pb-S	Tl-S
Value	37.53	17.11
Spike added	10.00	10.00

042	-07	M2S	4606B-7A	5.00x	16 MAY 89	13:49

	Pb-S	Tl-S
Value	49.91	33.88
Spike added	20.00	20.00

043	-07	M3S	4606B-7A	5.00x	16 MAY 89	13:52

	Pb-S	Tl-S
Value	64.82	52.60
Spike added	30.00	30.00
Intercept	24.735	-0.680
Slope	1.310	1.763
Coefficient	0.9988	0.9998
Calc. conc.	18.9 S	-0.3 S

044	-03	MOS	4606B-3A	100.00x	16 MAY 89	13:54

	Pb-S	Tl-S
Value	12.42	-00.02
Spike added	0.00	0.00

045	-03	M1S	4606B-3A	100.00x	16 MAY 89	13:57

	Pb-S	Tl-S
Value	17.91	17.86
Spike added	10.00	10.00

046	-03	M2S	4606B-3A	100.00x	16 MAY 89	13:59

	Pb-S	Tl-S
Value	28.86	37.19
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
047	-03	M3S	4606B-3A	100.00x	16 MAY 89	14:02

	Pb-S	Tl-S
Value	42.45	54.81
Spike added	30.00	30.00
Intercept	10.254	-0.113
Slope	1.010	1.838
Coefficient	0.9839	0.9998
Calc. conc.	10.2 +	0.0 S

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POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
048	-03	M0S	4606B-3A	100.00x	16 MAY 89	14:05

	Pb-S	Tl-S
Value	13.40	-00.23
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
049	-03	M1S	4606B-3A	100.00x	16 MAY 89	14:07

	Pb-S	Tl-S
Value	16.92	17.58
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
050	-03	M2S	4606B-3A	100.00x	16 MAY 89	14:10

	Pb-S	Tl-S
Value	27.68	36.11
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
051	-03	M3S	4606B-3A	100.00x	16 MAY 89	14:12

	Pb-S	Tl-S
Value	43.10	56.43
Spike added	30.00	30.00
Intercept	10.296	-0.804
Slope	0.999	1.885
Coefficient	0.9660	0.9995
Calc. conc.	10.3 +	-0.3 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
052	50 PPB	CCV 3		1.00x	16 MAY 89	14:14

	Pb-S	Tl-S
Value	48.24	49.48
Check	***	***

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
053	CAL BLK	CCB 3		1.00x	16 MAY 89	14:17

SN 5-17-89

	Pb-S	Tl-S
Value	-00.38	-00.15
Check	OK	OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
054	-01	MODS	4606B-1A	5.00x	16 MAY 89	14:20

	Pb-S	Tl-S
Value	21.98	08.39
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
055	-01	M1DS	4606B-1A	5.00x	16 MAY 89	14:23

	Pb-S	Tl-S
Value	32.77	26.19
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
056	-01	M2DS	4606B-1A	5.00x	16 MAY 89	14:25

	Pb-S	Tl-S
Value	43.91	41.42
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
057	-01	M3DS	4606B-1A	5.00x	16 MAY 89	14:28

	Pb-S	Tl-S
Value	56.18	57.21
Spike added	30.00	30.00
Intercept	21.649	9.049
Slope	1.137	1.617
Coefficient	0.9996	0.9994
Calc. conc.	19.0 S	5.6 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
058	-04	MOS	4606B-4A	1.00x	16 MAY 89	14:30

	Pb-S	Tl-S
Value	HIGH	-00.21
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
059	-04	M1S	4606B-4A	1.00x	16 MAY 89	14:33

	Pb-S	Tl-S
Value	HIGH	15.31
Spike added	10.00	10.00

SN 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
060	-04	M2S	4606B-4A	1.00x	16 MAY 89	14:35

	Pb-S	Tl-S
Value	HIGH	31.83
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
061	-04	M3S	4606B-4A	1.00x	16 MAY 89	14:38

	Pb-S	Tl-S
Value	HIGH	48.23
Spike added	30.00	30.00
Intercept	21.649	-0.486
Slope	1.137	1.618
Coefficient	0.9996	0.9999
Calc. conc.	19.0 S	-0.2 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
062	-05	MOS	4606B-5A	1.00x	16 MAY 89	14:40

	Pb-S	Tl-S
Value	HIGH	00.25
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
063	-05	M1S	4606B-5A	1.00x	16 MAY 89	14:43

	Pb-S	Tl-S
Value	HIGH	15.53
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
064	-05	M2S	4606B-5A	1.00x	16 MAY 89	14:45

	Pb-S	Tl-S
Value	HIGH	31.81
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
065	-05	M3S	4606B-5A	1.00x	16 MAY 89	14:48

	Pb-S	Tl-S
Value	HIGH	45.63
Spike added	30.00	30.00
Intercept	21.649	0.442
Slope	1.137	1.524
Coefficient	0.9996	0.9995
Calc. conc.	19.0 S	0.3 S

SP 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
066	-06	M0S	4606B-6A	1.00x	16 MAY 89	14:50

	Pb-S	Tl-S
Value	HIGH	01.36
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
067	-06	M1S	4606B-6A	1.00x	16 MAY 89	14:52

	Pb-S	Tl-S
Value	HIGH	11.59
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
068	-06	M2S	4606B-6A	1.00x	16 MAY 89	14:55

	Pb-S	Tl-S
Value	HIGH	23.31
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
069	-06	M3S	4606B-6A	1.00x	16 MAY 89	14:57

	Pb-S	Tl-S
Value	HIGH	33.10
Spike added	30.00	30.00
Intercept	21.649	1.299
Slope	1.137	1.069
Coefficient	0.9996	0.9994
Calc. conc.	19.0 S	1.2 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
070	-08	M0S	4606B-8A	1.00x	16 MAY 89	15:00

	Pb-S	Tl-S
Value	15.89	00.41
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
071	-08	M1S	4606B-8A	1.00x	16 MAY 89	15:02

	Pb-S	Tl-S
Value	27.98	16.00
Spike added	10.00	10.00

5/17/89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
072	-08#	M2S	4606B-8A	1.00x	16 MAY 89	15:05

	Pb-S	Tl-S
Value	42.02	30.86
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
073	-08	M3S	4606B-8A	1.00x	16 MAY 89	15:07

	Pb-S	Tl-S
Value	54.42	48.46
Spike added	30.00	30.00
Intercept	15.633	0.081
Slope	1.296	1.590
Coefficient	0.9996	0.9994
Calc. conc.	12.1 S	0.0 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
074	50 PPB	CCV 4		1.00x	16 MAY 89	15:10

	Pb-S	Tl-S
Value	46.64	46.30
Check	***	***

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
075	CAL BLK	CCB 4		1.00x	16 MAY 89	15:12

	Pb-S	Tl-S
Value	01.15	00.52
Check	OK	OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
076	-04	MOS	4606B-4A	5.00x	16 MAY 89	15:15

	Pb-S	Tl-S
Value	40.52	00.37
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
077	-04	M1S	4606B-4A	5.00x	16 MAY 89	15:17

	Pb-S	Tl-S
Value	48.34	~~14.68~~ 5.17
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
078	-04	M2S	4606B-4A	5.00x	16 MAY 89	15:20

	Pb-S	Tl-S
Value	61.39	33.60
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
079	-04	M3S	4606B-4A	5.00x	16 MAY 89	15:22

	Pb-S	Tl-S
Value	70.63	47.40
Spike added	30.00	30.00
Intercept	39.713	0.011
Slope	1.034	1.600
Coefficient	0.9957	0.9981
Calc. conc.	38.4 S	0.0 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
080	-05	M0S	4606B-5A	5.00x	16 MAY 89	15:25

	Pb-S	Tl-S
Value	40.71	00.16
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
081	-05	M1S	4606B-5A	5.00x	16 MAY 89	15:27

	Pb-S	Tl-S
Value	51.59	17.94
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
082	-05	M2S	4606B-5A	5.00x	16 MAY 89	15:30

	Pb-S	Tl-S
Value	63.41	34.73
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
083	-05	M3S	4606B-5A	5.00x	16 MAY 89	15:32

	Pb-S	Tl-S
Value	78.13	50.45
Spike added	30.00	30.00
Intercept	39.848	0.671
Slope	1.241	1.677
Coefficient	0.9975	0.9996
Calc. conc.	32.1 S	0.4 S

SR 5-17-89

084	-06	MOS	4606B-6A	20.00x	16 MAY 89	15:36

	Pb-S	Tl-S
Value	63.43	-00.16
Spike added	0.00	0.00

085	-06	M1S	4606B-6A	20.00x	16 MAY 89	15:38

	Pb-S	Tl-S
Value	76.91	17.66
Spike added	10.00	10.00

086	-06	M2S	4606B-6A	20.00x	16 MAY 89	15:40

	Pb-S	Tl-S
Value	HIGH	33.23
Spike added	20.00	20.00

087	-06	M3S	4606B-6A	20.00x	16 MAY 89	15:43

	Pb-S	Tl-S
Value	HIGH	48.24
Spike added	30.00	30.00
Intercept	65.880	0.627
Slope	0.306	1.608
Coefficient	0.4844	0.9992
Calc. conc.	215.3 +	0.4 S

088	-09	MOS	4606B-9A	1.00x	16 MAY 89	15:45

	Pb-S	Tl-S
Value	89.87	-00.39
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
089	-09	M1S	4606B-9A	1.00x	16 MAY 89	15:48

	Pb-S	Tl-S
Value	DIG HI	~~12.76~~ SP 5-17-89
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
090	-09	M2S	4606B-9A	1.00x	16 MAY 89	15:50

	Pb-S	Tl-S
Value	HIGH	25.02
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
091	-09	M3S	4606B-9A	1.00x	16 MAY 89	15:53

	Pb-S	Tl-S
Value	HIGH	37.79
Spike added	30.00	30.00
Intercept	84.388	-0.225
Slope	-0.487	1.268
Coefficient	0.5810	0.9999
Calc. conc.	-173.1 +	-0.1 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
092	-10	MOS	EXTRACTION	1.00x	16 MAY 89	15:55

	Pb-S	Tl-S
Value	51.62	-00.53
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
093	-10	M1S	EXTRACTION DUPLICATE	1.00x	16 MAY 89	15:58

	Pb-S	Tl-S
Value	65.66	14.87
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
094	-10	M2S	EXTRACTION DUPLICATE	1.00x	16 MAY 89	16:00

	Pb-S	Tl-S
Value	76.22	29.75
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
095	-10	M3S	EXTRACTION	DUPLICATE	1.00x	16 MAY 89 16:03

SF 5-17-89

	Pb-S	Tl-S
Value	94.11	48.49
Spike added	30.00	30.00
Intercept	51.198	-1.146
Slope	1.380	1.619
Coefficient	0.9950	0.9986
Calc. conc.	37.1 S	-0.6 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
096	50 PPB	CCV 5		1.00x	16 MAY 89	16:05

	Pb-S	Tl-S
Value	45.92	46.81
Check	***	***

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
097	CAL BLK	CCB 5		1.00x	16 MAY 89	16:08

	Pb-S	Tl-S
Value	-00.18	-00.10
Check	OK	OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
098	-06	MOS	4606B-6A	50.00x	16 MAY 89	16:10

	Pb-S	Tl-S
Value	23.42	-00.05
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
099	-06	M1S	4606B-6A	50.00x	16 MAY 89	16:13

	Pb-S	Tl-S
Value	36.54	17.89
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
100	-06	M2S	4606B-6A	50.00x	16 MAY 89	16:15

	Pb-S	Tl-S
Value	48.45	33.00
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
101	-06	M3S	4606B-6A	50.00x	16 MAY 89	16:18

	Pb-S	Tl-S
Value	65.31	54.24
Spike added	30.00	30.00
Intercept	22.793	-0.427
Slope	1.376	1.780
Coefficient	0.9972	0.9979
Calc. conc.	16.6 S	-0.1 S

SS 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
102	-09	M0S	4606B-9A	5.00x	16 MAY 89	16:20

	Pb-S	Tl-S
Value	17.91	-00.03
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
103	-09	M1S	4606B-9A	5.00x	16 MAY 89	16:23

	Pb-S	Tl-S
Value	36.00	14.62
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
104	-09	M2S	4606B-9A	5.00x	16 MAY 89	16:28

	Pb-S	Tl-S
Value	43.49	28.60
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
105	-09	M3S	4606B-9A	5.00x	16 MAY 89	16:31

	Pb-S	Tl-S
Value	55.11	43.43
Spike added	30.00	30.00
Intercept	20.264	0.001
Slope	1.191	1.444
Coefficient	0.9853	0.9999
Calc. conc.	17.0 +	0.0 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
106	-09	M0S	4606B-9A	5.00x	16 MAY 89	16:33

	Pb-S	Tl-S
Value	16.80	01.06
Spike added	0.00	0.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
107	-09	M1S	4606B-9A	5.00x	16 MAY 89	16:36

	Pb-S	Tl-S
Value	35.63	13.45
Spike added	10.00	10.00

SN 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
108	-09	M2S	4606B-9A	5.00x	16 MAY 89	16:38

	Pb-S	Tl-S
Value	42.05	28.02
Spike added	20.00	20.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
109	-09	M3S	4606B-9A	5.00x	16 MAY 89	16:41

	Pb-S	Tl-S
Value	53.92	41.76
Spike added	30.00	30.00
Intercept	19.433	0.572
Slope	1.178	1.367
Coefficient	0.9804	0.9995
Calc. conc.	16.5 +	0.4 S

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
110	-11	MOS	EXTRACTION	1.00x	16 MAY 89	16:43

