COMPUCHEM LABORATORIES

INORGANIC CASE SUMMARY NARRATIVE
CASE# 25550 SDG# 18410B
CONTRACT# 787

SAMPLE NUMBERS: 738001-01, 738001-02, 738001-03, 738001-05, 738001-06, 738001-08, 738001-10, 738001-12, 738001-13, 738001-14, 738001-15, 738001-16, 738001-17, 738001-18, 738001-21, 738001-22, 738001-23, 738001-24, 738001-25, 738001-26

This portion of case 25550 was received in good condition with the appropriate chain-of-custody documents, on November 14&15, 1989. The SDG consists of twenty water samples for the analysis of complete HSL metals and cyanide. The enclosed cover page reflects both New York DEC and CompuChem Sample Identifiers.

The associated quality control sample spike 738001-12S, was outside the control limits for arsenic, and selenium, therefore the values were flagged with an 'N'in all of the samples. The associated quality control duplicate, 738001-02D, was within the control limits for all of the analytes.

Method of Stendard Addition was done for arsenic in sample 738001-12, therefore the velue wae flagged with an 'S'.

A serial dilution was done on sample 738001-23L. The adjusted semple concentration of magnesium was not within 10% of its originel value, therefore the value was flagged with an 'E', in all of the samples.

In one or more of the samples the concentrations of arsenic, cobalt, and vanadium, fell between the Instrument Detection Limits (IDLs) and the Contract Required Detection Limits (CRDLs). The concentrations of antimony, beryllium, mercury, nickel, selenium, silver, thallium, and cyanide fell below the IDL, while the remaining analytes had concentrations above the CRDL.

COMPUCHEM LABORATORIES, INC. P.O.Box 12852 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COMPUCHEM LABORATORIES

Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Jeanne C. Alston 12/21/89

Jeanne C. Alston
Technical Reviewer

Note: Thie report is paginated for reference and accountability in decreasing numerical sequence.

COMPUCHEM LABORATORIES, INC. P.O. Box 12652 3308 Chapel Hill/Nelson Highway Research Triangle Park, NC 27709 (919) 549-8263

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

SOW No.: 7/88

Client Sample No.	Lab Sample ID
738001-01	301917
738001-02	301910
738001-02D	301930
738001-02D	301933
738001-02S	301932
738001-03	301918
738001-05	301937
738001-06	301939
738001-08	301922
738001-10	301938
738001-12	301909
738001-12S	301929
738001-13	302174
738001-14	302175
738001-15	302150
738001-16	302154
738001-17	302172
738001-18	302173
738001-21	302168
738001-22	302155

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

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

Signature: [signature] Name: Bruce Rohrbach

Date: 12/14/89 Title: Inorganics Lab Manager

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

SOW No.: 7/88

Client Sample No.	Lab Sample ID
738001-23	302182
738001-24	302176
738001-25	302157
738001-26	302166
LCS	301931
Prep Blank	303244
Prep Blank	303474

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

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

Signature: [signature] Name: Bruce Rohrbach

Date: 12/14/89 Title: Inorganics Lab Manager

IMPLEMENTATION OF THE EPA'S CONTRACT LABORATORY PROGRAM (CLP INORGANIC 7/87 STATEMENT OF WORK (SOW) - REVISED 12/87

Effective with samples received at CompuChem Laboratories, Inc., on Tuesday, February 21, 1989, the 7/87 (revised 12/87), Inorganics SOW: Inorganic Analysis, Multi-Media, Multi-Concentration will be utilized. The 7/87 SOW is currently being employed by the EPA CLP.

Recent solicitations by the EPA for additional inorganic laboratory capacity have included yet a further update - a 7/88 SOW. The 7/88 SOW will not be employed in the EPA CLP until the normal contract "Pre-Award" activities are completed. Those activities include the bid openings as a result of the Invitation for Bid (IFB), analysis of Performance Evaluation (P.E.) Samples, submission of the analytical results of the P.E. sample by the laboratory and assessment and grading of these results by the EPA, a Pre-Award visit to the laboratory by the EPA and, finally, a contract award.

As a service to our clients wanting to utilize the 7/87 EPA CLP SOW the following information is provided to identify the substantive differences between the 7/85 and 7/87 Statements of Work.

"KEY" CHANGES TO THE INORGANICS SOW

1. A new acronym is introduced, the TAL, which refers to the Target Analyte List.

2. The Sample Delivery Group (SDG) concept, utilized in the 7/87 SOW and is defined as the following, whichever is most frequent:

   - each Case of field samples received, or
   - each 20 field samples within a Case, or
   - each 14 calendar day period during which field samples in a Case are received.

3. Sample data package due dates are determined from the receipt of the last sample in the SDG. For verification of the data turnaround requirements, reference should be made to the CompuChem Quotation.

4. Analytical results must by reported to two significant figures if the result is less than 10; to three significant figures if the value is greater than or equal to 10. Results for percent solids must be reported to one decimal place. The reporting requirements for mercury are slightly different.

5. All reporting forms have changed from the 7/85 SOW; a new form, Form V (Part 2) - IN, has been added to accommodate post digestion spikes. All data packages must be paginated. In addition to hardcopy deliverables, EPA requires a diskette deliverable item, containing information contained on the summary forms.

6. Form I-IN is the Inorganic Analysis Data Sheet. It contains fields for three types of result qualifiers. In the 7/85 SOW results were reported in brackets, [ ], if the concentration found was greater than or equal to the Instrument Detection Limit (IDL) but less than the Contract Required Detection Limit (CRDL). In the 7/87 SOW, the C (Concentration) qualifier field is used. A "B" is inserted in the "C" qualifier column if the reported value is less than the CRDL but greater than the IDL. If the analyte was analyzed for but not detected, a "U" must be entered in the "C" qualifier column.

   A "Q" qualifier column is used for the following entries, some of which were the same qualifiers used in the 7/85 SOW:

   E - The reported value is estimated because of interference.

   M - The duplicate injection precision was not met.

   N - The spiked sample recovery was not within control limits.

   S - The value reported was determined by the Method of Standard Additions (MSA).

   W - The post-digestion spike for furnace AA analysis is outside of the 85-115% control limits, while sample absorbance is less than 50% of the spike absorbance.

   * - Duplicate analyses are not within control limits.

   + - The correlation coefficient for the MSA is less than 0.995.

A "M (Method) qualifier field is employed for the following entries, some of which were used in the 7/85 SOW:

P - Refers to ICP

A - Refers to Flame AA

CV - Refers to Manual Cold Vapor AA

AV - Refers to Automated Cold Vapor AA

AS - Refers to Semi-Automated Spectrophotometric

C - Refers to Manual Spectrophotometric

T - Refers to Titrimetric

NR - Refers to the fact that the analyte is not required to be analyzed.

Provisions are also made on Form I-IN to insert descriptions of color and clarity before and after digestion and if there are artifacts present. If artifacts are present, they are described in the comments field.

7. Duplicate determinations for percent solids are required.

8. There are a few minor changes regarding holding times for water and soil/sediment samples.

- For cyanide, the holding time requirements remain the same; samples must be distilled within 14 days of receipt by the laboratory.

- For mercury, samples must be digested within 26 days of receipt by the laboratory.

- For metals (other than mercury), samples must be analyzed within 180 days of receipt by the laboratory.

9. For flame AA, ICP, mercury and cyanide analyses, when the pre-digestion/pre-distillation spike recovery fails acceptance criteria, a post-digestion/post distillation spike must be performed for those elements not meeting criteria (silver is an exception).

10. An aqueous Laboratory Control Sample (LCS) must be prepared and analyzed for every group of aqueous samples in a SDG, or for each batch of aqueous samples digested, whichever is more frequent. An aqueous LCS is not required for mercury and cyanide analysis.

    A solid LCS must be prepared and analyzed for every group of solid samples in a SDG, or for each batch of samples digested, whichever is more frequent. Percent solids determination in a solid LCS is not required.

    Exceptions to the 80-120% control limits for the aqueous LCS are silver and antimony.

11. In the 7/87 SOW, clarification of the ICP serial dilution requirements is provided. The serial dilution analysis is required when an analyte is minimally a factor of 50 above the IDL in the original sample. When this occurs, a 5 fold dilution must agree within 10% of the original determination or an "E" qualifier is applied.

    The ICP serial dilution analysis must be performed on each group of samples of a similar matrix and concentration level or for each SDG, whichever is more frequent.

    The above represents the major changes in the 7/87 Inorganics SOW for the EPA's CLP. If, after reading this announcement, or after receiving data under the new SOW, there are questions, please feel free to contact your Account Administrator at 1-800-833-5597.