	Pb-S	Tl-S
Value	09.84	-00.46
Spike added	0.00	0.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
111	-11	M1S	EXTRACTION BLANK	1.00x	16 MAY 89	16:46

	Pb-S	Tl-S
Value	22.34	18.18
Spike added	10.00	10.00

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
112	-11	M2S	EXTRACTION BLANK	1.00x	16 MAY 89	16:48

	Pb-S	Tl-S
Value	34.47	36.65
Spike added	20.00	20.00

Instrument code: F2
Run ID: 8913602

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
113	-11	M3S	EXTRACTION BLANK	1.00x	16 MAY 89	16:51

	Pb-S	Tl-S
Value	44.61	53.21
Spike added	30.00	30.00
Intercept	10.349	-0.027
Slope	1.164	1.795
Coefficient	0.9989	0.9996
Calc. conc.	8.9 S	0.0 S

SN 5-17-89

POS	SAMPLE ID	CODE	DILUTION	DATE	TIME
114	50 PPB	CCV 6	1.00x	16 MAY 89	16:57

	Pb-S	Tl-S
Value	54.07	62.03
Check	***	***

POS	SAMPLE ID	CODE	DILUTION	DATE	TIME
115	CAL BLK	CCB 6	1.00x	16 MAY 89	16:59

	Pb-S	Tl-S
Value	00.84	00.76
Check	OK	OK

END OF RUN
SN 5-17-89

C L P M E T A L S 2.02

Run Id: F1 8913701
THERMO JARRELL-ASH VIDEO 22E (#2)

Element:

Acquired: 05/17/89 by RPP
Crunched: 05/19/89 by RPP
Time: 1821
Processing method: 7/87

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	ICV-4	ICV		ICV	05/17/89	19:44
2	CAL BLK	ICB		ICB	05/17/89	19:49
3	CRA	CRAO		CRAO	05/17/89	19:53
4	FB	DBW		DBW	05/17/89	19:57
5	FB	ASDBW		ASDBW	05/17/89	20:02
6	50 PPB	CCV		CCV	05/17/89	20:06
7	CAL BLK	CCB		CCB	05/17/89	20:10
8	0 PPB	WS0		S0	05/17/89	
9	5 PPB	WS1		S5	05/17/89	
10	50 PPB	WS2		S50	05/17/89	
11	100 PPB	WS3		S100	05/17/89	

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: 1003 Instrument ID: F_1, F_2, F_3, F_4 Page 1 of 1

Date: 5-17-89 Reviewed by: Instruments Method #: 160

Operator: SN Standards Prepared: 5-17-89

Background: BS BD Standards Source: 800

Time Calibrated: 19:21

1. Calibration: 10 PPM
2. ICV: ICV-4 (5:100)
3. CCV: 50 PPB

disc # 9

acq 8905056

SKINNER AND SHERMAN

A	B
Run ID: 8913701	Run ID: 8913752
Element: As (Pb)	Element: Se (Tl)
Wavelength (nm): 283.3	Wavelength (nm): 278.6
Slitwidth (nm): 1.0	Slitwidth (nm): ~~0.2~~ 1.0
Integration Time (sec): 3.0	Integration Time (sec): 3.0
STD1: 0 STD2: 5	STD1: 0 STD2: 10
STD3: 50 STD4: 100	STD3: 50 STD4: 100

	SAMPLE ID	DILUTION	COMMENTS
1	ICV		
2	ICB		
3	CRA		
4	PB		
5	PBA		Pb only
6	CCV		
7	CCB		
8			
9			
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39			

COMMENTS

Normal Calibration

RINSE

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

AUTO ZERO
19:21:30
Wed 17 MAY 1989

		Pb-S	Tl-S
Standard	C STD 2 5/10		
Abs	1	0.017	0.022
Mean		0.017	0.022
P/H		0.014	0.033
Abs	2	0.015	0.022
Mean		0.016	0.022
P/H		0.016	0.034
		Pb-S	Tl-S
Mean		0.016	0.022
SD		0.001	0.000
RSD		08.75	00.00
		Pb-S	Tl-S
Standard	1 STD 3 50/50		
Abs	1	0.155	0.109
Mean		0.155	0.109
P/H		0.211	0.178
Abs	2	0.151	0.110
Mean		0.153	0.109
P/H		0.209	0.197
		Pb-S	Tl-S
Mean		0.153	0.109
SD		0.003	0.001
RSD		01.83	00.91
		Pb-S	Tl-S
Standard	2 STD 4 100/100		
Abs	1	0.284	0.206
Mean		0.284	0.206
P/H		0.377	0.324
Abs	2	0.281	0.210
Mean		0.282	0.208
P/H		0.355	0.321
		Pb-S	Tl-S
Mean		0.282	0.208
SD		0.002	0.003
RSD		00.78	01.34

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	05.00	0.016
1	50.00	0.153
2	99.99	0.282

APP CONC
STD Z 00.00

Instrument code: F2
Run ID: 8913701

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
001	ICV-4	ICV 2		2.00x	17 MAY 89	19:44

	Pb-S	Tl-S
Burn 1	48.05	48.36
Burn 2	46.83	48.21
Mean	47.44 =	48.28 =
RSD	01.81	00.21

SJ 5-17-89

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
002	CAL BLK	ICB 2		1.00x	17 MAY 89	19:49

	Pb-S	Tl-S
Burn 1	00.14	-01.17
Burn 2	-00.01	-00.02
Mean	00.06 =	-00.60 =
RSD	DIG HI	DIG HI
Check	OK	OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
003	CRA	CRA0		1.00x	17 MAY 89	19:53

	Pb-S	Tl-S
Burn 1	04.25	10.11
Burn 2	05.63	10.00
Mean	04.94 =	10.05 =
RSD	19.73	00.77

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
004	PB	DBW		1.00x	17 MAY 89	19:57

	Pb-S	Tl-S
Burn 1	00.48	-00.11
Burn 2	00.37	00.02
Mean	00.42 =	-00.05 =
RSD	18.57	DIG HI

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
005	PB	ASDBW		1.00x	17 MAY 89	20:02

	Pb-S	Tl-S
Burn 1	10.59	19.52
Burn 2	09.28	18.52
Mean	09.93 =	19.02 =
RSD	09.32	03.71
Sample value	1.10U	1.50U
Spike added	10.00	20.00
Spike recovery, %	99.3	95.1

Instrument code: F2
Run ID: 8913701

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
006	50 PPB	CCV		1.00x	17 MAY 89	20:06

	Pb-S		Tl-S	
Burn 1	49.70		47.29	SN 5-17-89
Burn 2	51.58		~~52.06~~	
Mean	50.64	=	49.67	=
RSD	02.62		06.78	
Check		OK		OK

POS	SAMPLE ID	CODE	CLIENT ID	DILUTION	DATE	TIME
007	CAL BLK	CCB		1.00x	17 MAY 89	20:10

	Pb-S		Tl-S	
Burn 1	00.26		-00.98	
Burn 2	00.16		-00.62	
Mean	00.21	=	-00.80	=
RSD	33.33		-31.75	
Check		OK		OK

END OF RUN

SN 5-17-89

C L P M E T A L S 2.02

Run ID: FS 8913701
PERKIN-ELMER 3030B

Element: Ag.

Acquired: 05/17/89 by DNF
Crunched: 05/19/89 by DNF
Time: 1615
Processing protocol: 7/87

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	05/16/89	
2	1000 PPB	WS1		S1000	05/16/89	
3	2000 PPB	WS2		S2000	05/16/89	
4	4000 PPB	WS3		S4000	05/16/89	
5	ICV1	ICV		ICV	05/16/89	
6	CAL BLK	ICB		ICB	05/16/89	
7	LCSFW	LCSW		LCSW	05/16/89	
8	PB	DBW		DBW	05/16/89	
9	8905056-01	M0S	Furnace	4606B-1A0	05/16/89	
10	8905056-01	M1S	Furnace	4606B-1A	05/16/89	
11	8905056-01	M2S	Furnace	4606B-1A	05/16/89	
12	8905056-01	M3S	Furnace	4606B-1A	05/16/89	
13	8905056-01	M0S2	Furnace	4606B-1AD0	05/16/89	
14	8905056-01	M1S2	Furnace	4606B-1AD	05/16/89	
15	8905056-01	M2S2	Furnace	4606B-1AD	05/16/89	
16	8905056-01	M3S2	Furnace	4606B-1AD	05/16/89	
17	8905056-01	M0DS	Furnace	4606B-1AS0	05/16/89	
18	8905056-01	M1DS	Furnace	4606B-1AS	05/16/89	
19	8905056-01	M2DS	Furnace	4606B-1AS	05/16/89	
20	8905056-01	M3DS	Furnace	4606B-1AS	05/16/89	
21	2000 PPB	CCV		CCV	05/16/89	
22	CAL BLK	CCB		CCB	05/16/89	
23	8905056-02	M0S	Furnace	4606B-2A0	05/16/89	
24	8905056-02	M1S	Furnace	4606B-2A	05/16/89	
25	8905056-02	M2S	Furnace	4606B-2A	05/16/89	
26	8905056-02	M3S	Furnace	4606B-2A	05/16/89	
27	8905056-03	M0S	Furnace	4606B-3A0	05/16/89	
28	8905056-03	M1S	Furnace	4606B-3A	05/16/89	
29	8905056-03	M2S	Furnace	4606B-3A	05/16/89	
30	8905056-03	M3S	Furnace	4606B-3A	05/16/89	
31	8905056-04	M0S	Furnace	4606B-4A0	05/16/89	
32	8905056-04	M1S	Furnace	4606B-4A	05/16/89	
33	8905056-04	M2S	Furnace	4606B-4A	05/16/89	
34	8905056-04	M3S	Furnace	4606B-4A	05/16/89	
35	8905056-05	M0S	Furnace	4606B-5A0	05/16/89	
36	8905056-05	M1S	Furnace	4606B-5A	05/16/89	
37	8905056-05	M2S	Furnace	4606B-5A	05/16/89	
38	8905056-05	M3S	Furnace	4606B-5A	05/16/89	
39	8905056-06	M0S	Furnace	4606B-6A0	05/16/89	
40	8905056-06	M1S	Furnace	4606B-6A	05/16/89	
41	8905056-06	M2S	Furnace	4606B-6A	05/16/89	
42	8905056-06	M3S	Furnace	4606B-6A	05/16/89	
43	2000 PPB	CCV		CCV	05/16/89	

Pos	Sample	Code	Preparation Method	Client ID	
44	CAL BLK	CCB		CCB	05/16/89
45	8905056-07	M05	Furnace	46068-7A0	05/16/89
46	8905056-07	M15	Furnace	46068-7A	05/16/89
47	8905056-07	M25	Furnace	46068-7A	05/16/89
48	8905056-07	M35	Furnace	46068-7A	05/16/89
49	8905056-08	M05	Furnace	46068-8A0	05/16/89
50	8905056-08	M15	Furnace	46068-8A	05/16/89
51	8905056-08	M25	Furnace	46068-8A	05/16/89
52	8905056-08	M35	Furnace	46068-8A	05/16/89
53	8905056-09	M05	Furnace	46068-9A0	05/16/89
54	8905056-09	M15	Furnace	46068-9A	05/16/89
55	8905056-09	M25	Furnace	46068-9A	05/16/89
56	8905056-09	M35	Furnace	46068-9A	05/16/89
57	8905056-10	M05	Furnace	EXTRACTION	0U05/16/89
58	8905056-10	M15	Furnace	EXTRACTION	0U05/16/89
59	8905056-10	M25	Furnace	EXTRACTION	0U05/16/89
60	8905056-10	M35	Furnace	EXTRACTION	0U05/16/89
61	8905056-11	M05	Furnace	EXTRACTION	8L05/16/89
62	8905056-11	M15	Furnace	EXTRACTION	8L05/16/89
63	8905056-11	M25	Furnace	EXTRACTION	8L05/16/89
64	8905056-11	M35	Furnace	EXTRACTION	8L05/16/89
65	2000 PPB	CCV		CCV	05/16/89
66	CAL BLK	CCB		CCB	05/16/89

GRAPHITE FURNACE AA RUN BENCH SHEET

AA Sequence #: _____ Instrument ID: F_1, F_2, F_3, F_4, F_5 Page 1 of 2

Date: 5/17/89 Reviewed by: _____ Instruments Method #: _____

Operator: _____ Standards Prepared: _____

Background: BS BD

Time Calibrated: 9:30 Standards Source: _____

1. Calibration: 1000 ppm
2. ICV: 1cv1 (1:10
3. CCV: 2 ppm

disc # _____

acq _____

8905056

SKINNER AND SHERMAN

A	B
Run ID: 8913701	Run ID:
Element: As Pb Ag	Element: Se Tl
Wavelength (nm): 328.1	Wavelength (nm):
Slitwidth (nm): 0.7	Slitwidth (nm):
Integration Time (sec): 4	Integration Time (sec):
STD1: 0 STD2: 1 ppm	STD1: STD2:
STD3: 2 ppm STD4: 4 ppm	STD3: STD4:

COMMENTS		SAMPLE ID	DILUTION	COMMENTS
	1	ICV		
	2	ICB		
	3	~~CRA~~ LCSW		
	4	PB		
	5	01		
r=1.000	6	+1		
	7	+2		
	8	+3		
	9	01D		
	10	+1		
r=.9999	11	+2		
	12	+3		
	13	01S		
	14	+1		
r=.9999	15	+2		
	16	+3		
	17	CW		
	18	CCB		
	19	02		
	20	+1		
r=.9999	21	+2		
	22	+3		
	23	03		
	24	+1		
r=.9998	25	+2		
	26	+3		
	27	04		
	28	+1		
r=.9999	29	+2		
	30	+3		
	31	05		
	32	+1		
r=.9999	33	+2		
	34	+3		
	35	06		
1.000	36	+1		
	37	+2		
	38	+3		
	39	CW		