Robert E. Meierer

Robert E. Meierer
Vice President of Quality Assurance

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-12

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301909

Level (low/med): LOW Date Received: 11/14/89

% 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	422			P
7440-36-0	Antimony	27.0	B		P
7440-38-2	Arsenic	6.1	B	SN	F
7440-39-3	Barium	141	B		P
7440-41-7	Beryllium	3.2	B		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	99800			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	11.6	B		P
7440-50-8	Copper	8.1	B		P
7439-89-6	Iron	681			P
7439-92-1	Lead	2.5	B		F
7439-95-4	Magnesium	20200			P
7439-96-5	Manganese	230			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	8330			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	43700			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	8.4	B		P
7440-66-6	Zinc	17.8	B		P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
FORM 1 - PAGE 1

FORM I - IN 7/88

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-02

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301910

Level (low/med): LOW Date Received: 11/14/89

% 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	141	B		P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.8	B	N	F
7440-39-3	Barium	103	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	70300			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	9.9	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	896			P
7439-92-1	Lead	1.7	B		F
7439-95-4	Magnesium	16200			P
7439-96-5	Manganese	442			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	11000			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	65300			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	8.6	B		P
7440-66-6	Zinc	1.5	B		P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
FORM 1 - PAGE 2

FORM I - IN 7/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-03

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301918

Level (low/med): LOW Date Received: 11/14/89

% 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	3080			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.4	B	N	F
7440-39-3	Barium	35.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	52300			P
7440-47-3	Chromium	106			P
7440-48-4	Cobalt	13.7	B		P
7440-50-8	Copper	32.9			P
7439-89-6	Iron	4170			P
7439-92-1	Lead	4.6			F
7439-95-4	Magnesium	13900			P
7439-96-5	Manganese	98.8			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	2990	B		P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	8380			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	9.9	B		P
7440-66-6	Zinc	52.2			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 3

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-08

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 184108

Matrix (soil/water): WATER Lab Sample ID: 301922

Level (low/med): LOW Date Received: 11/14/89

% 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	49.7	B		P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	87.5	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	61300			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	11.4	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	930			P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	14800			P
7439-96-5	Manganese	345			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	9050			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	70200			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	5.0	B		P
7440-66-6	Zinc	7.8	B		P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
FORM 1 - PAGE 4

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-05

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301937

Level (low/med): LOW Date Received: 11/14/89

% 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	13500			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	7.0	B	WN	F
7440-39-3	Barium	364			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	8.3			P
7440-70-2	Calcium	62000			P
7440-47-3	Chromium	23.1			P
7440-48-4	Cobalt	21.9	B		P
7440-50-8	Copper	65.7			P
7439-89-6	Iron	22500			P
7439-92-1	Lead	6.2		W	F
7439-95-4	Magnesium	26300			P
7439-96-5	Manganese	616			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	7170			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	19600			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	33.1	B		P
7440-66-6	Zinc	82.5			P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: OPAQUE Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
FORM 1 - PAGE 5
THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:
SELENIUM

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-10

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301938

Level (low/med): LOW Date Received: 11/14/89

% 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	48.0	B		P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	87.3	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	60000			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	5.6	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	871			P
7439-92-1	Lead	1.1	B		F
7439-95-4	Magnesium	14500			P
7439-96-5	Manganese	361			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	8040			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	71600			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	3.1	B		P
7440-66-6	Zinc	8.3	B		P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 6

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-06

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301939

Level (low/med): LOW Date Received: 11/14/89

% 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	2000			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	7.0	B	N	F
7440-39-3	Barium	281			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	99200			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	10.4	B		P
7440-50-8	Copper	11.8	B		P
7439-89-6	Iron	6460			P
7439-92-1	Lead	4.1			F
7439-95-4	Magnesium	29200			P
7439-96-5	Manganese	8300			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	5270			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	31800			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	8.3	B		P
7440-66-6	Zinc	74.4			P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 7

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-15

Lab Name: COMPUCHEM LAHORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302150

Level (low/med): LOW Date Received: 11/15/89

% 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	982			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	105	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	175000			P
7440-47-3	Chromium	475			P
7440-48-4	Cobalt	9.2	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	3060			P
7439-92-1	Lead	2.6	B		F
7439-95-4	Magnesium	51200			P
7439-96-5	Manganese	121			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	92.2			P
7440-09-7	Potassium	2560	B		P
7782-49-2	Selenium	2.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	68400			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	49.1			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 8

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-22

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302155

Level (low/med): LOW Date Received: 11/15/89

% 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	2210			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	41.2		N	F
7440-39-3	Barium	1030			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	414000			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	20.9	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	24400			P
7439-92-1	Lead	2.4	B		F
7439-95-4	Magnesium	159000			P
7439-96-5	Manganese	2930			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	1220			P
7440-09-7	Potassium	4400	B		P
7782-49-2	Selenium	10.0	U	N	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	126000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	126			P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 9

FORM I - IN 7/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-25

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302157

Level (low/med): LOW Date Received: 11/15/89

% 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	40.1	B		P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	47.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	54200			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	6.8	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	151			P
7439-92-1	Lead	4.0			F
7439-95-4	Magnesium	20800			P
7439-96-5	Manganese	21.6			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	19000			P
7782-49-2	Selenium	2.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	19400			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	10	B		P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 10

FORM I - IN 7/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-26

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302166

Level (low/med): LOW Date Received: 11/15/89

% 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	1410			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	59.0	B		P
7440-41-7	Beryllium	1.6	B		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	60600			P
7440-47-3	Chromium	562			P
7440-48-4	Cobalt	16.6	B		P
7440-50-8	Copper	34.2			P
7439-89-6	Iron	5550			P
7439-92-1	Lead	2.2	B		F
7439-95-4	Magnesium	22900			P
7439-96-5	Manganese	328			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	132			P
7440-09-7	Potassium	14600			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	18400			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	6.8	B		P
7440-66-6	Zinc	55.9			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 11

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-21

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302168

Level (low/med): LOW Date Received: 11/15/89

% 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	2600			P
7440-36-0	Antimony	32.2	B		P
7440-38-2	Arsenic	21.1		N	F
7440-39-3	Barium	826			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	335000			P
7440-47-3	Chromium	8.5	B		P
7440-48-4	Cobalt	26.5	B		P
7440-50-8	Copper	10.2	B		P
7439-89-6	Iron	25500			P
7439-92-1	Lead	3.8			F
7439-95-4	Magnesium	116000			P
7439-96-5	Manganese	12600			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	546			P
7440-09-7	Potassium	3070	B		P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	110000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	60.4			P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 12

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

FORM I - IN 7/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-17

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302172

Level (low/med): LOW Date Received: 11/15/89

% 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	605			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	432			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	42500			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	977			P
7439-92-1	Lead	3.0			F
7439-95-4	Magnesium	22300			P
7439-96-5	Manganese	45.5			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	3190	B		P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	21900			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	56.0			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 13

FORM I - IN 7/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-18

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302173

Level (low/med): LOW Date Received: 11/15/89

% 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	396			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	135	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	72300			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	593			P
7439-92-1	Lead	2.2	B		F
7439-95-4	Magnesium	24800			P
7439-96-5	Manganese	45.5			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	673	B		P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	33200			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	88.0			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 14

FORM I - IN 7/88

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-13

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302174

Level (low/med): LOW Date Received: 11/15/89

% 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	268			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.4	B	N	F
7440-39-3	Barium	225			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	118000			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	1210			P
7439-92-1	Lead	1.4	B		F
7439-95-4	Magnesium	55300			P
7439-96-5	Manganese	258			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	1360	B		P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	47000			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	17.3	B		P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM 1 - PAGE 15

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-14

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 104108

Matrix (soil/water): WATER Lab Sample ID: 302175

Level (low/med): LOW Date Received: 11/15/89

% 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	474			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	3.0	B	N	F
7440-39-3	Barium	239			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	126000			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	2060			P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	57100			P
7439-96-5	Manganese	258			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	1440	B		P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	49200			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	96.6			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 16

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-24

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 10410B

Matrix (soil/water): WATER Lab Sample ID: 302176

Level (low/med): LOW Date Received: 11/15/89

% 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	14300			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	136	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	102000			P
7440-47-3	Chromium	37.1			P
7440-48-4	Cobalt	24.9	B		P
7440-50-8	Copper	91.1			P
7439-89-6	Iron	29300			P
7439-92-1	Lead	6.5			F
7439-95-4	Magnesium	36000			P
7439-96-5	Manganese	4230			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	43.2			P
7440-09-7	Potassium	4410	B		P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	66200			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	27.0	B		P
7440-66-6	Zinc	100			P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: OPAQUE Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 17

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-23

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302102

Level (low/med): LOW Date Received: 11/15/89

% 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	17.0	U		P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	11.4		N	F
7440-39-3	Barium	1330			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	260000			P
7440-47-3	Chromium	6.0	U		P
7440-48-4	Cobalt	5.8	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	13000			P
7439-92-1	Lead	1.1	B		F
7439-95-4	Magnesium	78100			P
7439-96-5	Manganese	3720			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	193			P
7440-09-7	Potassium	5540			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	203000			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	8.6	B		P
	Cyanide	10.0	U		AS

Color Before: BROWN Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 18

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

738001-16

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 302154

Level (low/med): LOW Date Received: 11/15/89

% 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	757			P
7440-36-0	Antimony	27.0	U		P
7440-38-2	Arsenic	2.0	U	N	F
7440-39-3	Barium	153	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	397000			P
7440-47-3	Chromium	6.0	B		P
7440-48-4	Cobalt	13.1	B		P
7440-50-8	Copper	7.0	U		P
7439-89-6	Iron	25100			P
7439-92-1	Lead	7.6		W	F
7439-95-4	Magnesium	46800			P
7439-96-5	Manganese	9820			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	6640			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	187000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	14.2	B		P
7440-66-6	Zinc	96.6			P
	Cyanide	10.0	U		AS

Color Before: BBOWN Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - PAGE 19

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

738001-01

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix (soil/water): WATER Lab Sample ID: 301917

Level (low/med): LOW Date Received: 11/14/89

% 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	1360			P
7440-36-0	Antimony	35.8	B		P
7440-38-2	Arsenic	9.3	B	N	F
7440-39-3	Barium	584			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	57200			P
7440-47-3	Chromium	9.8	B		P
7440-48-4	Cobalt	8.9	B		P
7440-50-8	Copper	44.3			P
7439-89-6	Iron	4140			P
7439-92-1	Lead	2.8	B		F
7439-95-4	Magnesium	20700			P
7439-96-5	Manganese	271			P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	38.0	U		P
7440-09-7	Potassium	1280	B		P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	54500			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	5.6	B		P
7440-66-6	Zinc	68.5			P
	Cyanide	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLOUDY Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM 1 - PAGE 20

THE FOLLOWING FURNACE ANALYTES ARE ESTIMATED DUE TO INTERFERENCE:

SELENIUM

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum	2090.0	1958.10	93.7	5000.0	5067.10	101.3	4997.10	99.9	P
Antimony	1010.0	1069.20	105.9	5000.0	5092.80	101.9	5060.20	101.2	P
Arsenic	47.0	51.52	109.6	25.0	26.19	104.8	24.92	99.7	F
Barium	2010.0	2013.30	100.2	5000.0	5191.70	103.8	5007.50	100.2	P
Beryllium	501.0	502.57	100.3	5000.0	5267.20	105.3	4965.70	99.3	P
Cadmium	492.0	501.44	101.9	5000.0	5046.10	100.9	5105.90	102.1	P
Calcium	50200.0	50011.00	99.6	50000.0	51428.00	102.9	50061.00	100.1	P
Chromium	503.0	513.76	102.1	5000.0	5224.20	104.5	5051.20	101.0	P
Cobalt	498.0	509.97	102.4	5000.0	5232.30	104.6	5080.40	101.6	P
Copper	520.0	554.31	106.6	5000.0	5160.60	103.2	4987.00	99.7	P
Iron	2081.0	2018.50	97.0	5000.0	5258.50	105.2	5049.00	101.0	P
Lead	97.9	103.15	105.4	25.0	25.73	102.9	24.69	98.8	F
Magnesium	25700.0	25517.00	99.3	50000.0	51376.00	102.8	50157.00	100.3	P
Manganese	504.0	513.32	101.8	5000.0	5232.60	104.7	5075.50	101.5	P
Mercury	4.9	4.93	100.6	3.0	2.99	99.7	2.94	98.0	CV
Nickel	485.0	503.33	103.8	5000.0	5254.40	105.1	5079.10	101.6	P
Potassium	50200.0	48915.00	97.4	50000.0	47209.00	94.4	49533.00	99.1	P
Selenium	104.0	111.18	106.9	20.0	18.88	94.4	18.83	94.2	F
Silver	484.0	521.22	107.7	500.0	507.12	101.4	507.02	101.4	P
Sodium	51500.0	50197.00	97.5	50000.0	50523.00	101.0	50954.00	101.9	P
Thallium	97.3	94.10	96.7	20.0	19.62	98.1	19.17	95.9	F
Vanadium	505.0	502.36	99.5	5000.0	5187.70	103.8	4996.10	99.9	P
Zinc	2920.0	3017.90	103.4	5000.0	5155.20	103.1	5084.10	101.7	P
Cyanide	100.0	89.57	89.6	94.0	93.43	99.4	93.24	99.2	AS

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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum				5000.0	4906.10	98.1	4965.20	99.3	P
Antimony				5000.0	4931.40	98.6	4980.20	99.6	P
Arsenic				25.0	24.96	99.8	25.46	101.8	F
Barium				5000.0	4953.10	99.1	5082.60	101.7	P
Beryllium				5000.0	4850.00	97.0	5097.80	102.0	P
Cadmium				5000.0	4978.70	99.6	4973.30	99.5	P
Calcium				50000.0	48371.00	96.7	49773.00	99.5	P
Chromium				5000.0	4902.70	98.1	5070.40	101.4	P
Cobalt				5000.0	4946.70	98.9	5064.50	101.3	P
Copper				5000.0	4871.30	97.4	5039.80	100.8	P
Iron				5000.0	4921.90	98.4	5087.00	101.7	P
Lead				25.0	25.36	101.4	25.70	102.8	F
Magnesium				50000.0	48530.00	97.1	50104.00	100.2	P
Manganese				5000.0	4926.60	98.5	5078.20	101.6	P
Mercury				3.0	2.96	98.7	3.02	100.7	CV
Nickel				5000.0	4901.20	98.0	5069.40	101.4	P
Potassium				50000.0	47867.00	95.7	46572.00	93.1	P
Selenium				20.0	18.23	91.2	21.30	106.5	F
Silver				500.0	491.79	98.4	502.06	100.4	P
Sodium				50000.0	48736.00	97.5	49426.00	98.9	P
Thallium				20.0	19.54	97.7	20.37	101.8	F
Vanadium				5000.0	4859.10	97.2	5030.50	100.6	P
Zinc				5000.0	4895.50	97.9	5002.50	100.0	P
Cyanide				94.0	93.63	99.6			AS

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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum				5000.0	5002.80	100.1	5238.00	104.8	P
Antimony				5000.0	5028.00	100.6	4902.40	98.0	P
Arsenic				25.0	25.80	103.2	25.53	102.1	F
Barium				5000.0	5203.60	104.1	4983.20	99.7	P
Beryllium				5000.0	5336.40	106.7	5020.10	100.4	P
Cadmium				5000.0	4883.40	97.7	4851.70	97.0	P
Calcium				50000.0	50413.00	100.8	49517.00	99.0	P
Chromium				5000.0	5197.50	104.0	4993.00	99.9	P
Cobalt				5000.0	5189.80	103.8	5006.10	100.1	P
Copper				5000.0	5169.30	103.4	4902.80	98.1	P
Iron				5000.0	5223.10	104.5	5161.10	103.2	P
Lead				25.0	24.76	99.0			F
Magnesium				50000.0	50835.00	101.7	49438.00	98.9	P
Manganese				5000.0	5195.80	103.9	5003.00	100.1	P
Mercury									
Nickel				5000.0	5116.10	102.3	5025.80	100.5	P
Potassium				50000.0	49038.00	98.1	45977.00	92.0	P
Selenium				20.0	18.14	90.7	19.09	95.4	F
Silver				500.0	492.98	98.6	498.85	99.8	P
Sodium				50000.0	51390.00	102.8	48664.00	97.3	P
Thallium				20.0	20.63	103.2			F
Vanadium				5000.0	5174.80	103.5	4969.40	99.4	P
Zinc				5000.0	5059.70	101.2	4931.20	98.6	P
Cyanide									

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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									
Antimony									
Arsenic				25.0	25.88	103.5	24.27	97.1	F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead	97.9	106.98	109.3	25.0	26.03	104.1	27.27	109.1	F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium				20.0	21.12	105.6	20.40	102.0	F
Silver									
Sodium									
Thallium	97.3	101.15	104.0	20.0	21.56	107.8	21.42	107.1	F
Vanadium									
Zinc									
Cyanide									

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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									
Antimony									
Arsenic	47.0	49.10	104.5	25.0	24.95	99.8	25.49	102.0	F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				25.0	26.14	104.6	26.74	107.0	F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium	104.0	109.02	104.8	20.0	19.62	98.1	21.68	108.4	F
Silver									
Sodium									
Thallium				20.0	20.92	104.6	21.42	107.1	F
Vanadium									
Zinc									
Cyanide									

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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									
Antimony									
Arsenic				25.0	25.39	101.6	26.10	104.4	F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				25.0	25.31	101.2			F
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium				20.0	19.27	96.4	18.75	93.8	F
Silver									
Sodium									
Thallium				20.0	20.02	100.1			F
Vanadium									
Zinc									
Cyanide									

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

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Initial Calibration Source: EPA-LV

Continuing Calibration Source: SPEX

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									
Antimony									
Arsenic				25.0	24.27	97.1	24.49	98.0	F
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium				20.0	20.24	101.2	20.73	103.6	F
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

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

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony				120.0	120.55	100.5	122.73	102.3
Arsenic	10.0	10.58	105.8	70.0	61.80	88.3	55.76	79.7
Barium								
Beryllium				10.0	10.26	102.6	9.68	96.8
Cadmium				10.0	6.01	60.1	10.21	102.1
Calcium								
Chromium				20.0	19.01	95.0	24.49	122.4
Cobalt				100.0	106.27	106.3	96.89	96.9
Copper				50.0	48.57	97.1	37.30	74.6
Iron								
Lead	3.0	2.50	83.3	50.0	72.92	145.8	42.66	85.3
Magnesium								
Manganese				30.0	25.56	85.2	23.67	78.9
Mercury								
Nickel				80.0	97.92	122.4	83.59	104.5
Potassium								
Selenium	5.0	2.92	58.4					
Silver				20.0	21.25	106.2	18.60	93.0
Sodium								
Thallium	10.0	9.37	93.7					
Vanadium				100.0	104.38	104.4	94.24	94.2
Zinc				40.0	33.74	84.4	40.32	100.8
Cyanide								
	-							

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 184108

AA CRDL Standard Source: SPEX

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony								
Arsenic	10.0	9.99	99.9					
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	3.0	2.79	93.0					
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium	5.0	5.73	114.6					
Silver								
Sodium								
Thallium	10.0	10.40	104.0					
Vanadium								
Zinc								
Cyanide								
	-							

3
BLANKS

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

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	17.0	U	17.0	U	17.0	U	17.0	U	20.8	B	P
Antimony	27.0	U	27.0	U	27.0	U	27.0	U	27.0	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Barium	2.7	B	3.2	B	1.0	U	1.0	U	1.6	B	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Calcium	17.0	U	17.0	B	17.0	U	17.0	U	135.4	B	P
Chromium	6.0	U	6.0	U	6.0	U	6.0	U	6.0	U	P
Cobalt	3.6	B	-3.0	B	-5.3	B	-6.1	B	3.6	B	P
Copper	7.0	U	14.1	B	7.0	U	-12.5	B	7.0	U	P
Iron	4.0	U	4.0	U	4.0	U	4.0	U	17.3	B	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	1.0	B	F
Magnesium	105.4	B	56.0	U	-105.8	B	-190.1	B	175.0	B	P
Manganese	1.0	U	-1.1	B	-1.6	B	-1.6	B	1.0	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	CV
Nickel	38.0	U	38.0	U	38.0	U	38.0	U	38.0	U	P
Potassium	1825.0	B	-3038.3	B	-591.8	B	-2785.3	B	1483.9	B	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	F
Silver	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	P
Sodium	940.0	U	940.0	U	940.0	U	-1345.3	B	940.0	U	P
Thallium	2.0	U	2.0	U	-2.2	B	2.0	U	2.0	U	F
Vanadium	3.9	B	2.0	U	-4.6	B	-6.5	B	5.0	B	P
Zinc	-7.4	B	-8.0	B	1.0	U	1.0	U	4.2	B	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	AS