GFAA RUN BENCH SHEET

AA SEQUENCE #: _____

SKINNER AND SHERMAN

A COMMENTS		SAMPLE ID	DILUTION	B COMMENTS
	40	CCB		
	41	07		
	42	+1		
r= .9993	43	+2		
	44	+3		
	45	08		
	46	+1		
r=.9997	47	+2		
	48	+3		
	49	09		
r=.9999	50	+1		
	51	+2		
	52	+3		
	53	10		
	54	+1		
r=.9980	55	+2		
	56	+3		
	57	11		
	58	+1		
r=1.000	59	+2		
	60	+3		
	61	CCV		
	62	CCB		
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
	72			
	73			
	74			
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
	84			
	85			

AG STD 1 0

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

0.000

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

0.000

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

0.000

MEAN= 0.000 STD.DEV.= 0.000 COEF.VAR.= 26.88 %

****

0.000 AUTOZERO

****

AG STD2 1

	AA	AA-BG	BG
ABSORBANCE	0.080	0.079	0.000

0.079

	AA	AA-BG	BG
ABSORBANCE	0.081	0.080	0.001

0.080

	AA	AA-BG	BG
ABSORBANCE	0.081	0.080	0.000

0.080

MEAN= 0.080 STD.DEV.= 0.001 COEF.VAR.= 0.74 %

****

1.000 STANDARD 1

****

AG STD3 2

	AA	AA-BG	BG
ABSORBANCE	0.161	0.160	0.001

2.005

	AA	AA-BG	BG
ABSORBANCE	0.161	0.160	0.002

1.995

	AA	AA-BG	BG
ABSORBANCE	0.162	0.160	0.001

(CONTINUED)

3.004

MEAN= 3.002 STD.DEV.= 0.005 COEF.VAR.= 0.37 %

3.000 STANDARD 3

AG STD4 4ppm 9:30

	AA	AA-BG	BG
ABSORBANCE	0.318	0.315	0.003

3.933

	AA	AA-BG	BG
ABSORBANCE	0.320	0.317	0.003

3.953

	AA	AA-BG	BG
ABSORBANCE	0.321	0.318	0.003

3.955

MEAN= 3.950 STD.DEV.= 0.016 COEF.VAR.= 0.42 %

4.000 STANDARD 3

paper advanced
MF
5/17/89

AG 0001 ICV 1 9:30

	AA	AA-BG	BG
ABSORBANCE	0.088	0.088	0.000

0.475

	AA	AA-BG	BG
ABSORBANCE	0.038	0.037	0.000

0.468

	AA	AA-BG	BG
ABSORBANCE	0.038	0.037	0.000

0.469

MEAN= 0.469 STD.DEV.= 0.006 COEF.VAR.= 1.38 %

AG 0002 ICB 9:30

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	0.000

0.007

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	0.000

0.007

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	0.000

0.007

MEAN= 0.007 STD.DEV.= 0.000 COEF.VAR.= 2.63 %

AG 0003 LCSW

	AA	AA-BG	BG
ABSORBANCE	0.247	0.246	

0.089

	AA	AA-BG	BG
ABSORBANCE	0.246	0.245	0.002

0.078

	AA	AA-BG	BG
ABSORBANCE	0.247	0.245	0.002

0.081

MEAN= 0.083 STD.DEV.= 0.006 COEF.VAR.= 0.19 %

AG 0004

0004 (CONTINUED)

PBW

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	-0.001

0.012

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

0.001

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

0.005

MEAN= 0.006 STD.DEV.= 0.008 COEF.VAR.= 95.10 %

****

AG 0005 01 4606B-1A

$y = 1.0522x + \cancel{17.2971}\ 18.200$

$r = 1.000$ mf 5/18/85

$x = \cancel{18.200}\ 17.2971$

	AA	AA-BG	BG
ABSORBANCE	0.001	0.001	0.000

0.014

	AA	AA-BG	BG
ABSORBANCE	0.001	0.001	-0.001

0.018

	AA	AA-BG	BG
ABSORBANCE	0.001	0.001	0.000

0.011

MEAN= 0.014 STD.DEV.= 0.003 COEF.VAR.= 23.48 %

****

AG 0006 01 +1 4606B-1A

	AA	AA-BG	BG
ABSORBANCE	0.086	0.085	0.001

1.062

	AA	AA-BG	BG
ABSORBANCE	0.087	0.087	0.000

1.080

	AA	AA-BG	BG
ABSORBANCE	0.087	0.087	0.001

1.080

MEAN= 1.074 STD.DEV.= 0.011 COEF.VAR.= 1.01 %

****

AG 0007 01 + 2 4606B-1A

0007 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.170	0.169	0.001

2.116

	AA	AA-BG	BG
ABSORBANCE	0.172	0.171	0.001

2.145

	AA	AA-BG	BG
ABSORBANCE	0.170	0.169	0.001

2.122

MEAN= 2.128 STD.DEV.= 0.015 COEF.VAR.= 0.72 %

****

AG 0008 01 +3 46060-01A

MF 5/10/89

	AA	AA-BG	BG
ABSORBANCE	0.254	0.252	0.002

3.172

	AA	AA-BG	BG
ABSORBANCE	0.253	0.251	0.002

3.180

	AA	AA-BG	BG
ABSORBANCE	0.254	0.253	0.001

3.179

MEAN= 3.170 STD.DEV.= 0.009 COEF.VAR.= 0.30 %

****

AG 0009 01D 46060B-1A D

	AA	AA-BG	BG
ABSORBANCE	0.002	0.003	-0.001

~~y = 104.2833x + 79.1000~~

~~x = 7576~~ MF 5/10/89

~~r = .7819~~

0.083

---

y = 1.0340x + 40.5

r = .9999

x = 39.683

	AA	AA-BG	BG
ABSORBANCE	0.001	0.002	-0.001

0.024

	AA	AA-BG	BG
ABSORBANCE	0.002	0.002	-0.001

0.080

MEAN= 0.029 STD.DEV.= 0.005 COEF.VAR.= 15.68 %

****

AG 0010

0010 (CONTINUED)

01D +1

4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.087	0.087	0.000

1.082

	AA	AA-BG	BG
ABSORBANCE	0.087	0.087	0.000

1.082

	AA	AA-BG	BG
ABSORBANCE	0.087	0.088	0.000

1.091

MEAN= 1.085 STD.DEV.= 0.005 COEF.VAR.= 0.46 %

AC 0011 01D+2 4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.170	0.169	0.001

2.119

	AA	AA-BG	BG
ABSORBANCE	0.170	0.169	0.001

2.110

	AA	AA-BG	BG
ABSORBANCE	0.171	0.171	0.001

2.138

MEAN= 2.122 STD.DEV.= 0.015 COEF.VAR.= 0.68 %

AC 0012 01D+3 4606B-1AD

	AA	AA-BG	BG
ABSORBANCE	0.250	0.248	0.001

3.121

	AA	AA-BG	BG
ABSORBANCE	0.251	0.249	0.002

3.130

	AA	AA-BG	BG
ABSORBANCE	0.251	0.250	0.002

3.139

MEAN= 3.130 STD.DEV.= 0.009 COEF.VAR.= 0.28 %

AC 0013

0013 (CONTINUED)

015

4606B-1AS

	AA	AA-BG	BG
ABSORBANCE	0.007	0.007	0.000
0.090			

$y = 1.0329x + 93.9$

$r = .9999$

$x = -90.9091$

	AA	AA-BG	BG
ABSORBANCE	0.006	0.006	-0.001
0.077			

	AA	AA-BG	BG
ABSORBANCE	0.005	0.006	0.000
0.070			

MEAN= 0.079 STD.DEV.= 0.010 COEF.VAR.= 12.25 %

****

AG 0014 015 +1 4606B-1AS

	AA	AA-BG	BG
ABSORBANCE	0.092	0.092	0.000
1.142			

	AA	AA-BG	BG
ABSORBANCE	0.091	0.091	0.000
1.133			

	AA	AA-BG	BG
ABSORBANCE	0.091	0.091	0.000
1.130			

MEAN= 1.135 STD.DEV.= 0.006 COEF.VAR.= 0.57 %

****

AG 0015 015 +2 4606B-1AS

	AA	AA-BG	BG
ABSORBANCE	0.176	0.175	0.001
2.192			

	AA	AA-BG	BG
ABSORBANCE	0.175	0.174	0.001
2.182			

4606B-1AS

	AA	AA-BG	BG
ABSORBANCE	0.175	0.175	0.001
2.190			

MEAN= 2.188 STD.DEV.= 0.005 COEF.VAR.= 0.24 %

****

AG 0016

0016 (CONTINUED)

01S+3 4606B-IAS

	AA	AA-BG	BG
ABSORBANCE	0.254	0.252	0.002

3.168

M=.9999

	AA	AA-BG	BG
ABSORBANCE	0.253	0.252	0.002

3.165

	AA	AA-BG	BG
ABSORBANCE	0.254	0.253	0.001

3.181

MEAN= 3.171 STD.DEV.= 0.008 COEF.VAR.= 0.27 %

****

AG 0017 CCV 9:34

	AA	AA-BG	BG
ABSORBANCE	0.158	0.157	0.000

1.969

	AA	AA-BG	BG
ABSORBANCE	0.157	0.156	0.001

1.958

	AA	AA-BG	BG
ABSORBANCE	0.158	0.157	0.001

1.965

MEAN= 1.968 STD.DEV.= 0.007 COEF.VAR.= 0.34 %

****

AG 0018 CCB 9:34

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	-0.001

0.011

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

-0.004

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

0.005

MEAN= 0.004 STD.DEV.= 0.007 COEF.VAR.= 99.99 %

****

AG 0019

0019 (CONTINUED)

02 4606B-2A

	AA	AA-BG	BG
ABSORBANCE	0.002	0.008	0.000

0.031

$y = 1.0442x + 34.700$
$x = 33.2312$
$r = .9999$

	AA	AA-BG	BG
ABSORBANCE	0.002	0.002	0.000

0.028

	AA	AA-BG	BG
ABSORBANCE	0.001	0.001	0.000

0.014

MEAN= 0.028 STD.DEV.= 0.009 COEF.VAR.= 37.96 %

****

AG 0020 02 +1 4606B-02A

	AA	AA-BG	BG
ABSORBANCE	0.086	0.085	0.001

1.065

	AA	AA-BG	BG
ABSORBANCE	0.088	0.087	0.001

1.088

	AA	AA-BG	BG
ABSORBANCE	0.088	0.088	0.000

1.091

MEAN= 1.082 STD.DEV.= 0.014 COEF.VAR.= 1.32 %

****

AG 0021 02 +2 4606B-02A

	AA	AA-BG	BG
ABSORBANCE	0.172	0.170	0.001

2.138

	AA	AA-BG	BG
ABSORBANCE	0.173	0.173	0.001

2.160

	AA	AA-BG	BG
ABSORBANCE	0.174	0.173	0.001

2.162

MEAN= 2.152 STD.DEV.= 0.016 COEF.VAR.= 0.74 %

****

AG 0022

0022 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE 02+3 4606B-2A	0.251	0.249	0.002
3.131			
ABSORBANCE	0.252	0.250	0.002
3.146			
ABSORBANCE	0.253	0.252	0.001
3.165			

MEAN= 3.147 STD.DEV.= 0.017 COEF.VAR.= 0.54 %

****

AG 0023 03 4606B-3A

	AA	AA-BG	BG
ABSORBANCE	0.004	0.004	-0.001
0.055			
ABSORBANCE	0.002	0.003	-0.001
0.038			
ABSORBANCE	0.002	0.003	-0.001
0.038			

y = 1.0123x + 65.800
x = 65.0005
r = .9998

MEAN= 0.042 STD.DEV.= 0.012 COEF.VAR.= 27.63 %

****

AG 0024 03+1 4606B-3A

	AA	AA-BG	BG
ABSORBANCE	0.090	0.090	0.000
1.116			
ABSORBANCE	0.089	0.089	0.000
1.105			
ABSORBANCE	0.089	0.089	0.000
1.113			

MEAN= 1.112 STD.DEV.= 0.006 COEF.VAR.= 0.51 %

****

AG 0025

0025 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE 03 +2 4606B-3A	0.159	0.158	0.000
2.105			
ABSORBANCE	0.157	0.157	0.000
2.088			
ABSORBANCE	0.157	0.157	0.000
2.088			

MEAN= 2.094 STD.DEV.= 0.010 COEF.VAR.= 0.47 %

AC 0026 03 +3 4606B-3A

	AA	AA-BG	BG
ABSORBANCE	0.247	0.246	0.001
3.097			
ABSORBANCE	0.247	0.245	0.001
3.088			
ABSORBANCE	0.247	0.245	0.001
3.089			

MEAN= 3.089 STD.DEV.= 0.008 COEF.VAR.= 0.25 %

AC 0027 04 4606B-4A

	AA	AA-BG	BG
ABSORBANCE	0.004	0.004	0.000
0.047			
ABSORBANCE	0.004	0.004	0.000
0.049			
ABSORBANCE	0.004	0.004	0.000
0.046			

$y = 1.0156x + 67.600$
$r = .9999$
$x = 66.5616$

MEAN= 0.047 STD.DEV.= 0.002 COEF.VAR.= 3.53 %

AC 0028

0028 (CONTINUED)

04 + 1 4606B-04A

	AA	AA-BG	BG
ABSORBANCE	0.089	0.088	0.001

1.104

	AA	AA-BG	BG
ABSORBANCE	0.090	0.089	0.001

1.109

	AA	AA-BG	BG
ABSORBANCE	0.090	0.089	0.001

1.115

MEAN= 1.109 STD.DEV.= 0.005 COEF.VAR.= 0.47 %

****

AG 0029 04 + 2 4606B-04A

	AA	AA-BG	BG
ABSORBANCE	0.170	0.168	0.002

2.101

	AA	AA-BG	BG
ABSORBANCE	0.170	0.169	0.002

2.110

	AA	AA-BG	BG
ABSORBANCE	0.171	0.169	0.002

2.117

MEAN= 2.109 STD.DEV.= 0.008 COEF.VAR.= 0.38 %

****

AG 0030 04 +3 4606B-04A

	AA	AA-BG	BG
ABSORBANCE	0.248	0.246	0.002

3.093

	AA	AA-BG	BG
ABSORBANCE	0.248	0.246	0.002

3.094

	AA	AA-BG	BG
ABSORBANCE	0.249	0.247	0.002

3.110

MEAN= 3.099 STD.DEV.= 0.010 COEF.VAR.= 0.31 %

****

AG 0031

0031 (CONTINUED)

05 4606B-05A

	AA	AA-BG	BG
ABSORBANCE	0.003	0.003	0.000
0.039			

y=1.0400x+50.500
r=.9999
x=48.5577

	AA	AA-BG	BG
ABSORBANCE	0.003	0.003	0.000
0.041			

	AA	AA-BG	BG
ABSORBANCE	0.003	0.003	0.000
0.041			

MEAN= 0.040 STD.DEV.= 0.001 COEF.VAR.= 3.57 %

****

AG 0032 05 +1 4606B-05A

	AA	AA-BG	BG
ABSORBANCE	0.088	0.088	0.000
1.091			

	AA	AA-BG	BG
ABSORBANCE	0.089	0.088	0.001
1.097			

	AA	AA-BG	BG
ABSORBANCE	0.089	0.088	0.001
1.099			

MEAN= 1.096 STD.DEV.= 0.004 COEF.VAR.= 0.37 %

****

AG 0033 05 +2 4606B-05A

	AA	AA-BG	BG
ABSORBANCE	0.172	0.171	0.001
2.145			

	AA	AA-BG	BG
ABSORBANCE	0.173	0.172	0.001
2.149			

	AA	AA-BG	BG
ABSORBANCE	0.174	0.173	0.001
2.151			

MEAN= 2.151 STD.DEV.= 0.008 COEF.VAR.= 0.39 %

****

AG 0034

0034 (CONTINUED)

05 +3 4606B-05A

	AA	AA-BG	BG
ABSORBANCE	0.252	0.250	0.002

3.145

	AA	AA-BG	BG
ABSORBANCE	0.253	0.252	0.001

3.155

	AA	AA-BG	BG
ABSORBANCE	0.252	0.251	0.002

3.155

MEAN= 3.155 STD.DEV.= 0.010 COEF.VAR.= 0.32 %

****

AG 0035 06 4606B-06A

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	0.000

$y = 1.0050x + 19.500$
$x = 37.7689$
$r = 1.000$

0.009

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	0.000

0.011

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	-0.001

0.014

MEAN= 0.011 STD.DEV.= 0.003 COEF.VAR.= 23.47 %

****

AG 0036 06+1 4606B-06A

	AA	AA-BG	BG
ABSORBANCE	0.084	0.084	0.000

1.044

	AA	AA-BG	BG
ABSORBANCE	0.083	0.083	0.000

1.030

	AA	AA-BG	BG
ABSORBANCE	0.082	0.083	0.000

1.030

MEAN= 1.035 STD.DEV.= 0.008 COEF.VAR.= 0.78 %

****

AG 0037

0037 (CONTINUED)

06+2

4606B-06A

	AA	AA-BG	BG
ABSORBANCE	0.162	0.162	0.000

2.032

	AA	AA-BG	BG
ABSORBANCE	0.164	0.163	0.001

2.040

	AA	AA-BG	BG
ABSORBANCE	0.163	0.162	0.001

2.029

MEAN= 2.034 STD.DEV.= 0.006 COEF.VAR.= 0.28 %

AG 0038 06+3 4606B-06A

	AA	AA-BG	BG
ABSORBANCE	0.240	0.239	0.002

2.999

	AA	AA-BG	BG
ABSORBANCE	0.244	0.243	0.002

3.051

	AA	AA-BG	BG
ABSORBANCE	0.243	0.241	0.002

3.033

MEAN= 3.028 STD.DEV.= 0.027 COEF.VAR.= 0.89 %

AG 0039 CCV2 9:39

	AA	AA-BG	BG
ABSORBANCE	0.163	0.162	0.001

2.030

	AA	AA-BG	BG
ABSORBANCE	0.163	0.163	0.000

2.036

	AA	AA-BG	BG
ABSORBANCE	0.162	0.162	0.000

2.027

MEAN= 2.031 STD.DEV.= 0.005 COEF.VAR.= 0.25 %

AG 0040 CCV2 9:39

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	-0.001

0.006

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	-0.001

0.015

	AA	AA-BG	BG
ABSORBANCE	0.000	0.001	-0.001

0.013

MEAN= 0.011 STD.DEV.= 0.004 COEF.VAR.= 39.72 %

****

AG 0041 07 4606B-7A

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

$y = 1.0273x + 38.800$
$x = 37.7689$
$r = .9993$

0.004

	AA	AA-BG	BG
ABSORBANCE	0.000	0.000	0.000

-0.001

	AA	AA-BG	BG
ABSORBANCE	0.001	0.001	0.000

0.013

MEAN= 0.005 STD.DEV.= 0.007 COEF.VAR.= 99.99 %

****

AG 0042 07 +1 4606B-7A

	AA	AA-BG	BG
ABSORBANCE	0.088	0.087	0.001

1.088

	AA	AA-BG	BG
ABSORBANCE	0.088	0.087	0.000

1.088

	AA	AA-BG	BG
ABSORBANCE	0.088	0.087	0.001

1.084

MEAN= 1.087 STD.DEV.= 0.002 COEF.VAR.= 0.19 %

****

AG 0043

0043 (CONTINUED)

ABSORBANCE	0.173	0.172	0.001

07 + 2 4606B-07A

2.152

	AA	AA-BG	BG
ABSORBANCE	0.174	0.172	0.001

2.157

	AA	AA-BG	BG
ABSORBANCE	0.173	0.172	0.001

2.149

MEAN= 2.153 STD.DEV.= 0.004 COEF.VAR.= 0.19 %

****

AG 0044 07 + 3 4606B-07A

	AA	AA-BG	BG
ABSORBANCE	0.247	0.245	0.002

3.076

	AA	AA-BG	BG
ABSORBANCE	0.246	0.244	0.002

3.066

	AA	AA-BG	BG
ABSORBANCE	0.247	0.245	0.002

3.079

MEAN= 3.074 STD.DEV.= 0.007 COEF.VAR.= 0.22 %

****

AG 0045 08 4606B-08A

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

y = 1.0361x + 16.600
x = 16.0216
r = .9999

0.000

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

-0.003

	AA	AA-BG	BG
ABSORBANCE	-0.002	-0.001	-0.001

-0.007

MEAN= -0.003 STD.DEV.= 0.004 COEF.VAR.= 99.99 %

****

AG 0046 08 + 1 4606B-08A

0046 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.086	0.086	0.000

1.077

	AA	AA-BG	BG
ABSORBANCE	0.086	0.086	0.000

1.069

	AA	AA-BG	BG
ABSORBANCE	0.086	0.086	0.000

1.071

MEAN= 1.072 STD.DEV.= 0.004 COEF.VAR.= 0.36 %

****

AG 0047 08 T2 46068-08A

	AA	AA-BG	BG
ABSORBANCE	0.169	0.168	0.001

2.108

	AA	AA-BG	BG
ABSORBANCE	0.168	0.168	0.001

2.101

	AA	AA-BG	BG
ABSORBANCE	0.170	0.169	0.000

2.119

MEAN= 2.109 STD.DEV.= 0.009 COEF.VAR.= 0.43 %

****

AG 0048 08 T3 46068-08A

	AA	AA-BG	BG
ABSORBANCE	0.249	0.247	0.001

3.109

	AA	AA-BG	BG
ABSORBANCE	0.247	0.246	0.001

3.094

	AA	AA-BG	BG
ABSORBANCE	0.249	0.247	0.001

3.112

MEAN= 3.105 STD.DEV.= 0.010 COEF.VAR.= 0.31 %

****

AG 0049 09 46068-09A

0049 (CONTINUED)

ABSORBANCE 0.002 0.001 0.000

$y = 1.0402x + 47.7000$
$x = 45.8566$
$r = .9999$

0.016

	AA	AA-BG	BG
ABSORBANCE	0.002	0.001	0.000

0.018

	AA	AA-BG	BG
ABSORBANCE	0.004	0.004	0.000

0.049

MEAN= 0.027 STD.DEV.= 0.018 COEF.VAR.= 66.54 %

AG 0050 09 +1 H606B-09A

	AA	AA-BG	BG
ABSORBANCE	0.090	0.089	0.001

1.108

	AA	AA-BG	BG
ABSORBANCE	0.090	0.089	0.001

1.108

	AA	AA-BG	BG
ABSORBANCE	0.090	0.090	0.001

1.117

MEAN= 1.111 STD.DEV.= 0.005 COEF.VAR.= 0.48 %

AG 0051 09 +2 H606B-09A

	AA	AA-BG	BG
ABSORBANCE	0.171	0.170	0.002

2.127

	AA	AA-BG	BG
ABSORBANCE	0.173	0.172	0.001

2.153

	AA	AA-BG	BG
ABSORBANCE	0.174	0.172	0.002

2.152

MEAN= 2.144 STD.DEV.= 0.015 COEF.VAR.= 0.71 %

AG 0052 09 +3 H606B-09A

0052 (CONTINUED)

	AA	AA-BG	BG
ABSORBANCE	0.251	0.250	0.002

3.139

	AA	AA-BG	BG
ABSORBANCE	0.253	0.251	0.002

3.153

	AA	AA-BG	BG
ABSORBANCE	0.253	0.251	0.002

3.159

MEAN= 3.150 STD.DEV.= 0.010 COEF.VAR.= 0.33 %

****

AG 0053 10 extraction dup.

	AA	AA-BG	BG
ABSORBANCE	0.004	0.005	0.000

y = .9703x + 90.3000
r = .9980
x = 93.0640

0.056

	AA	AA-BG	BG
ABSORBANCE	0.003	0.003	0.000

0.033

	AA	AA-BG	BG
ABSORBANCE	0.003	0.003	0.000

0.034

MEAN= 0.041 STD.DEV.= 0.013 COEF.VAR.= 31.53 %

****

AG 0054 10 +1 extraction dup

	AA	AA-BG	BG
ABSORBANCE	0.087	0.087	0.000

1.084

	AA	AA-BG	BG
ABSORBANCE	0.087	0.087	0.001

1.083

	AA	AA-BG	BG
ABSORBANCE	0.088	0.087	0.001

1.084

MEAN= 1.084 STD.DEV.= 0.001 COEF.VAR.= 0.05 %

****

AG 0055 10 +2 extraction dup

AG 0055

	AA	AA-BG	BG
ABSORBANCE	0.173	0.172	0.001

2.148

	AA	AA-BG	BG
ABSORBANCE	0.171	0.170	0.001

2.133

	AA	AA-BG	BG
ABSORBANCE	0.171	0.170	0.001

2.136

MEAN= 2.132 STD.DEV.= 0.014 COEF.VAR.= 0.65 %

****

AG 0056 10+3 extraction dup-

	AA	AA-BG	BG
ABSORBANCE	0.234	0.233	0.001

2.930

	AA	AA-BG	BG
ABSORBANCE	0.235	0.233	0.002

2.931

	AA	AA-BG	BG
ABSORBANCE	0.234	0.232	0.001

2.917

MEAN= 2.926 STD.DEV.= 0.008 COEF.VAR.= 0.28 %

****

AG 0057 11 extraction blk

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.001	-0.001

$y = 1.0395x + .5000$

$x = .4810$

$r = 1.000$

0.003

	AA	AA-BG	BG
ABSORBANCE	-0.002	-0.001	-0.001

-0.013

	AA	AA-BG	BG
ABSORBANCE	-0.002	0.000	-0.002

-0.008

MEAN= -0.003 STD.DEV.= 0.010 COEF.VAR.= 99.99 %

****

AG 0058

0058 (CONTINUED)

		AA	AA-BG	BG
ABSORBANCE	11+1 extraction blk	0.084	0.085	-0.001
1.054				

	AA	AA-BG	BG
ABSORBANCE	0.084	0.084	-0.001
1.050			

	AA	AA-BG	BG
ABSORBANCE	0.083	0.083	0.000
1.031			

MEAN= 1.045 STD.DEV.= 0.012 COEF.VAR.= 1.15 %

****

AG 0059 11+2 extraction blk

	AA	AA-BG	BG
ABSORBANCE	0.167	0.167	0.000
2.086			

	AA	AA-BG	BG
ABSORBANCE	0.166	0.166	0.000
2.076			

	AA	AA-BG	BG
ABSORBANCE	0.166	0.166	0.000
2.079			

MEAN= 2.080 STD.DEV.= 0.005 COEF.VAR.= 0.24 %

****

AG 0060 11+3 extraction blk

	AA	AA-BG	BG
ABSORBANCE	0.248	0.247	0.001
3.108			

	AA	AA-BG	BG
ABSORBANCE	0.248	0.248	0.000
3.119			

	AA	AA-BG	BG
ABSORBANCE	0.249	0.248	0.001
3.125			

MEAN= 3.117 STD.DEV.= 0.009 COEF.VAR.= 0.28 %

AG 0061 CCV3 9:44

	AA	AA-BG	BG
ABSORBANCE	0.155	0.155	0.000

1.936

	AA	AA-BG	BG
ABSORBANCE	0.155	0.155	0.000

1.939

	AA	AA-BG	BG
ABSORBANCE	0.153	0.154	0.000

1.920

MEAN= 1.931 STD.DEV.= 0.010 COEF.VAR.= 0.53 %

****

AG 0062 CCB3 9:49

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

0.002

	AA	AA-BG	BG
ABSORBANCE	-0.002	0.000	-0.002

0.005

	AA	AA-BG	BG
ABSORBANCE	-0.001	0.000	-0.001

0.002

MEAN= 0.003 STD.DEV.= 0.002 COEF.VAR.= 58.09 %

****

end of run MF 5/18/89

C L P M E T A L S 2.02

Run id: M2 8913602
SPECTRO PRODUCTS HG-4 (#4707)