3
BLANKS

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

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			17.0	U	17.0	U	17.0	U			P
Antimony			27.0	U	27.0	U	27.0	U			P
Arsenic			2.0	U	2.0	U	2.0	U			F
Barium			1.0	U	1.0	U	1.0	U			P
Beryllium			1.0	U	1.0	U	1.0	U			P
Cadmium			5.0	U	5.0	U	5.0	U			P
Calcium			17.0	U	17.0	U	-21.7	B			P
Chromium			6.0	U	6.0	U	6.0	U			P
Cobalt			-5.0	B	3.0	U	3.0	U			P
Copper			7.0	U	-7.7	B	7.0	U			P
Iron			4.0	U	4.0	U	-11.5	B			P
Lead			1.0	U	1.0	U					F
Magnesium			-68.4	B	56.0	U	-60.1	B			P
Manganese			-1.6	B	1.0	U	1.0	U			P
Mercury			0.2	U							CV
Nickel			38.0	U	38.0	U	38.0	U			P
Potassium			-3910.1	B	591.0	U	591.0	U			P
Selenium			2.0	U	2.0	U	2.0	U			F
Silver			5.4	B	-3.8	B	3.0	U			P
Sodium			-1494.3	B	940.0	U	940.0	U			P
Thallium			2.0	U	2.0	U					F
Vanadium			-2.8	B	2.0	U	2.0	U			P
Zinc			1.0	U	1.0	U	1.0	U			P
Cyanide	-										AS

3
BLANKS

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

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											P
Antimony											P
Arsenic			2.0	U	2.0	U					F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead	1.0	U	1.0	U	1.0	U	1.0	U			F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium			-2.1	B	2.0	U					F
Silver											P
Sodium											P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U			F
Vanadium											P
Zinc											P
Cyanide	-										AS

3
BLANKS

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

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											P
Antimony											P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U			F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead			2.2	B	1.0	U					F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U			F
Silver											P
Sodium											P
Thallium			2.0	U	2.0	U					F
Vanadium											P
Zinc											P
Cyanide											AS

3
BLANKS

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

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											P
Antimony											P
Arsenic			2.0	U	2.0	U	2.0	U			F
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											F
Magnesium											P
Manganese											P
Mercury											CV
Nickel											P
Potassium											P
Selenium			2.0	U	2.0	U	2.0	U			F
Silver											P
Sodium											P
Thallium											F
Vanadium											P
Zinc											P
Cyanide											AS

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: P1 ICS Source: EPA-LV

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	511000	508000	495650	492640.0	97.0	473380	464510.0	91.4
Antimony								
Arsenic								
Barium	0	483	1	484.4	100.3	0	467.2	96.7
Beryllium	0	474	0	475.2	100.3	0	457.9	96.6
Cadmium	0	909	0	991.5	109.1	1	909.0	100.0
Calcium	476000	516000	497820	490340.0	95.0	472550	460680.0	89.3
Chromium	0	513	42	509.5	99.3	46	486.8	94.9
Cobalt	0	478	62	532.5	111.4	51	497.4	104.1
Copper	0	534	16	550.4	103.1	-23	518.3	97.1
Iron	219000	203000	188510	186620.0	91.9	180740	177700.0	87.5
Lead								
Magnesium	513000	509000	498400	493340.0	96.9	473990	465790.0	91.5
Manganese	0	470	46	519.0	110.4	45	484.9	103.2
Mercury								
Nickel	0	916	-1	907.0	99.0	11	848.5	92.6
Potassium	0	0	600	-380.1		-3652	-5438.8	
Selenium								
Silver	0	993	0	1021.2	102.8	1	972.4	97.9
Sodium	0	0	4901	4542.9		3053	1071.1	
Thallium								
Vanadium	0	475	-10	467.2	98.4	-5	447.9	94.3
Zinc	0	973	-14	951.6	97.8	-6	885.7	91.0
Cyanide								

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

738001-12S

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2475.2000		422.4600		2000.00	102.6		P
Antimony	75-125	553.4600		27.0300	B	500.00	105.3		P
Arsenic	75-125	35.3900		6.1078	B	40.00	73.2	N	F
Barium	75-125	2239.3000		140.8900	B	2000.00	104.9		P
Beryllium	75-125	60.3500		3.1700	B	50.00	114.4		P
Cadmium	75-125	53.1200		5.0000	U	50.00	106.2		P
Calcium									NR
Chromium	75-125	221.4800		6.0000	U	200.00	110.7		P
Cobalt	75-125	570.5700		11.6300	B	500.00	111.8		P
Copper	75-125	275.1800		8.1000	B	250.00	106.8		P
Iron	75-125	1733.4000		681.0100		1000.00	105.2		P
Lead	75-125	23.2200		2.4900	B	20.00	103.6		F
Magnesium									NR
Manganese	75-125	789.5600		229.8400		500.00	111.9		P
Mercury	75-125	1.0150		0.2000	U	1.00	101.5		CV
Nickel	75-125	539.7500		38.0000	U	500.00	108.0		P
Potassium									NR
Selenium	75-125	2.0000	U	10.0000	U	10.00	0.0	N	F
Silver	75-125	55.0100		3.0000	U	50.00	110.0		P
Sodium									NR
Thallium	75-125	49.3000		2.0000	U	50.00	98.6		F
Vanadium	75-125	548.6500		8.3900	B	500.00	108.1		P
Zinc	75-125	583.1900		17.7500	B	500.00	113.1		P
Cyanide									NR

Comments:

FORM 5A -PAGE 1 (SR)Lab ID:301909 ICP Metals (SSR)Lab ID:301929
AA Metals (SSR)Lab ID:301929
Mercury (SSR)Lab ID:301929

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

738001-02S

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide	75-125	92.3300		10.0000	U	100.00	92.3		AS

Comments:
FORM 5A -PAGE 2 Spiked Sample Lab ID:301932 Sample Lab ID:301910

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.

738001-12

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Matrix: WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments:
FORM 5B - PAGE 1 NO POST DIGEST SPIKES WERE REQUIRED FOR FLAME AA ICP, MERCURY, AND CYANIDE ANALYSES.

U.S. EPA - CLP

6
DUPLICATES

CLIENT SAMPLE NO.

738001-02D

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

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

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units: UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		141.2200	B	125.8500	B	11.5		P
Antimony		27.0000	U	27.0000	U			P
Arsenic		2.7500	B	2.5500	B	7.5		F
Barium		102.6700	B	103.2200	B	0.5		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		5.0000	U	5.0000	U			P
Calcium		70297.0000		69888.0000		0.6		P
Chromium		6.0000	U	6.0000	U			P
Cobalt		9.8600	B	10.1000	B	2.4		P
Copper		7.0000	U	7.0000	U			P
Iron		896.0900		877.2700		2.1		P
Lead		1.7300	B	1.5200	B	12.9		F
Magnesium	5000.0	16195.0000		16077.9990		0.7		P
Manganese		442.3700		434.4100		1.8		P
Mercury		0.2000	U	0.2000	U			CV
Nickel		38.0000	U	38.0000	U			P
Potassium	5000.0	11009.0000		10368.0000		6.0		P
Selenium		10.0000	U	10.0000	U			F
Silver		3.0000	U	3.0000	U			P
Sodium		65309.0000		65258.0039		0.1		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		8.6200	B	8.7800	B	1.8		P
Zinc		1.4600	B	1.0000	U	200.0		P
Cyanide		10.0000	U	10.0000	U			AS

Comments:

FORM 6 - PAGE 1 (S) Lab ID:301910

ICP Metals Dup. Lab ID:301930
AA Metals Dup. Lab ID:301930
Mercury Dup. Lab ID:301930
Cyanide Dup. Lab ID:301933

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No: 18410B

Solid LCS Source: _____

Aqueous LCS Source: SPEX

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	10000.0	10747.00	107.5						
Antimony	10000.0	11062.00	110.6						
Arsenic	100.0	101.70	101.7						
Barium	10000.0	10357.00	103.6						
Beryllium	10000.0	11533.00	115.3						
Cadmium	10000.0	11272.00	112.7						
Calcium	50000.0	53998.00	108.0						
Chromium	10000.0	10868.00	108.7						
Cobalt	10000.0	10760.00	107.6						
Copper	10000.0	10732.00	107.3						
Iron	10000.0	10669.00	106.7						
Lead	100.0	96.60	96.6						
Magnesium	50000.0	54586.00	109.2						
Manganese	10000.0	10717.00	107.2						
Mercury									
Nickel	10000.0	11045.00	110.4						
Potassium	50000.0	55535.00	111.1						
Selenium	100.0	96.75	96.8						
Silver	1000.0	1089.30	108.9						
Sodium	50000.0	55742.00	111.5						
Thallium	100.0	99.90	99.9						
Vanadium	10000.0	10573.00	105.7						
Zinc	10000.0	11122.00	111.2						
Cyanide									

Comments:

Form 7 - Page 1 Lab Sample ID:301931

FORM VII - IN 7/88

8
STANDARD ADDITION RESULTS

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Concentration Units: ug/L

CLIENT Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q
738001-12	AS	0.030	10.00	0.085	20.00	0.124	30.00	0.184	6.1100	0.9970	

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

CLIENT SAMPLE NO.