Acquired: 05/16/89 by RPP
Crunched: 05/19/89 by RPP
Time: 1310
Processing protocol: 7/87

Element:

Pos	Sample	Code	Preparation Method	Client ID	Date	Time
1	0 PPB	WS0		S0	05/16/89	
2	0.5 PPB	WS1		S0.5	05/16/89	
3	1.0 PPB	WS2		S1.0	05/16/89	
4	2.0 PPB	WS3		S2.0	05/16/89	
5	5.0 PPB	WS4		S5.0	05/16/89	
6	ICV-5	ICV		ICV	05/16/89	
7	CAL BLK	ICB		ICB	05/16/89	
8	2.0 PPB	CCV		CCV	05/16/89	
9	CAL BLK	CCB		CCB	05/16/89	
10	PB	DBW		DBW	05/16/89	
11	8905056-01	S	Mercury	4606B-1A	05/16/89	
12	8905056-01	S2	Mercury	4606B-1AD	05/16/89	
13	8905056-01	DS	Mercury	4606B-1AS	05/16/89	
14	2.0 PPB	CCV		CCV	05/16/89	
15	CAL BLK	CCB		CCB	05/16/89	
16	-01	X		XXXXXX	05/16/89	
17	8905056-02	S	Mercury	4606B-2A	05/16/89	
18	8905056-03	S	Mercury	4606B-3A	05/16/89	
19	8905056-04	S	Mercury	4606B-4A	05/16/89	
20	8905056-05	S	Mercury	4606B-5A	05/16/89	
21	8905056-06	S	Mercury	4606B-6A	05/16/89	
22	8905056-07	S	Mercury	4606B-7A	05/16/89	
23	8905056-08	S	Mercury	4606B-8A	05/16/89	
24	8905056-09	S	Mercury	4606B-9A	05/16/89	
25	-09	X		XXXXXX	05/16/89	
26	2.0 PPB	CCV		CCV	05/16/89	
27	CAL BLK	CCB		CCB	05/16/89	
28	-09	X		XXXXXX	05/16/89	
29	8905056-10	S	Mercury	EXTRACTION DUB	05/16/89	
30	8905056-11	S	Mercury	EXTRACTION BLB	05/16/89	
31	2.0 PPB	CCV		CCV	05/16/89	
32	CAL BLK	CCB		CCB	05/16/89	

220

8905056

Skinner & Sherman Labs
COLD VAPOR ATOMIC ABSORPTION
MERCURY BENCH SHEET

SEQ NO: 306 Pg 1 of 2

RUN ID 8913601,02,03,04,05,06
DATE 05-16-89
NAME P.S.
ELEMENT MERCURY
INSTR M1 (M2)
METHOD HG
WAVELENGTH - 253.7 nm

STANDARDS PREPPED
DATE : 05-16-89
STANDARD SOURCE
CALIB: 10 ppm M.V.
ICV : ICV-5 (0.5/100)
CCV : 2.0 ppb

CALIBRATION TIME: 10:25

	PK HT(mm)
BLANK	0
0.5 ppb	11
1.0 ppb	21
2.0 ppb	40
5.0 ppb	91

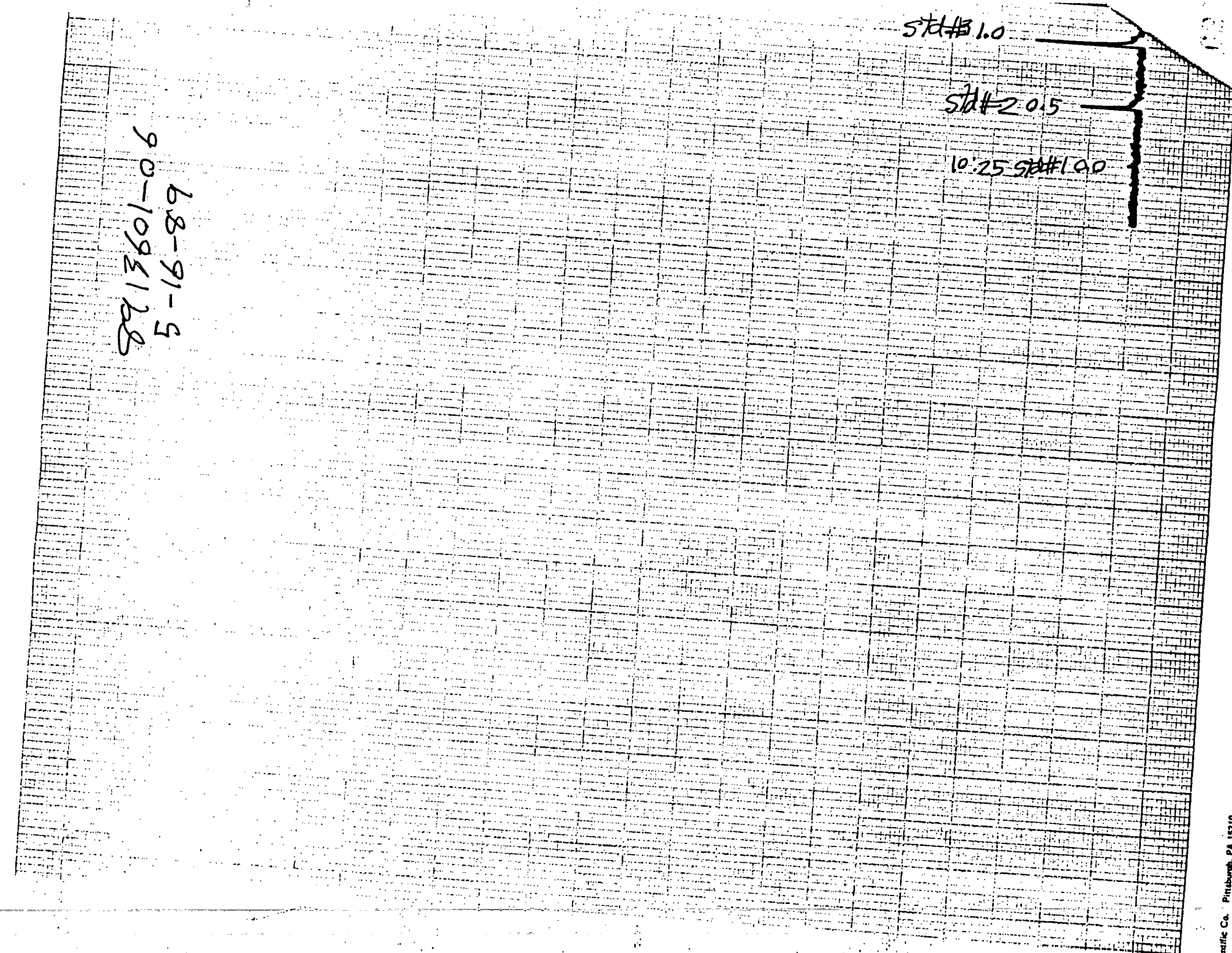
	SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
1	ICV-5 (1:1)	ICV	51	2.72 (ICV 5.44)	111.0%
2	BLANK	ICB	1	-0.052	
3	8905004-PBW		0	-0.108	
4	-01	MCX 863	1	-0.052	
5	-01S2	863D	2	0.003	
6	-02	864	0	-0.108	
7	-02S2	864D	0	-0.108	
8	-03	865	1	-0.052	
9	-03DS	865S	17	0.835	
10	-04	866	0	-0.108	
11	-04DS	866S	16	0.780	
12	-05	867	1	-0.052	
13	CCV		35	1.83	91.7%
14	CCB		1	-0.052	
15	8905004 -06	MCX 868	0	-0.108	
16	-07	869	0	-0.108	
17	-08	870	1	-0.052	
18	-09	871	0	-0.108	
19	-10	872	0	-0.108	
20	-11	873	0	-0.108	
21	8905056-PB		1	-0.052	
22	-01	4606B-1A	0	-0.108	
23	-01S2	-1AD	1	-0.052	
24	-01+1ppb	-1A+1	17	0.835	
25	CCV		40	2.11	65.5%
26	CCB		0	-0.108	
27	8905056-01+2ppb	4606B-1A+2	39	2.06	
28	-02	-2A	1	-0.052	
29	-03	-3A	1	-0.052	
30	-04	-4A	1	-0.052	
31	-05	-5A	1	-0.052	
32	-06	-6A	1	-0.052	
33	-07	-7A	1	-0.052	
34	-08	-8A	1	-0.052	

L

SEQ NO: 306

Skinner & Sherman Labs
COLD VAPOUR ATOMIC ABSORPTION
MERCURY BENCH SHEET

SAMPLE ID	CLIENT ID	PK HT(mm)	CONC(ppb)	COMMENT
8905056-09	4606B-09A	1	-0.052	
-09+100b	-9A+1	11	0.502	
CCV		39	2.06	102.7%
CCB		0	-0.108	
8905056-09+200b	4606B-9A+2	38	2.00	
-10	Extr. BLK Dup	0	-0.108	
-11	Extr BLK	0	-0.108	
8904081-PB		0	-0.108	
-01A		63	3.39	
-01As2		60	3.22	
-01B		36	1.89	
-01Bs2		44	2.33	
8904086-PBw		0	-0.108	
-02A		19	0.946	
CCV		39	2.06	102.7%
CCB		0	-0.108	
8904086-02As2		27	1.39	
-02B		10	0.447	
-02Bs2		13	0.613	
8904135-PBw		1	-0.052	
-01	MCQ 219	0	-0.108	
-01s2	219D	0	-0.108	
-01DS	219S	23	1.17	
-02	220	0	-0.108	
-03	221	1	-0.052	
8905079-PB		0	-0.108	
CCV		39	2.06	102.7%
CCB.		0	-0.108	
8905079-01		0	-0.108	
-01s2		0	-0.108	
CCV		40	2.11	105.5%
CCB		0	-0.108	



8913601-06
5-16-89

Catalog No. 13-939-37
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8905004 -05

8905004 -04DS

8905004 -04

8905004 -03DS

8905004 -03

8905004 -02S2

8905004 -02

8905004 -01S2

8905004 -01

8905004 -PBW

±CB 6:43

10-46 IOV

Std#5 5.0

Std#4 2.0

8913601-06
5-16-89

8905056 ~01+2ppb

CCB 11:48

CCV 11:45

8905056 — 01+1 ppb

8905056 — 0152

8905056 ~ 01

8905056 — PB

8905004 — 11

8905004 — 10

8905004 — 09

8905004 — 08

8905004 — 07

8905004 — 06

CCB 11:17

CCV 11:14

8913601-06
5-16-89

8905056 -11

8905056 -10

8905056 -09+2ppb

CCB 12:22

CCV 12:19

8905056 -09+1ppb

8905056 -09

8905056 -08

8905056 -07

8905056 -06

8905056 -05

8905056 -04

8905056 -03

8905056 -02

8913601-06
5-16-89

PRINTED IN U.S.A.
Catalog No. 13-939-37
Scientific Co. Pittsburgh, PA 15219

8904135 — PBW

8904086 — 02BS2

8904086 — 02B

8904086 — 02AS2

CCB 1:46

CCV 1:43

8904086 — 02A

8904086 — PBW

8904061 — 01BS2

8904061 — 01B

8904061 — 01AS2

8904061 — 01A

8904061 — PB

8913601-08
5-16-89

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SKINNER AND SHERMAN LABORATORIES

PAGE 1 of ___

TRAACS 800 SYSTEM BENCH SHEET
CYANIDE ANALYSIS

03 8905056

89139

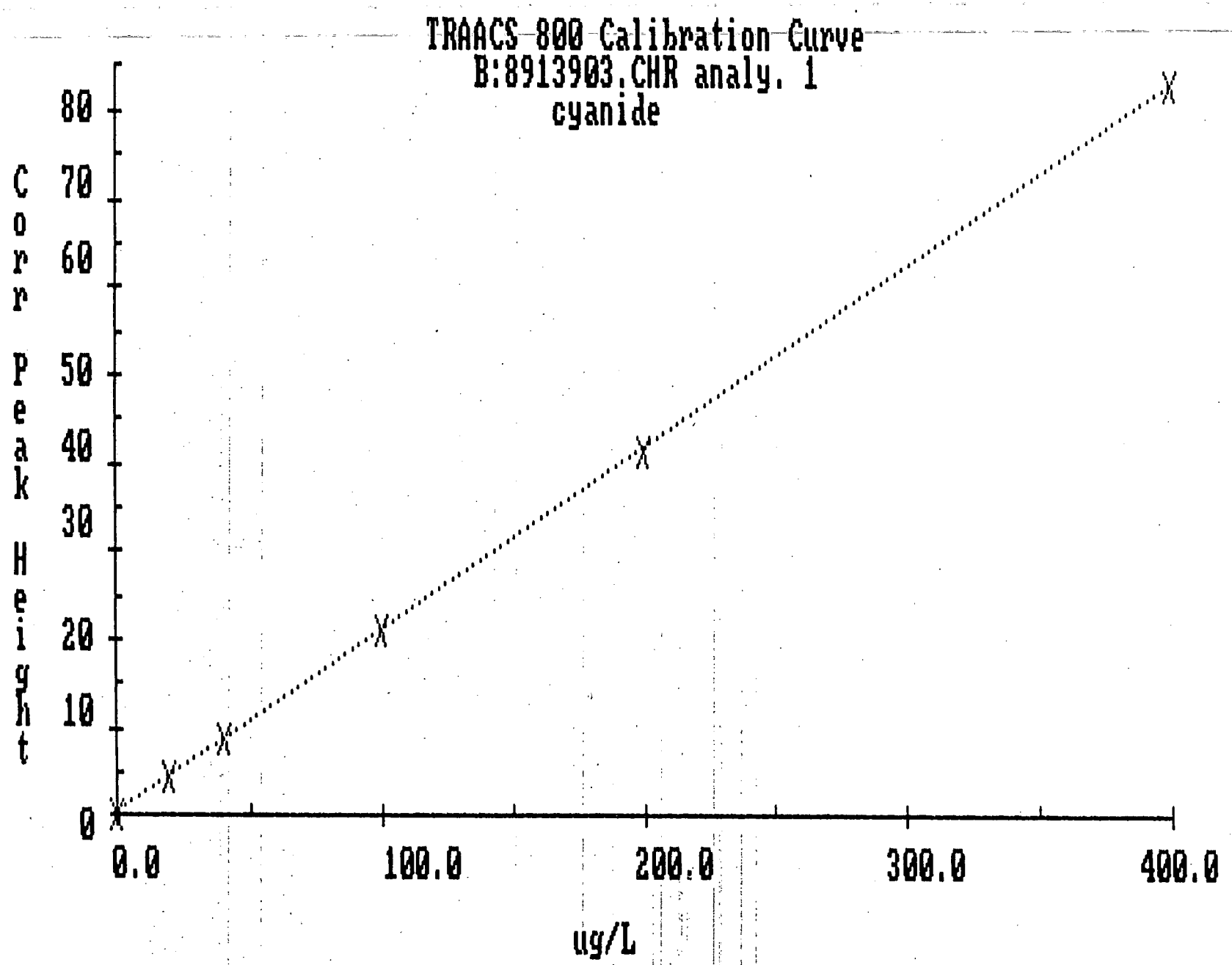
RUN IDENTIFICATION

DATE: 5/19/89
ANALYST: _____
METHOD NAME: _____

STANDARDS:	NAME	SOURCE	PREPARED
ICV	ICV-6	1088	
CCV	200 PPB	5PPM	
DIST STD			
ICB/CCB	CAL BLK		

POSITION	LAB ID	SAMPLE ID	COMMENTS
01	PRIMER	400 PPB	ABS: 0.26
02	STD1	20 PPB	
03	STD2	40 PPB	
04	STD3	100 PPB	
05	STD4	200 PPB	
06	STD5	400 PPB	
07	HIGH STD	400 PPB	
08	LOW STD1	40 PPB	
09	LOW STD2	40 PPB	
10	ICV	ICV-6	
11	ICB	CAL BLK	
12		DIST STD	
13	CCV	200 PPB	
14	CAL BLK	CAL BLK	
15	8905056-01		
16	-010		
17	-02		
18	-03		
19	-04		
20	-05		
21	-06		
22	-07		
23	BLANK		
24	BLANK		
25	CW2		
26	CW3 2		
27	~~-08~~		
28	-09		
29	BLANK	CCV OUT	
30	BLANK	5/19	
31			
32		DN	
33			
34			

Reviewed: Date: ver 2.0 5/89



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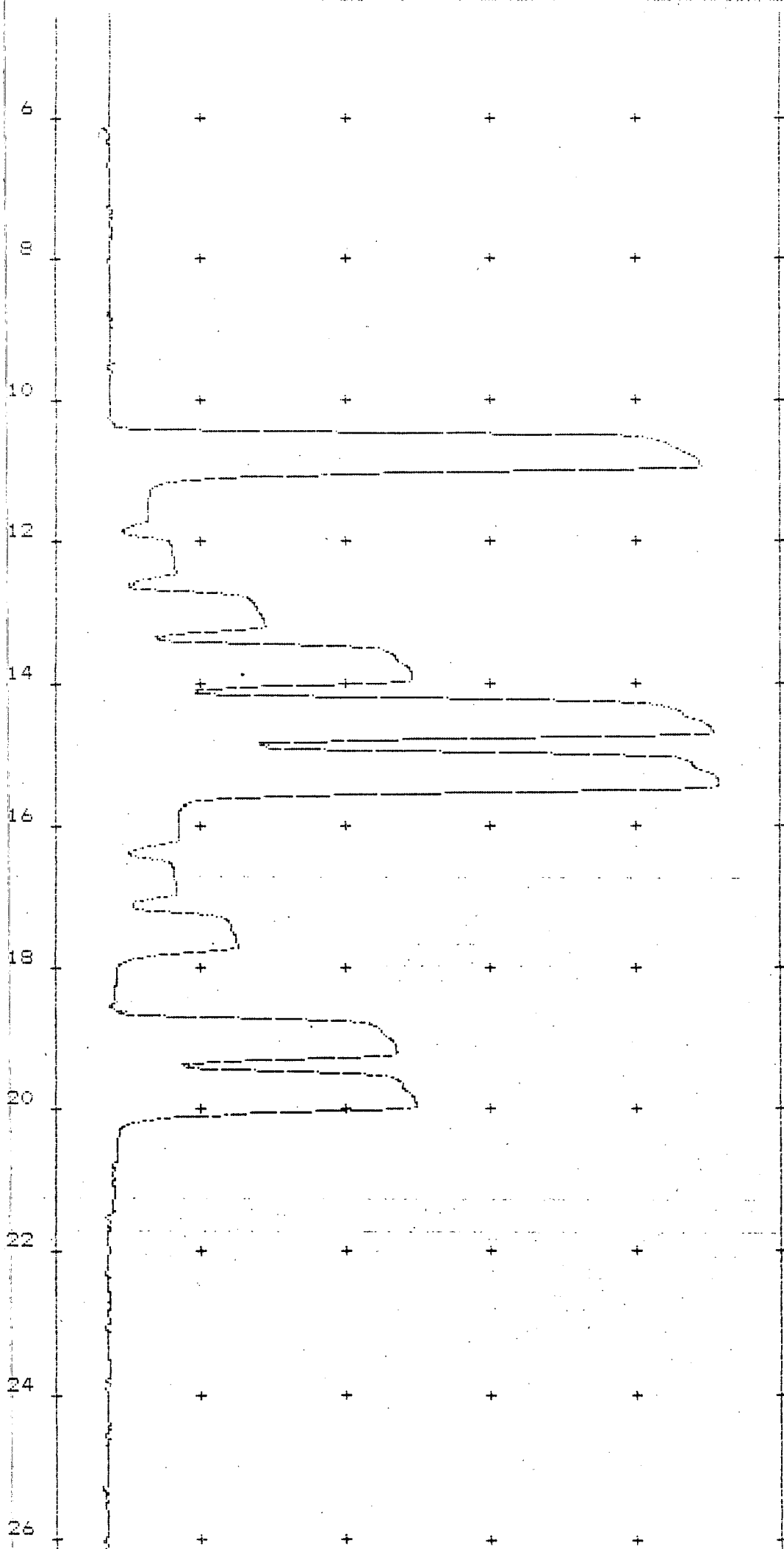
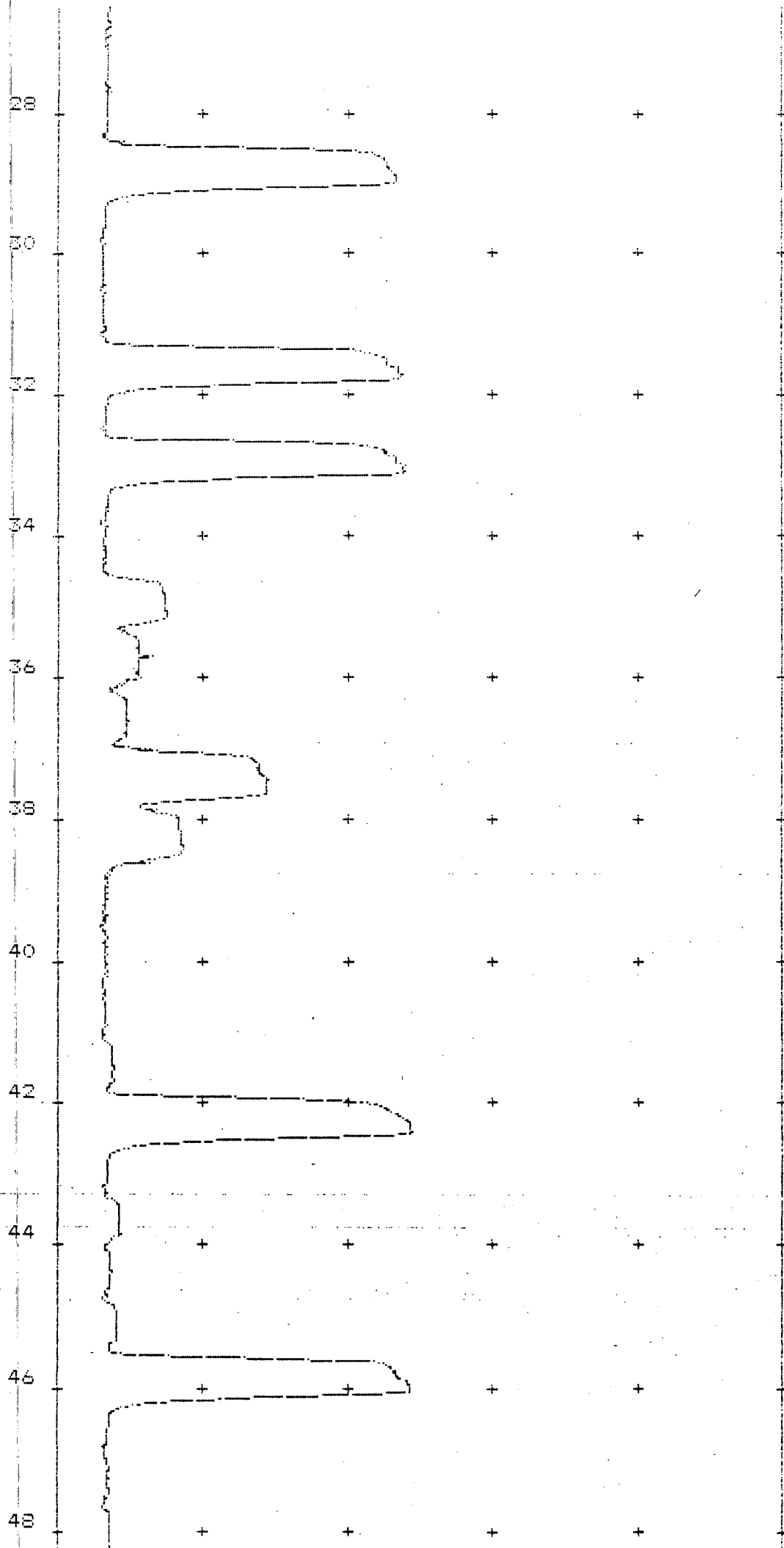


Init base				309	
PK	1 CP	1 typ P	Rel Abs	0.26	
PK	2 CP	2 typ C			
PK	3 CP	3 typ C			
PK	4 CP	4 typ C			
PK	5 CP	5 typ C			N
PK	6 CP	6 typ C		400.1	N
PK	7 CP	7 typ H		404.0	N
PK	8 CP	8 typ L		42.63	
PK	9 CP	9 typ L		41.69	
PK	10 CP	10 typ S		81.91	
PK	11 CP	11 typ S		0.7539	M
PK	12 CP	12 typ S		188.6	
PK	13 CP	13 typ S		201.5	N
PK	14 CP	14 typ S		1.700	M
PK	15 CP	15 typ S		-0.5475	M
PK	16 CP	16 typ S		-3.978	M
PK	17 CP	17 typ S		-3.387	M
PK	18 CP	18 typ S		-3.387	M
PK	19 CP	19 typ S		-3.505	M
PK	20 CP	20 typ S		-3.742	M
PK	21 CP	21 typ S		-4.451	M



PK	22	CP	22	typ	S	-5.043 M
PK	23	CP	23	typ	S	-6.344 M
PK	24	CP	24	typ	S	-5.398 M
PK	25	CP	25	typ	S	187.0
PK	26	CP	26	typ	S	-8.474 M
PK	27	CP	27	typ	S	-8.592 M
PK	28	CP	28	typ	S	-9.775 M
PK	29	CP	29	typ	S	16.72 N
PK	30	CP	30	typ	S	179.2 N
PK	31	CP	31	typ	S	-5.871
PK	32	CP	32	typ	S	-8.000 M
PK	33	CP	33	typ	S	32.46
PK	34	CP	34	typ	S	14.83 N
PK	35	CP	35	typ	S	7.024 N
PK	36	CP	36	typ	S	94.69 N
PK	37	CP	37	typ	S	99.42 N
PK	38	CP	38	typ	S	-2.322 S
PK	39	CP	39	typ	S	-7.764 M
PK	40	CP	40	typ	S	-8.000 M
PK	41	CP	41	typ	S	-7.527 M
PK	42	CP	42	typ	S	-1.730 M
PK	43	CP	43	typ	S	196.8 N
PK	44	CP	44	typ	S	-8.237 M
PK	45	CP	45	typ	S	-2.913 M
PK	46	CP	46	typ	S	-6.699 M
PK	47	CP	47	typ	S	-4.097 M
PK	48	CP	48	typ	S	38.85 N
PK	49	CP	49	typ	S	-7.764 M
PK	50	CP	50	typ	S	-8.829 M