738001-23L

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	17.00	U	85.00	U			P
Antimony	27.00	U	135.00	U			P
Arsenic							NR
Barium	1328.90		1287.25		3.1		P
Beryllium	1.00	U	5.00	U			P
Cadmium	5.00	U	25.00	U			P
Calcium	260329.98		264300.00		1.5		P
Chromium	6.00	U	30.00	U			P
Cobalt	5.84	B	25.60	B	338.4		P
Copper	7.00	U	35.00	U			P
Iron	13016.00		13278.50		2.0		P
Lead							NR
Magnesium	78086.00		80115.01		2.6		P
Manganese	3715.30		3845.95		3.5		P
Mercury							NR
Nickel	193.10		246.95		27.9		P
Potassium	5537.70		31089.50		461.4		P
Selenium							NR
Silver	3.00	U	15.00	U			P
Sodium	203030.00		206525.00		1.7		P
Thallium							NR
Vanadium	2.00	U	19.60	B			P
Zinc	8.60	B	5.00	U	100.0		P

Comments:

FORM 9 - PAGE 1 Lab Sample ID: 302182

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: P1 Date: 11/01/89

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20		200	17.0	P
Antimony	206.80		60	27.0	P
Arsenic	193.60		10	34.0	P
Barium	493.40		200	1.0	P
Beryllium	313.00		5	1.0	P
Cadmium	228.80		5	5.0	P
Calcium	315.80		5000	17.0	P
Chromium	267.70		10	6.0	P
Cobalt	228.60		50	3.0	P
Copper	324.70		25	7.0	P
Iron	259.90		100	4.0	P
Lead	220.30		3	24.0	P
Magnesium	383.20		5000	56.0	P
Manganese	257.60		15	1.0	P
Mercury					
Nickel	231.60		40	38.0	P
Potassium	766.40		5000	591.0	P
Selenium	196.00		5	36.0	P
Silver	328.00		10	3.0	P
Sodium	330.20		5000	940.0	P
Thallium	190.80		10	144.0	P
Vanadium	292.40		50	2.0	P
Zinc	213.80		20	1.0	P

Comments:

FORM X - IN 7/88

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: _____ Date: 11/01/89

Flame AA ID Number: _____

Furnace AA ID Number: A1

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony					
Arsenic	197.30	BS	10	2.0	F
Barium					
Beryllium					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Mercury					
Nickel					
Potassium					
Selenium	196.00	BS	5	2.0	F
Silver					
Sodium					
Thallium					
Vanadium					
Zinc					

Comments:

FORM X - IN 7/88

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: _____ Date: 11/01/89

Flame AA ID Number: _____

Furnace AA ID Number: A2

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	283.30	BS	3	1.0	F
Magnesium					
Manganese					
Mercury					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Thallium	276.80	BS	10	2.0	F
Vanadium					
Zinc					

Comments:

FORM X - IN 7/88

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: _____ Date: 11/01/89

Flame AA ID Number: V1

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Mercury	253.70	BD	0.2	0.1	CV
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Thallium					
Vanadium					
Zinc					

Comments:

FORM X - IN 7/88

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: _____ Date: 11/01/89

Flame AA ID Number: V2

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Mercury	253.70	BD	0.2	0.2	CV
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Thallium					
Vanadium					
Zinc					

Comments:

FORM X - IN 7/88

U.S. EPA - CLP

11A
ICP Interelement Correction Factors (Annually)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: P1 Date: 09/22/89

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	As
Aluminum	308.20	0.0000000	0.0000000	0.0000000	0.0000000	
Antimony	206.80	0.0000000	0.0000000	0.0000000	0.0000000	
Arsenic	193.60	0.0057900	0.0000000	0.0002100	0.0000000	
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	
Cadmium	228.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0127700
Calcium	315.80	0.0000000	0.0000000	0.0000000	0.0000000	
Chromium	267.70	0.0000000	0.0000000	0.0000000	0.0000000	
Cobalt	228.60	0.0000000	0.0000000	0.0001500	0.0515800	0.0002200
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	
Iron	259.90	0.0000900	0.0000000	0.0000000	0.0000000	
Lead	220.30	0.0004800	0.0000000	0.0000000	0.0000000	
Magnesium	383.20	0.0000000	0.0000000	0.0000000	0.0000000	
Manganese	257.60	0.0013400	0.0000000	0.0000000	0.0000000	
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	
Selenium	196.00	0.0000000	0.0000000	0.0000000	0.0000000	
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	
Sodium	330.20	0.0000000	0.0000000	0.0000000	0.0000000	
Thallium	190.80	0.0000000	0.0000000	0.0014300	0.0000000	
Vanadium	292.40	0.0001700	0.0000000	0.0000000	0.0000000	
Zinc	213.80	0.0000000	0.0000000	0.0001300	0.0000400	
		0.0000000	0.0000000	0.0000000	0.0000000	

Comments:

U.S. EPA - CLP

11B
ICP Interelement Correction Factors (Annually)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

ICP ID Number: P1 Date: 09/22/89

Analyte	Wave-length (nm)	Interelement Correction Factors for: CD	CO	CR	CU	MO
Aluminum	308.20		-0.0038800			0.0114700
Antimony	206.80			0.0063900		0.0022600
Arsenic	193.60			0.0009500		
Barium	493.40					
Beryllium	313.00					
Cadmium	228.80					
Calcium	315.80					
Chromium	267.70					
Cobalt	228.60	0.0081800		0.0003900		
Copper	324.70					
Iron	259.90					
Lead	220.30		-0.0026700			
Magnesium	383.20					
Manganese	257.60					
Mercury						
Nickel	231.60		0.0005400			
Potassium	766.40					
Selenium	196.00					
Silver	328.00					
Sodium	330.20					
Thallium	190.80					
Vanadium	292.40					
Zinc	213.80				0.0052700	

Comments:

FORM XI (PART 2) - IN 7/88

U.S. EPA - CLP

11B
ICP Interelement Correction Factors (Annually)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: P1 Date: 09/22/89

Analyte	Wave-length (nm)	Interelement Correction Factors for: NI	SN	TI	V	ZN
Aluminum	308.20					
Antimony	206.80	-0.0024400	-0.0199800		-0.0069700	
Arsenic	193.60	0.0009500			0.0132500	
Barium	493.40					
Beryllium	313.00				0.0082000	
Cadmium	228.80					
Calcium	315.80					
Chromium	267.70					
Cobalt	228.60	0.0014700				
Copper	324.70					
Iron	259.90					
Lead	220.30	0.0014800				
Magnesium	383.20					
Manganese	257.60					
Mercury						
Nickel	231.60					
Potassium	766.40					
Selenium	196.00					
Silver	328.00					
Sodium	330.20			0.2944600		0.3768800
Thallium	190.80			-0.0061100		
Vanadium	292.40					
Zinc	213.80					

Comments:

FORM XI (PART 2) - IN 7/88

U.S. EPA - CLP

12
ICP Linear Ranges (Quarterly)

Lab Name: COMPUCHEM LABORATORIES Contract: 7/88

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

ICP ID Number: P1 Date: 11/01/89

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	4.00	2000000.0	
Antimony	4.00	1000000.0	
Arsenic	4.00	1000000.0	
Barium	4.00	1000000.0	
Beryllium	4.00	500000.0	
Cadmium	4.00	2500000.0	
Calcium	4.00	1000000.0	
Chromium	4.00	1000000.0	
Cobalt	4.00	1000000.0	
Copper	4.00	1000000.0	
Iron	4.00	1500000.0	
Lead	4.00	500000.0	
Magnesium	4.00	2000000.0	
Manganese	4.00	1000000.0	
Mercury			NR
Nickel	4.00	500000.0	
Potassium	4.00	2000000.0	
Selenium	4.00	100000.0	
Silver	4.00	100000.0	
Sodium	4.00	2500000.0	
Thallium	4.00	1000000.0	
Vanadium	4.00	100000.0	
Zinc	4.00	500000.0	

Comments:

Boron: 1000000 Tin: 1000000 Titanium: 100000

Molybdenum: 1000000 Silicon: 500000 Strontium: 10000

FORM XII - IN 7/88

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Method: P

Client Sample No.	Preparation Date	Weight (gram)	Volume (mL)
738001-01	12/05/89		100
738001-02	12/05/89		100
738001-02D	12/05/89		100
738001-03	12/05/89		100
738001-05	12/05/89		100
738001-06	12/05/89		100
738001-08	12/05/89		100
738001-10	12/05/89		100
738001-12	12/05/89		100
738001-12S	12/05/89		100
738001-13	12/05/89		100
738001-14	12/05/89		100
738001-15	12/05/89		100
738001-16	12/05/89		100
738001-17	12/05/89		100
738001-18	12/05/89		100
738001-21	12/05/89		100
738001-22	12/05/89		100
738001-23	12/05/89		100
738001-24	12/05/89		100
738001-25	12/05/89		100
738001-26	12/05/89		100
LCSW	12/05/89		100
PBW	12/05/89		100

FORM XIII - IN 7/88

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Method: F

Client Sample No.	Preparation Date	Weight (gram)	Volume (mL)
738001-01	12/05/89		100
738001-02	12/05/89		100
738001-02D	12/05/89		100
738001-03	12/05/89		100
738001-05	12/05/89		100
738001-06	12/05/89		100
738001-08	12/05/89		100
738001-10	12/05/89		100
738001-12	12/05/89		100
738001-12S	12/05/89		100
738001-13	12/05/89		100
738001-14	12/05/89		100
738001-15	12/05/89		100
738001-16	12/05/89		100
738001-17	12/05/89		100
738001-18	12/05/89		100
738001-21	12/05/89		100
738001-22	12/05/89		100
738001-23	12/05/89		100
738001-24	12/05/89		100
738001-25	12/05/89		100
738001-26	12/05/89		100
LCSW	12/05/89		100
PBW	12/05/89		100

U.S. EPA - CLP

13

PREPARATION LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Method: CV

Client Sample No.	Preparation Date	Weight (gram)	Volume (mL)
738001-01	11/20/89		100
738001-02	11/20/89		100
738001-02D	11/20/89		100
738001-03	11/20/89		100
738001-05	11/20/89		100
738001-06	11/20/89		100
738001-08	11/20/89		100
738001-10	11/20/89		100
738001-12	11/20/89		100
738001-12S	11/20/89		100
738001-13	11/20/89		100
738001-14	11/20/89		100
738001-15	11/20/89		100
738001-16	11/20/89		100
738001-17	11/20/89		100
738001-18	11/20/89		100
738001-21	11/20/89		100
738001-22	11/20/89		100
738001-23	11/20/89		100
738001-24	11/20/89		100
738001-25	11/20/89		100
738001-26	11/20/89		100
PBW	11/20/89		100

FORM XIII - IN 7/88

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 184108

Method: AS

Client Sample No.	Preparation Date	Weight (gram)	Volume (mL)
738001-01	11/18/89		250
738001-01	11/18/89		250
738001-02	11/18/89		250
738001-02D	11/18/89		250
738001-02S	11/18/89		250
738001-03	11/18/89		250
738001-05	11/18/89		250
738001-06	11/18/89		250
738001-08	11/18/89		250
738001-10	11/18/89		250
738001-12	11/18/89		250
738001-13	11/18/89		250
738001-14	11/18/89		250
738001-15	11/18/89		250
738001-16	11/18/89		250
738001-17	11/18/89		250
738001-18	11/18/89		250
738001-21	11/18/89		250
738001-22	11/18/89		250
738001-23	11/18/89		250
738001-24	11/18/89		250
738001-25	11/18/89		250
738001-26	11/18/89		250
PBW	11/18/89		250

FORM XIII - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

Instrument ID Number: P1 Method: P

Start Date: 12/10/89 End Date: 12/10/89

Client Sample No.	D/F	Time	% R	Analytes																													
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	KE	SE	AG	NA	TL	V	ZN	CN							
S0	1.00	1532		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
S	1.00	1536		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
ICV	1.00	1538		X			X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
ICV	1.00	1540																															
ICV	1.00	1542			X																												
ICB	1.00	1543		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
ICSA	1.00	1545		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
ICSAB	1.00	1547		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
CRI	1.00	1550		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
PBW	1.00	1551		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
LCSW	1.00	1555		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-12	1.00	1556		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-12S	1.00	1558		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-02	1.00	1602		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-02D	1.00	1604		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-01	1.00	1607		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
CCV	1.00	1609		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
CCB	1.00	1611		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-03	1.00	1613		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-08	1.00	1615		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-05	1.00	1617		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-10	1.00	1618		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-06	1.00	1620		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-15	1.00	1622		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-16	1.00	1624		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-22	1.00	1626		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-25	1.00	1628		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-26	1.00	1631		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
CCV	1.00	1633		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
CCB	1.00	1635		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-21	1.00	1637		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							
738001-17	1.00	1638		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X							

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: ______ SDG No.: 18410B

Instrument ID Number: P1 Method: P

Start Date: 12/10/89 End Date: 12/10/89

Client Sample No.	D/F	Time	% R	AL	SB	SA	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
738001-18	1.00	1640		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
738001-13	1.00	1642		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
738001-14	1.00	1644		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
738001-24	1.00	1646		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
738001-23	1.00	1648		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
738001-23L	5.00	1650		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PBW	1.00	1655		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ZZZZZ		1658																									
CCV	1.00	1659		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1701		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ZZZZZ		1703																									
ZZZZZ		1705																									
ZZZZZ		1708																									
ZZZZZ		1710																									
ZZZZZ		1712																									
PBW	1.00	1721		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ZZZZZ		1731																									
ZZZZZ		1734																									
ZZZZZ		1739																									
ZZZZZ		1745																									
CCV	1.00	1746		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1748		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ZZZZZ		1750																									
ZZZZZ		1752																									
ZZZZZ		1754																									
ZZZZZ		1756																									
ZZZZZ		1759																									
PBW	1.00	1810		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
PBW	1.00	1815																									
ZZZZZ		1816																									
ZZZZZ	-	1818																									
CCV	1.00	1822		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: P1 Method: P

Start Date: 12/10/89 End Date: 12/10/89

Client Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB	1.00	1824		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ZZZZZ		1826																										
ZZZZZ		1828																										
ZZZZZ		1833																										
ZZZZZ		1836																										
ZZZZZ		1838																										
ZZZZZ		1841																										
ZZZZZ		1844																										
CRI	1.00	1847		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSA	1.00	1849		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
ICSAB	1.00	1851		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCV	1.00	1852		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	
CCB	1.00	1854		X	X		X	X	X	X	X	X	X	X		X	X		X	X		X	X		X	X	

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/12/89 End Date: 12/12/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	0900													X												
S20	1.00	0904													X												
S3	1.00	0908													X												
S40	1.00	0912													X												
S60	1.00	0916													X												
ICV	2.50	0934													X												
ICB	1.00	0938													X												
CRA	1.00	0942													X												
CRA	1.00	0946	102.5												X												
PBW	1.00	0950																									
PBW	1.00	0954																									
ZZZZZ		0958																									
ZZZZZ		1002																									
LCSW	5.00	1006																									
LCSW	5.00	1010																									
738001-12	1.00	1014													X												
738001-12A	1.00	1018																									
CCV	1.00	1022													X												
CCB	1.00	1026													X												
738001-02	1.00	1034																									
738001-02	1.00	1038																									
738001-02D	1.00	1042																									
738001-02D	1.00	1046																									
738001-01	1.00	1050																									
738001-01	1.00	1054																									
738001-03	1.00	1100																									
738001-03	1.00	1104																									
738001-08	1.00	1108																									
CCV	1.00	1112													X												
CCB	1.00	1114													X												
738001-08	1.00	1118																									
738001-05	1.00	1122																									

Comments:
AA14- 6 COMPUCHEM RUN ID: A38912120830 FOR ANALYTE PB - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/12/89 End Date: 12/12/89

Client Sample No.	D/F	Time	% R	Analytes
				ALB | SBS | AAE | BBA | BCD | CAR | CRO | CUE | FEB | PBG | MNG | HGI | NIK | SEG | ANA | TL | V | ZN | CN
738001-05	1.00	1124		
738001-10	1.00	1128		
738001-10	1.00	1132		
738001-06	1.00	1136		
738001-06	1.00	1140		
738001-15	1.00	1148		
738001-15	1.00	1148		
CCV	1.00	1152		X
CCB	1.00	1156		X
738001-22	1.00	1200		X
738001-22A	1.00	1204	105.0	X
738001-25	1.00	1208		X
738001-25A	1.00	1212	101.3	X
738001-26	1.00	1216		X
738001-26A	1.00	1220	107.6	X
738001-21	1.00	1224		X
738001-21A	1.00	1228	112.6	X
738001-17	1.00	1232		X
738001-17A	1.00	1236	97.2	X
CCV	1.00	1240		X
CCB	1.00	1244		X
738001-18	1.00	1248		X
738001-18A	1.00	1252	107.6	X
738001-13	1.00	1256		X
738001-13A	1.00	1300	103.4	X
738001-14	1.00	1304		X
738001-14A	1.00	1308	105.9	X
738001-24	1.00	1312		X
738001-24A	1.00	1316	110.2	X
738001-23	1.00	1320		X
738001-23A	1.00	1324	112.0	X
CCV	1.00	1328		X

Comments:
AA14- 7 COMPUCHEM RUN ID: A38912120830 FOR ANALYTE PB - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/12/89 End Date: 12/12/89

Client Sample No.	D/F	Time	% R	Analytes
				ALSB ASSA BBEA BCDE CCAR CCOU CFE PPB MGN MNG HGI NK SE AG NAL TV ZN CN
CCB	1.00	1332		X

Comments:
AA14- 8 COMPUCHEM RUN ID: A38912120830 FOR ANALYTE PB - PAGE 3

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/12/89 End Date: 12/12/89

Client Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	0900																					X			
S20	1.00	0904																					X			
S10	1.00	0908																					X			
S40	1.00	0912																					X			
S60	1.00	0916																					X			
ICV	2.50	0934																					X			
ICB	1.00	0938																					X			
CRA	1.00	0942																					X			
CRA	1.00	0946	101.8																				X			
PBW	1.00	0950																					X			
PBWA	1.00	0954	108.0																				X			
ZZZZZ		0958																								
ZZZZZ		1002																								
LCSW	5.00	1006																					X			
LCSWA	5.00	1010	89.8																				X			
738001-12	1.00	1014																					X			
738001-12A	1.00	1018	98.8																				X			
CCV	1.00	1022																					X			
CCB	1.00	1026																					X			
738001-02	1.00	1034																					X			
738001-02A	1.00	1038	100.4																				X			
738001-02D	1.00	1042																					X			
738001-02DA	1.00	1046	100.1																				X			
738001-01	1.00	1050																					X			
738001-01A	1.00	1054	96.1																				X			
738001-03	1.00	1100																					X			
738001-03A	1.00	1104	100.2																				X			
738001-08	1.00	1108																					X			
CCV	1.00	1112																					X			
CCB	1.00	1114																					X			
738001-08A	1.00	1118	96.4																				X			
738001-05	1.00	1122																					X			

Comments:
AA14- 9 COMPUCHEM HUN ID: A30912120830 FOR ANALYTE TL - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/12/89 End Date: 12/12/89

Client Sample No.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
738001-05A	1.00	1124	93.4																				X					
738001-10	1.00	1128																					X					
738001-10A	1.00	1132	96.2																				X					
738001-06	1.00	1136																					X					
738001-06A	1.00	1140	103.0																				X					
738001-15	1.00	1148																					X					
738001-15A	1.00	1148	88.4																				X					
CCV	1.00	1152																					X					
CCB	1.00	1156																					X					
738001-22	1.00	1200																					X					
738001-22A	1.00	1204	63.4																				X					
738001-25	1.00	1208																					X					
738001-25A	1.00	1212	101.6																				X					
738001-26	1.00	1216																					X					
738001-26A	1.00	1220	95.9																				X					
738001-21	1.00	1224																					X					
738001-21A	1.00	1228	75.0																				X					
738001-17	1.00	1232																					X					
738001-17A	1.00	1236	102.2																				X					
CCV	1.00	1240																					X					
CCB	1.00	1244																					X					
738001-18	1.00	1248																					X					
738001-18A	1.00	1252	98.0																				X					
738001-13	1.00	1256																					X					
738001-13A	1.00	1300	95.7																				X					
738001-14	1.00	1304																					X					
738001-14A	1.00	1308	93.9																				X					
738001-24	1.00	1312																					X					
738001-24A	1.00	1316	88.0																				X					
738001-23	1.00	1320																					X					
738001-23A	1.00	1324	87.7																				X					
CCV	1.00	1328																					X					