Time: 16:24; Date: 05-19-89
Operator: NEEDHAM

Comment: CYANIDE AT 80 SAMPLES PER HOUR

Channels 1
Base: 65
Gain: 40

cyanide
ug/L
Base drift correction made
Carryover correction made
Gain drift correction made

Init base					309		
PK	1	CP	1	typ P	392.9		
Rel Abs					0.26		
PK	2	CP	2	typ C	20.92		
PK	3	CP	3	typ C	40.98		
PK	4	CP	4	typ C	100.9		
PK	5	CP	5	typ C	199.2	N	
PK	6	CP	6	typ C	400.0	N	
PK	7	CP	7	typ H	403.2	N	
PK	8	CP	8	typ L	41.55		
PK	9	CP	9	typ L	42.06		
PK	10	CP	10	typ S	82.36		ICV-1
PK	11	CP	11	typ S	0.9429	M	ICB-1
PK	12	CP	12	typ S	189.5		Dist std
PK	13	CP	13	typ S	201.7	N	CCV 1
PK	14	CP	14	typ S	1.436	M	CCB 1
PK	15	CP	15	typ S	-0.00744	M	8905056-01
PK	16	CP	16	typ S	-3.430	M	-010
PK	17	CP	17	typ S	-2.816	M	-02
PK	18	CP	18	typ S	-2.811	M	-03
PK	19	CP	19	typ S	-2.922	M	-04
PK	20	CP	20	typ S	-3.152	M	-05
PK	21	CP	21	typ S	-3.856	M	-06
PK	22	CP	22	typ S	-4.439	M	-07
PK	23	CP	23	typ S	-5.736	M	BLANK
PK	24	CP	24	typ S	-4.774	M	BLANK.
PK	25	CP	25	typ S	188.4		CCV 2
PK	26	CP	26	typ S	-8.626	M	CCB 2
PK	27	CP	27	typ S	-7.954	M	
PK	28	CP	28	typ S	-9.136	M	
PK	29	CP	29	typ S	17.51	N	
PK	30	CP	30	typ S	180.7	N	
PK	31	CP	31	typ S	-5.947		
PK	32	CP	32	typ S	-7.337	M	
PK	33	CP	33	typ S	33.37		
PK	34	CP	34	typ S	15.49	N	
PK	35	CP	35	typ S	7.717	N	
PK	36	CP	36	typ S	95.99	N	
PK	37	CP	37	typ S	100.4	N	
PK	38	CP	38	typ S	-2.005	S	
PK	39	CP	39	typ S	-7.068	M	
PK	40	CP	40	typ S	-7.278	M	
PK	41	CP	41	typ S	-6.793	M	
PK	42	CP	42	typ S	-0.9477	M	
PK	43	CP	43	typ S	199.1	N	CCV 4
PK	44	CP	44	typ S	-8.315	M	CCB 4

CCV out 5/19

SKINNER & SHERMAN
LABORATORIES, INC.
300 SECOND AVE., BOX 521
WALTHAM, MA 02254

SKINNER & SHERMAN LABORATORIES

DATA LOG - CYANIDE - SPECTROPHOTOMETRIC METHOD

Reactivity

CASE # 4606 B SDG # 01 Date distilled ~~5/22/89~~ 5/15/89

Date analyzed 5/22/89 Time 12:10 Analyst DN

(Page 1 of 1)

	ML USED	ABSORBANCE	UG/L CN	CALCULATION
Std0 (Blank)		0.005		
Std1 ML UG 10 UG/L		0.019		
Std2 ML UG 20 UG/L		0.033		
Std3 ML UG 40 UG/L		0.060		
Std4 ML UG 100 UG/L		0.142		
Std5 ML UG 200 UG/L		0.262		
Std6 ML UG 300 UG/L		0.393		
Std7 ML UG 400 UG/L		0.518		
ICV 12:20 UG 90 UG/L		0.137		
ICB 12:21		0.005		
Dist.Std UG UG/L		0.260		
CCV1 12:25 UG 200 UG/L		0.263		
CCB1 12:26		0.005		
SAMPLE #: EPA #				
Dist.blank				
3905056-08		0.007		
-09		0.007		
3905104-01		0.006		
CCV2 12:40 UG UG/L		0.264		
CCB2 12:41		0.006		
SAMPLE #: EPA #:				
CCV UG UG/L				
CCB				

ICV source: True value: UG UG/L

Note: ML USED and UG/L CN refer to 250 ML standard or distillate

Calibration standards preparation date:

COMMENTS:

APPROVAL: DATE:

Run ID#:

PROJECT Sulfide 05/18/89 Notebook No. 1 of 12Q

Continued From Page

Standard Methods 408A Iodometric Method Substite

Titrated with 10.1 ml Na_2SO_3

Normality of $Na_2S_2O_3$ = $\frac{1}{\text{ml } Na_2S_2O_3 \text{ Consumed}}$

$\frac{1}{10.1 \times 4}$ = 0.02475 N $Na_2S_2O_3$

Standard Methods... 427D Iodometric Res

~~Iodide~~ Iodine 2ml 1:1 HCl + 20m I ① 0.5ml → 19.78ml ② 0.01ml → 20.19ml } = 19.28 20.09 = 19.685ml

(GM) 5/18/89

Sample → 20ml I + 8½ HCl (GM) 05/18/89 0.10

Blank — Initial ① 0.47 - ~~20.4~~ 20.39 ml ② 0.11 - 20.11ml } = 19.92ml 20.00 } = 19.96ml <25 mg/Kg

8905056-01 ① 0.54ml - 20.35ml ② 0.31ml 20.32ml } = 19.81 20.01 } 19.91ml <25 mg/Kg

01 Duplic. titration

02 ① 3.48ml - 23.38ml = 19.90ml <25 mg/Kg

01 Duplicate 0.60ml - 20.55ml = 19.95ml <25 mg/Kg

8905104-01C (E17.) ① 0.19ml - 20.22ml ② 0.28ml - 21.11 } = 20.03ml 20.83ml } 20.43ml <25 mg/Kg

8905056-03 ① ~~0.23~~ 0.32 ml ml - 20.32 ml = ~~20ml~~ 20.00ml <25 mg/Kg (GM) 05/18/89 (GM) 05/18/89

-04 ① 0.26ml - 20.22ml = 19.96ml <25 mg/Kg

-05 → 0.53ml - 20.59ml = 20.06ml <25 mg/kg

-06 → 0.27ml - 22.24 ml = 21.97ml <25 mg/kg

-07 → 0.26ml - 20.29 ml = 20.03ml <25 mg/kg

-08 → 0.28 ml - 20.25ml = 19.97ml <25 mg/kg

-09 → 0.37 ml ~~23.32 ml = 22.9~~ 20.32 ml = 19.95ml <25 mg/kg (GM) 05/18/89

Continued on Page

Signed Date Signed Date

Iodine

$$mg\,S^{2-}/L = \frac{[(A \times B) - (C \times D)] \times 16{,}000}{ml\ sample}$$

A = ml iodine solution
B = normality of iodine solution
C = ml $Na_2S_2O_3$ solution
D = normality of $Na_2S_2O_3$

$$N\ of\ Iodine = 19.685\,ml \times \frac{0.02475}{20.0\,ml} = 0.0244\ N\ I_2$$

Indicator pg 418 42B

2g starch 0.2g salicylic

100ml distilled H_2O (hot)

Blank

$$mg\,S^{2-}/L = \frac{\left[\left(\cancel{19.69}\ 20.0 \times \cancel{0.02475}\ 0.0244\right) - \left(\cancel{19.96}\ 0.4880 \times \cancel{0.02475}\ 0.0244\right) - (0.4940)\right] \times \cancel{16{,}000}\ 17{,}000}{\cancel{19.96}\ (200\ ml\ sample)}$$

05/18/89 05/18/89

blank from sample $\times \frac{2.5}{10.0\,ml} = \frac{mg}{L}$ H_2S in sample

8905056 5/15/89

IGNITABILITY

Penske Marin
EPA SAS # 4606B

Sample	Trial 1	Trial 2	Average
01A	No flash to 200°F		
02A	No flash to 200°F		
03A	No flash to 200°F		
04A	No flash to 200°F		
05A	No flash to 200°F		
06A	No flash to 200°F		
07A	No flash to 200°F		
08A	No flash to 200°F		
09A	No flash to 200°F		

Student's Name [illegible] Date [illegible]

Subject 8905104 + 8905104 Instructor's Name [illegible]

20 gms + 20 mL = 11.0

		GRAMS	pH
8905104	1	20.62	6.92
	2	20.24	7.25
	3	20.13	7.56
	4	19.98	7.20
	5	20.74	7.85
	6	20.13	8.00
	7	20.72	7.75
	8	20.81	5.83
	9	20.23	7.21
	Insp.	20.92	7.30
8905104		20.14	7.[illegible]

DOCUMENT # _____ WATERS PREP LOG ANALYST AF PS.

PREP BATCH # 009 REVIEWED BY _____

SKINNER & SHERMAN

LCS SOURCE		Digest 1 (GFAA) Date 5-15-89		Digest 2 (ICP) Date 5-15-89			Digest 3 (Hg) Date 5-15-89	Description Color/Clarity
Client ID	Lab ID	Initial Vol(ml)	Final Vol(ml)	Initial Vol(ml)	Final Vol(ml)	pH	Initial Vol(ml)	
4606B-1A	8905056-01	100	100	100	100	1.0	100	colorless, clear
-1AD	-01:D2	↓	↓	↓	↓	↓	↓	↓
-1AS	-01:DS	↓	↓	↓	↓	↓	↓	↓
-2A	-02	50	50	50	50	↓	↓	↓
-3A	-03	↓	↓	↓	↓	↓	↓	↓
-4A	-04	↓	↓	↓	↓	↓	↓	↓
-5A	-05	↓	↓	↓	↓	↓	↓	↓
-6A	-06	↓	↓	↓	↓	↓	↓	↓
-7A	-07	↓	↓	↓	↓	↓	↓	↓
-8A	-08	↓	↓	↓	↓	↓	↓	↓
-9A	-09	100	100	100	100	↓	↓	↓
	Ext. Dupl. -10	100	100	100	100	↓	↓	↓
	Ext. Bl -11	50	50	50	50	↓	↓	↓
	LCSW	100	100	100	100		—	
	PB	100	100	100	100		100	
	8905056-09D2	—	—	—	—	1.0	↓	
	↓ -09DS	—	—	—	—	↓	↓	

SKINNER & SHERMAN
LABORATORIES, INC.
300 SECOND AVE., BOX 521
WALTHAM, MA 02254

EP TOX EXTRACTION

Case No. # 8905056 cont

Sample #	06	07	08	09	PB	8905061 01
Time 7:22 pH Before	8.98	8.80	5.78	7.73	4.89	7.54
ML HOAC Added	20	50	3	40		5
pH After	5.16	5.05	4.78	5.00		5.13
Time 7:41 pH Before	6.02	5.62	4.97	5.53	4.97	5.59
ML HOAC Added	20	20		20		5
pH After	5.16	5.14		4.86		4.83
Time 8:14 pH Before	5.68	5.41	5.14	5.07	4.95	4.96
ML HOAC Added	20	20				
pH After	5.03	5.02				
Time 8:42 pH Before	5.34	5.21	5.21	5.32	5.00	5.09
ML HOAC Added	10	10	2	10		
pH After	5.16	5.08	4.93	5.11		
Time 9:33 pH Before	5.17	5.10	4.93	5.10	4.98	5.69
ML HOAC Added						8
pH After						5.02
Time 9:55 pH Before	5.65	New	pH meter	5.45	5.01	5.11
ML HOAC Added	30	5.45	5.40	20		
pH After	5.06	30	3	5.06		
		5.05	5.02			
Time 10:22 pH Before	5.11	5.07	5.09	5.15	5.03	5.17
ML HOAC Added						
pH After						
Time 10:47 pH Before	5.15	5.07	5.08	5.17	5.00	5.15
ML HOAC Added						
pH After		Recalibrated		5/11/89		
Time 11:12 pH Before	5.52	5.17	5.21	5.44	5.02	5.42
ML HOAC Added	30	20	3	30		10
pH After	5.08	5.07	4.98	5.05		4.92
Time 11:37 pH Before	5.14	5.10	5.12	5.15	5.00	5.06
ML HOAC Added						
pH After						
Time 12:00 pH Before	5.14	5.10	5.04	5.13	5.04	4.92
ML HOAC Added						
pH After						
Time 1:30 pH Before	5.11	5.08	5.03	5.13	5.01	4.98
ML HOAC Added						
pH After						

SKINNER & SHERMAN
LABORATORIES, INC.
1300 SECOND AVE., BOX 521
WALTHAM, MA 02254

EP TOX EXTRACTION

Case No. # 8905056

5/10/89

Sample #	01	02	02:S2	03	04	05
Time 7:20 pH Before	7.15	7.50	7.35	9.02	7.63	9.02
ML HOAC Added	8	15	15	20	25	50
pH After	4.93	5.03	5.17	5.19	5.07	4.98
Time 7:45 pH Before	5.57	5.80	5.75	5.88	5.82	5.55
ML HOAC Added	5	10	10	10	10	20
pH After	4.78	4.87	5.00	5.08	5.15	4.96
Time 8:20 pH Before	5.01	5.21	5.36	5.37	5.53	5.20
ML HOAC Added		5	10	10	15	10
pH After		4.99	4.92	4.93	5.05	5.09
Time 9:20 pH Before	5.59	5.37	5.25	5.17	5.21	5.28
ML HOAC Added	10	10	10		10	10
pH After	5.04	5.00	4.97		5.06	5.10
Time 10:20 pH Before	5.05	5.07	5.02	4.97	4.93	4.92
ML HOAC Added						
pH After						
Time 12:20 pH Before		New pH meter				
ML HOAC Added	5.26	5.46	5.33	5.44	5.50	5.42
pH After	3	15	10	15	20	20
	5.07	4.99	5.08	5.10	5.07	5.09
Time 1:20 pH Before	5.08	5.06	5.18	5.07	5.09	5.11
ML HOAC Added						
pH After						
Time 2:20 pH Before	5.09	4.96	5.16	5.09	5.12	5.11
ML HOAC Added						
pH After		Recalibrated		5/11/89		
Time 10:20 pH Before	5.50	5.39	5.66	5.48	5.60	5.45
ML HOAC Added	15ml	25	20	25	40	40
pH After	4.94	4.95	5.06	5.00	4.97	5.02
Time 11:20 pH Before	5.05	5.03	5.08	5.00	5.01	5.03
ML HOAC Added						
pH After						
Time 12:20 pH Before	5.01	5.02	5.07	5.01	5.02	5.04
ML HOAC Added						
pH After						
Time 1:20 pH Before	4.98	4.93	5.02	4.96	5.00	5.08
ML HOAC Added						
pH After						

5/15 Case # 8905056 Marilyn Fonseca

flow - 60 mL/min

	gr. weighed	vol. in scrubber	time
01	10.049	500 ml	30 mins.
01D	10.263	500ml	30mins.
02	10.104	500ml	30mins.
03	10.108	500ml	30mins.
04	10.019	500 ml	30mins.
05	10.035	500 ml	30 mins.