Comments:
AA14-10 COMPUCHEM RUN ID: A38912120830 FOR ANALYTE TL - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/11/89 End Date: 12/11/89

Client Sample No.	D/F	Time	% R	Analytes																											
				ALB	SBS	ASA	BAE	BED	CDA	CAR	CRO	CUE	FEB	PBG	MGN	MGI	HGI	NIK	SE	AGA	NAL	TLV	VN	CN							
S0	1.00	1800											X																		
S20	1.00	1805											X																		
S3	1.00	1810											X																		
S40	1.00	1815											X																		
S60	1.00	1820											X																		
ICV	2.50	1825											X																		
ICB	1.00	1830											X																		
CRA	1.00	1835											X																		
CRA	1.00	1840	95.9										X																		
ZZZZZ		1845																													
ZZZZZ		1850																													
ZZZZZ		1855																													
ZZZZZ		1900																													
ZZZZZ		1905																													
ZZZZZ		1910																													
CCV	1.00	1925											X																		
CCB	1.00	1930											X																		
ZZZZZ		1935																													
ZZZZZ		1940																													
ZZZZZ		1945																													
ZZZZZ		1950																													
ZZZZZ		1955																													
ZZZZZ		2000																													
ZZZZZ		2005																													
ZZZZZ		2010																													
ZZZZZ		2015																													
ZZZZZ		2020																													
CCV	1.00	2025											X																		
CCB	1.00	2030											X																		
ZZZZZ		2035																													
ZZZZZ		2040																													
PBW	1.00	2045											X																		

Comments:
AA14-12 COMPUCHEM RUN ID: A38912111800 FOR ANALYTE PB - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/11/89 End Date: 12/11/89

Client Sample No.	D/F	Time	% R	Analytes																								
				ALB	SBS	ABA	BBE	CBD	CAA	CAR	CCO	CCU	FBE	PB	MGN	MNG	HGI	NAK	SBE	AGA	NAL	TAL	V	ZN	CN			
PBWA	1.00	2050	100.0											X														
LCSW	5.00	2055												X														
LCSWA	5.00	2100	103.2											X														
738001-12	1.00	2105																										
738001-12A	1.00	2110	114.8											X														
738001-12S	1.00	2115												X														
738001-12	1.00	2120												X														
CCV	1.00	2125												X														
CCB	1.00	2130												X														
738001-02	1.00	2135												X														
738001-02A	1.00	2140	115.3											X														
738001-02D	1.00	2145												X														
738001-02DA	1.00	2150	97.2											X														
738001-01	1.00	2155												X														
738001-01A	1.00	2200	111.1											X														
738001-03	1.00	2205												X														
738001-03A	1.00	2210	106.7											X														
CCV	1.00	2225												X														
CCB	1.00	2230												X														
738001-05	1.00	2235												X														
738001-05A	1.00	2240	121.6											X														
738001-10	1.00	2245												X														
738001-10A	1.00	2250	93.8											X														
738001-06	1.00	2300												X														
738001-06A	1.00	2305	101.5											X														
738001-15	1.00	2310												X														
738001-15A	1.00	2315	92.9											X														
738001-16	1.00	2320												X														
738001-16A	1.00	2325	83.5											X														
CCV	1.00	2330												X														
CCB	1.00	2335												X														

Comments:
AA14-13 COMPUCHEM RUN ID: A38912111800 FOR ANALYTE PB - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/11/89 End Date: 12/11/89

Client Sample No.	D/F	Time	% R	Analytes																								
				ALB	SBS	ASA	BAE	BED	CDA	CAR	CRO	CUE	FEB	PBG	MGN	MNG	NI	K	SE	AGA	NA	TL	V	ZN	CN
S0	1.00	1800																				X			
S20	1.00	1805																				X			
S10	1.00	1810																				X			
S40	1.00	1815																				X			
S60	1.00	1820																				X			
ICV	2.50	1825																				X			
ICB	1.00	1830																				X			
CRA	1.00	1835																				X			
CRA	1.00	1840	96.4																			X			
ZZZZZ		1845																							
ZZZZZ		1850																							
ZZZZZ		1855																							
ZZZZZ		1900																							
ZZZZZ		1905																							
ZZZZZ		1910																							
CCV	1.00	1925																				X			
CCB	1.00	1930																				X			
ZZZZZ		1935																							
ZZZZZ		1940																							
ZZZZZ		1945																							
ZZZZZ		1950																							
ZZZZZ		1955																							
ZZZZZ		2000																							
ZZZZZ		2005																							
ZZZZZ		2010																							
ZZZZZ		2015																							
ZZZZZ		2020																							
CCV	1.00	2025																				X			
CCB	1.00	2030																				X			
ZZZZZ		2035																							
ZZZZZ		2040																							
PBW	1.00	2045																				X			

Comments:
AA14-14 COMPUCHEM RUN ID: A30912111800 FOR ANALYTE TL - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A3 Method: F

Start Date: 12/11/89 End Date: 12/11/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
PBWA	1.00	2050	99.8																				X							
LCSW	5.00	2055																					X							
LCSWA	5.00	2100	85.6																				X							
738001-12	1.00	2105																					X							
738001-12A	1.00	2110	106.8																				X							
738001-12S	1.00	2115																					X							
738001-12	1.00	2120																												
CCV	1.00	2125																					X							
CCB	1.00	2130																					X							
738001-02	1.00	2135																					X							
738001-02A	1.00	2140	122.0																				X							
738001-02D	1.00	2145																					X							
738001-02DA	1.00	2150	112.6																				X							
738001-01	1.00	2155																					X							
738001-01A	1.00	2200	113.4																				X							
738001-03	1.00	2205																					X							
738001-03A	1.00	2210	111.0																				X							
CCV	1.00	2225																					X							
CCB	1.00	2230																					X							
738001-05	1.00	2235																					X							
738001-05A	1.00	2240	110.4																				X							
738001-10	1.00	2245																					X							
738001-10A	1.00	2250	108.8																				X							
738001-06	1.00	2300																					X							
738001-06A	1.00	2305	103.8																				X							
738001-15	1.00	2310																					X							
738001-15A	1.00	2315	96.0																				X							
738001-16	1.00	2320																					X							
738001-16A	1.00	2325	74.6																				X							
CCV	1.00	2330																					X							
CCB	1.00	2335																					X							

Comments:
AA14-15 COMPUCHEM RUN ID: A38912111800 FOR ANALYTE TL - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/13/89

Client Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	0840																		X						
S20	1.00	0844																		X						
S5	1.00	0848																		X						
S30	1.00	0852																		X						
S50	1.00	0856																		X						
ICV	2.50	0924																		X						
ICB	1.00	0928																		X						
CRA	1.00	0934																		X						
CRA	1.00	0940	96.1																	X						
ZZZZZ		0944																								
ZZZZZ		1010																								
CCV	1.00	1018																		X						
CCB	1.00	1022																		X						
ZZZZZ		1026																								
ZZZZZ		1030																								
ZZZZZ		1034																								
ZZZZZ		1042																								
ZZZZZ		1050																								
CCV	1.00	1058																		X						
CCB	1.00	1102																		X						
PBW	1.00	1110																		X						
PBWA	1.00	1116	88.7																	X						
LCSW	5.00	1120																		X						
LCSWA	5.00	1124	104.4																	X						
738001-12	1.00	1132																								
738001-12A	1.00	1138																								
738001-12	5.00	1144																		X						
738001-12A	5.00	1150	53.8																	X						
CCV	1.00	1154																		X						
CCB	1.00	1158																		X						
CCV	1.00	1310																		X						
CCB	1.00	1314																		X						

Comments:
AA14-16 COMPUCHEM RUN ID: A18912130840 FOR ANALYTE SE - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/13/89

Client Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
738001-12M	1.00	1342																										
738001-12M	1.00	1344																										
738001-12M	1.00	1346																										
738001-12M	1.00	1348																										
738001-12S	1.00	1352																		X								
738001-02	1.00	1356																										
738001-02A	1.00	1400																										
738001-02	5.00	1404																		X								
738001-02A	5.00	1408	50.1																	X								
738001-02D	1.00	1412																										
738001-02DA	1.00	1416																										
CCV	1.00	1420																		X								
CCB	1.00	1424																		X								
738001-02D	5.00	1428																		X								
738001-02DA	5.00	1434	57.8																	X								
738001-01	1.00	1438																										
738001-01A	1.00	1442																										
738001-01	5.00	1446																		X								
738001-01A	5.00	1450	13.5																	X								
738001-03	1.00	1454																										
738001-03A	1.00	1458																										
738001-03	5.00	1502																		X								
738001-03A	5.00	1506	20.4																	X								
CCV	1.00	1510																		X								
CCB	1.00	1514																		X								
738001-08	1.00	1518																										
738001-08A	1.00	1522																										
738001-08	5.00	1526																		X								
738001-08A	5.00	1530	55.2																	X								
738001-05	1.00	1534																										
738001-05A	1.00	1538																										
738001-05	5.00	1542																		X								

Comments:
AA14-17 COMPUCHEM RUN ID: A18912130840 FOR ANALYTE SE - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/13/89

Client Sample No.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
738001-05A	5.00	1546	6.7																	X						
738001-10	1.00	1550																								
738001-10A	1.00	1554																								
CCV	1.00	1558																		X						
CCB	1.00	1602																		X						
738001-10	5.00	1606																		X						
738001-10A	5.00	1610	55.7																	X						
CCV	1.00	1614																		X						
CCB	1.00	1618																		X						