5/16 8905056

	gr. weighed	vol. in scrubber	time
06	10.279	500ml	30mins.
07	10.189	500ml	30mins.
08	10.070	500ml	30mins.
09	10.202	500ml	30mins.

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

(1)

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

STANDARD IDENTITY: Hg Working STANDARD

DATE PREPARED:
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
5-01-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%
05-02-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%
05-04-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%
5-08-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%
5-10-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%
5-12-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%
5-16-89	Hg	MV-Hg-1		10 ppm	1 ml	100 ppb
	Cr			5%	1 ml	0.05%

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

SKINNER & SHERMAN LABORATORIES

STANDARDS TRACKING LOG BOOK. PART II.
STANDARDIZATION AND PREPARATION OF SOLUTIONS, CYANIDE

Standardization with 0.0192 N AgNO3 (1.0 ML = 1.0 MG CN):

Date	By	Volume of stock solution titrated:	Volume AgNO3 required:	
5/19	DN	10 mls of CN-3 At ~ 1000 ppm	0.00	0.00
			10.01	9.98
			10.01	9.98 $\bar{X} = 9.995$

Calculation:

$$\frac{9.995}{10 \text{ mls}} = 0.9995 \qquad \frac{10}{.9995} = 10.005 \text{ mls}$$

Volume of stock solution required for 10 MG CN is 10.005 ML

Calibration Stds: Add 50 ml of 1.25 N sodium hydroxide solution to each of the required number of 250 mL volumetric flasks. Add quantities of the 5.00 ug/mL CN standard solution as listed below and dilute to volume.

mL standard solution	Micrograms CN	ug/L CN
0	0 (Blank)	0 (Blank)
0.5	2.5	10
1.0	5.0	20
2.0	10.0	40
5.0	25.0	100
10.0	50.0	200
15.0	75.0	300
20.0	100.0	400

Preparation of dilute standards:

Standard ID	Date	By	Concentration, MG/L CN	Preparation information
Intermediate std	5/19	DN	50	10.005 mls of CN-3 into 200
wk std	5/19	DN	5	20 mls of 50ppm into 200
CAL STD	5/19	DN	From 5ppm	For 8905056

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: SKINNER AND SHERMAN LABS Contract No.: 68-01-0006

Lab Code: SKINER Case No.: _____ SAS No.: 4606B

Full Sample Analysis Price in Contract: $ 188.25

SDG No./First Sample in SDG: 4606B-1A Sample Receipt Date: 5/8/89
(Lowest EPA Sample Number in first shipment of samples received under SDG) (MM/DD/YY)

Last Sample in SDG: 4606B-9A Sample Receipt Date: 5/8/89
(Highest EPA Sample Number in last shipment of samples received under SDG) (MM/DD/YY)

EPA Sample Numbers in the SDG (listed in alphanumeric order):

1	4606B-1A	11	
2	2A	12	
3	3A	13	
4	4A	14	
5	5A	15	
6	6A	16	
7	7A	17	
8	8A	18	
9	9A	19	
10		20	

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Antonia Blanning
Sample Custodian

5/8/89
Date

U.S. ENVIRONMENTAL PROTECTION AGENCY
CLP Sample Management Office
P.O. Box 818 - Alexandria, Virginia 22313
Phone: 703/557-2490 - FTS/557-2490

SAS Number
4606B

SPECIAL ANALYTICAL SERVICE
PACKING LIST

Sampling Office:	Sampling Date(s):	Ship To:	For Lab Use Only
Region II	5/2/89	Skinner and Sherman, Inc. 300 Second Ave Waltham, MA 02254	Date Samples Rec'd: 05/03/89
Sampling Contact: Peter Di Pasca (name)	Date Shipped: 5/2/89		Received By: Anna Babyak
(201) 225-6116 (phone)	Site Name/Code:	Attn: MARILYN FONSECA 617-890-7200	

Sample Numbers	Sample Description i.e., Analysis, Matrix, Concentration	Sample Condition on Receipt at Lab
1. 4606B-1A	REACTIVITY, EPTOX METALS IGNITABILITY, CORROSIVITY, Soil, LOW (MATRIX SPIKE, MSD)	
2. 4606B-2A	" " " "	NO LEAKS
3. 4606B-3A	" " " "	CONTAINERS INTACT
4. 4606B-4A	" " " "	INFO AGREES
5. 4606B-5A	" " " "	- NO TAGS RESENT
6. 4606B-6A	" " " "	SAS 4606B case
7. 4606B-7A	" " " "	is complete per
8. 4606B-8A	" " " "	Anne Babyak &
9. 4606B-9A	" " " "	recieved date extended
10.	→ Final STG sample in STG 4606B-1A	to 5/8/89 AB
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

For Lab Use Only

White - SMO Copy, Yellow - Region Copy, Pink - Lab Copy for return to SMO, Gold - Lab Copy

TMA
Thermo Analytical Inc.

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

FAX NUMBER: (617) 890-3883

FACSIMILE COVER SHEET

DATE: 22 May 1989

TO: NAME: Peter DiPasca

COMPANY: _____ FAX NO: 1-201-225-7037

LOCATION: NJ VERIFICATION NO: _____

FROM: NAME: Rick Purdy

SITE: SKINER/Waltham

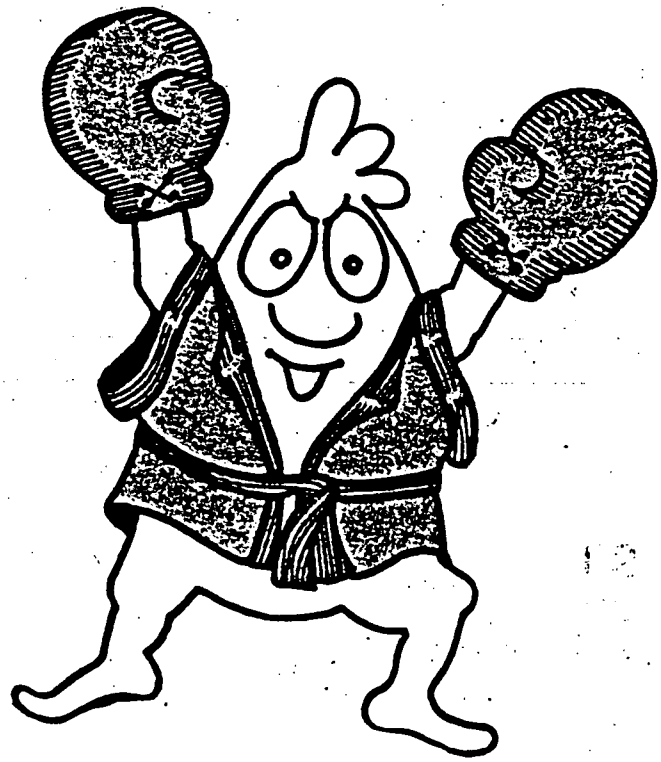
NUMBER OF PAGES: 2 (including cover sheet)

REFERENCE: SAS 4606-B

Peter --

Here are the results for samples 1-9 from SAS 4606-B. The Data Package for the SAS is complete and will be FedEx'd out tonight. Call me if you have any questions.

-- Rick



SAMPLE # / TEST	1	2	3	4	5	6	7	8	9
As	5.3	15.2	27.4	1.9	3.6	18.7	19.9	<1.6	12.2
Ba	<500	1720	3840	1570	<500	<500	<500	560	<500
Cd	14.4	4.0	16.8	18.4	7.1	22.3	17.5	3.0	9.3
Cr	13.1	<5.0	16.8	5.1	5.2	6.8	10.0	<5.0	5.0
Pb	47.4	39.5	1010	192	161	828	94.4	12.1	85.1
Hg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Se	3.8	1.2	<1.1	1.4	<1.1	<1.1	<1.1	<1.1	4.0
Ag	< 20	33.2	65.0	66.6	48.6	< 20	37.8	<20	45.9
pH	6.9	7.2	7.6	7.2	7.8	8.1	7.8	5.8	7.2
IGNIT	>200	>200	>200	>200	>200	>200	>200	>200	>200
H_2S	<25	<25	<25	<25	<25	<25	<25	<25	<25
CN	<1	<1	<1	<1	<1	<1	<1	<1	<1

METALS IN UG/L
pH IN UNITS
IGNITABILITY IN °F
REACTIVITY IN mg/KG

SKIDMORE & SHERMAN
SAS 4606-B

SAMPLE MANAGEMENT OFFICE

MEMORANDUM : Telefax consisting of (5) pages

DATE: 4/25, 1989

TO: SAS Candidate Laboratories

FROM: Anne M. Babyak, Coordinator
Analytical Services Group

SUBJECT: SAS Solicitation for SAS No(s). 4606-B

— PLEASE READ THIS ENTIRE PACKAGE CAREFULLY —

The enclosed package is for your review. Please contact me at SMO by Thursday April 27th, 3PM EST, to express your interest in bidding on this SAS. If your laboratory does not wish to bid, contact me at SMO with your "NO BID" response. Transmit your bid by telefax, if possible, to (703) 683-0378.

___ OTHER

- 8+2 LS, 10+2 LW, 15+2 med conc liquid and
- 16+2 MS for RCRA characteristics:
- Ignitability, Corrosivity, Reactivity and
- EP Toxicity Metals.
-
- Ships: May 3rd
-
- Turnaround: Priority 10 day verbal
- 14 day Hardcopy from
- receipt of last sample.

Negative Considerations will be assessed at 1% of SAS per-sample price per day that data is late.

Note: This agreement is a subcontract with Viar and Company under EPA Contract No. 68-01-7253. Award of this SAS Subcontract is subject to the review and approval of Viar and Company's Project Officer(s)/Contracting Officer(s).

2/14/89

Need Answer by 28 a [illegible]
or will go private.
[illegible] 4/25/89

91FA02FUWV107

Page 3 of 5

U.S. ENVIRONMENTAL PROTECTION AGENCY
CLP Sample Management Office
P.O. Box 818 - Alexandria, Virginia 22313
Phone: 703/557-2490 - FTS/557-2490

SAS Number

SPECIAL ANALYTICAL SERVICES

Client Request

☐ Regional Transmittal ☐ Telephone Request

A. EPA Region/Client: Region II / TAT

B. RSCC Representative: Smita Sumbali

C. Telephone Number: [illegible]

D. Date of Request: [illegible]

E. Site Name: [illegible]

Please provide below description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in a delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested:
RCRA Characteristics: Reactivity, Corrosivity, Ignitibility and EP Toxicity.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium or high concentration):
8 low conc. soil, 10 low conc Aqueous, 15 medium conc. liquid and 16 med conc solid for RCRA Char.

3. Purpose of analysis (specify whether Superfund (enforcement or remedial action), RCRA, NPDES, etc.):
remedial action

4. Estimated date(s) of collection: May 2 & 3, 1989

5. Estimated date(s) and method of shipment: May 3, 1989 by Fed Ex

6. Number of days analysis and data required after laboratory receipt of samples: 10 days verbal / 14 day written

7. Analytical protocol required (attach copy if other than a protocol currently used in this program): SW-846 : Corrosivity by 9040 & 9045 ; ignitibility by 1010 ; EP Toxicity by 1310, 7000, 8000 and reactivity by 9010 & 9030 after prep (see SW-846 Sections 7.3.3.2 & 7.3.4.1)

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.): SAMPLES MAY BE OF A HIGH CONCENTRATION.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.) If not completed, format of results will be left to program discretion. CLP deliverable

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contacts: Anibal Diaz, Pete DiPosco, Tom Mignone

Phone:

12. Data Requirements

Parameter	Detection Limit	Precision Desired (±% or Concentration)
method specific		

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
1 Field Blank	} included in shipment	
1 Duplicate for each matrix		
1 MS/MSD / 20 samples / matrix		

14. Action Required If Limits are Exceeded

Reanalyze sample at once. Notify RSCC.

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.