Comments:
AA14-18 COMPUCHEM RUN ID: A18912130840 FOR ANALYTE SE - PAGE 3

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/13/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	V	ZN	CN
S0	1.00	0840				X																								
S20	1.00	0844				X																								
S10	1.00	0848				X																								
S30	1.00	0852				X																								
S50	1.00	0856				X																								
ICV	2.50	0924				X																								
ICB	1.00	0928				X																								
CRA	1.00	0934				X																								
CRA	1.00	0940	88.9			X																								
ZZZZZ		0944																												
ZZZZZ		1010																												
CCV	1.00	1018				X																								
CCB	1.00	1022				X																								
ZZZZZ		1026																												
ZZZZZ		1030																												
ZZZZZ		1034																												
ZZZZZ		1042																												
ZZZZZ		1050																												
CCV	1.00	1058				X																								
CCB	1.00	1102				X																								
PBW	1.00	1110				X																								
PBWA	1.00	1116	99.4			X																								
LCSW	5.00	1120				X																								
LCSWA	5.00	1124	92.6			X																								
738001-12	1.00	1132																												
738001-12A	1.00	1138	65.0			X																								
738001-12	5.00	1144																												
738001-12	5.00	1150																												
CCV	1.00	1154				X																								
CCB	1.00	1158				X																								
CCV	1.00	1310				X																								
CCB	1.00	1314				X																								

Comments:
AA14-19 COMPUCHEM RUN ID: A18912130840 FOR ANALYTE AS - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/13/89

Client Sample No.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AL	TL	V	ZN	CN
738001-12M	1.00	1342				X																									
738001-12M	1.00	1344				X																									
738001-12M	1.00	1346				X																									
738001-12M	1.00	1348				X																									
738001-12S	1.00	1352				X																									
738001-02	1.00	1356				X																									
738001-02A	1.00	1400	89.8			X																									
738001-02	5.00	1404																													
738001-02	5.00	1408																													
738001-02D	1.00	1412				X																									
738001-02DA	1.00	1416	89.7			X																									
CCV	1.00	1420				X																									
CCB	1.00	1424				X																									
738001-02D	5.00	1428																													
738001-02D	5.00	1434																													
738001-01	1.00	1438				X																									
738001-01A	1.00	1442	91.4			X																									
738001-01	5.00	1446																													
738001-01	5.00	1450																													
738001-03	1.00	1454				X																									
738001-03A	1.00	1458	91.0			X																									
738001-03	5.00	1502																													
738001-03	5.00	1506																													
CCV	1.00	1510				X																									
CCB	1.00	1514				X																									
738001-08	1.00	1518				X																									
738001-08A	1.00	1522	100.0			X																									
738001-08	5.00	1526																													
738001-08	5.00	1530																													
738001-05	1.00	1534				X																									
738001-05A	1.00	1538	82.6			X																									
738001-05	5.00	1542																													

Comments:
AA14-20 COMPUCHEM RUN ID: A18912130840 FOR ANALYTE AS - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/13/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AL	TL	V	ZN	CN	
738001-05	5.00	1546																												
738001-10	1.00	1550				X																								
738001-10A	1.00	1554	101.8			X																								
CCV	1.00	1558				X																								
CCB	1.00	1602				X																								
738001-10	5.00	1606																												
738001-10	5.00	1610																												
CCV	1.00	1614				X																								
CCB	1.00	1618				X																								

Comments:
AA14-21 COMPUCHEM RUN ID: A18912130840 FOR ANALYTE AS - PAGE 3

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/14/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	1701																		X						
S30	1.00	1706																		X						
S20	1.00	1710																		X						
S5	1.00	1715																		X						
S50	1.00	1721																		X						
S	1.00	1726																								
ICV	2.50	1735																		X						
ICB	1.00	1741																		X						
CRA	1.00	1744																		X						
CRA	1.00	1751	109.1																	X						
738001-06	1.00	1757																								
738001-06A	1.00	1804																								
738001-06	5.00	1809																		X						
738001-06A	5.00	1817	26.9																	X						
738001-15	1.00	1822																								
738001-15A	1.00	1827																								
738001-15	5.00	1832																		X						
738001-15	5.00	1837																		X						
CCV	1.00	1845																		X						
CCB	1.00	1850																		X						
738001-15A	5.00	1907	62.2																	X						
738001-16	1.00	1922																								
738001-16A	1.00	1927																								
738001-16	5.00	1932																		X						
738001-16A	5.00	1937	24.6																	X						
738001-22	1.00	1942																								
738001-22A	1.00	1947																								
738001-22	5.00	1952																		X						
738001-22A	5.00	1957	94.9																	X						
CCV	1.00	2002																		X						
CCB	1.00	2007																		X						
738001-25	1.00	2012																		X						

Comments:
AA14-22 COMPUCHEM RUN ID: A18912131700 FOR ANALYTE SE - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/14/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	FB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
738001-25A	1.00	2017	40.5																	X										
738001-26	1.00	2022																												
738001-26A	1.00	2027																												
738001-26	5.00	2032																		X										
738001-26A	5.00	2037	37.5																	X										
738001-21	1.00	2042																												
738001-21A	1.00	2047																												
738001-21	5.00	2052																		X										
738001-21A	5.00	2057	26.8																	X										
CCV	1.00	2102																		X										
CCB	1.00	2107																		X										
738001-17	1.00	2112																												
738001-17A	1.00	2127																												
738001-17	5.00	2132																		X										
738001-17A	5.00	2137	44.3																	X										
738001-18	1.00	2142																												
738001-18A	1.00	2147																												
738001-18	5.00	2152																		X										
738001-18A	5.00	2157	54.7																	X										
738001-13	1.00	2202																												
738001-13A	1.00	2207																												
CCV	1.00	2212																		X										
CCB	1.00	2217																		X										
738001-13	5.00	2243																		X										
738001-13A	5.00	2248	59.8																	X										
738001-14	1.00	2252																												
738001-14A	1.00	2257																												
738001-14	5.00	2307																		X										
738001-14A	5.00	2312	60.1																	X										
738001-24	1.00	2319																												
738001-24A	1.00	2324																												
738001-24	5.00	2331																		X										

Comments:
AA14-23 COMPUCHEM RUN ID: A18912131700 FOR ANALYTE SE - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/14/89

Client Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
738001-24A	5.00	2335	24.4																	X						
CCV	1.00	2340																		X						
CCB	1.00	2345																		X						
738001-23	1.00	2349																								
738001-23A	1.00	2354																								
738001-23	5.00	2359																		X						
738001-23A	5.00	0005	26.5																	X						
ZZZZZ		0010																								
ZZZZZ		0015																								
ZZZZZ		0020																								
ZZZZZ		0025																								
CCV	1.00	0030																		X						
CCB	1.00	0035																		X						

Comments:
AA14-24 COMPUCHEM RUN ID: A10912131700 FOR ANALYTE SE - PAGE 3

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/14/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.00	1701				X																								
S30	1.00	1706				X																								
S20	1.00	1710				X																								
S10	1.00	1715				X																								
S50	1.00	1721				X																								
S80	1.00	1726				X																								
ICV	2.50	1735				X																								
ICB	1.00	1741				X																								
CRA	1.00	1744				X																								
CRA	1.00	1751	107.3			X																								
738001-06	1.00	1757				X																								
738001-06A	1.00	1804	102.8			X																								
738001-06	5.00	1809																												
738001-06	5.00	1817																												
738001-15	1.00	1822				X																								
738001-15A	1.00	1827	97.8			X																								
738001-15	5.00	1832																												
738001-15	5.00	1837				X																								
CCV	1.00	1845				X																								
CCB	1.00	1850				X																								
738001-15	5.00	1907																												
738001-16	1.00	1922				X																								
738001-16A	1.00	1927	97.0			X																								
738001-16	5.00	1932																												
738001-16	5.00	1937																												
738001-22	1.00	1942				X																								
738001-22A	1.00	1947	108.6			X																								
738001-22	5.00	1952																												
738001-22	5.00	1957																												
CCV	1.00	2002				X																								
CCB	1.00	2007				X																								
738001-25	1.00	2012				X																								

Comments:
AA14-25 COMPUCHEM RUN ID: A18912131700 FOR ANALYTE AS - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCMEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/14/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	MG	NI	K	SE	AG	NA	TL	V	ZN	CN			
738001-25A	1.00	2017	96.3			X																							
738001-26	1.00	2022				X																							
738001-26A	1.00	2027	97.9			X																							
738001-26	5.00	2032																											
738001-26	5.00	2037																											
738001-21	1.00	2042				X																							
738001-21A	1.00	2047	109.4			X																							
738001-21	5.00	2052																											
738001-21	5.00	2057																											
CCV	1.00	2102				X																							
CCB	1.00	2107				X																							
738001-17	1.00	2112				X																							
738001-17A	1.00	2127	111.2			X																							
738001-17	5.00	2132																											
738001-17	5.00	2137																											
738001-18	1.00	2142				X																							
738001-18A	1.00	2147	106.4			X																							
738001-18	5.00	2152																											
738001-18	5.00	2157																											
738001-13	1.00	2202				X																							
738001-13A	1.00	2207	104.4			X																							
CCV	1.00	2212				X																							
CCB	1.00	2217				X																							
738001-13	5.00	2243																											
738001-13	5.00	2248																											
738001-14	1.00	2252				X																							
738001-14A	1.00	2257	104.8			X																							
738001-14	5.00	2307																											
738001-14	5.00	2312																											
738001-24	1.00	2319				X																							
738001-24A	1.00	2324	104.2			X																							
738001-24	5.00	2331																											

Comments:
AA14-26 COMPUCHEM RUN ID: A18912131700 FOR ANALYTE AS - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: ____ SDG No.: 18410B

Instrument ID Number: A1 Method: F

Start Date: 12/13/89 End Date: 12/14/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	NG	NI	K	SE	AG	NA	TL	V	ZN	CN
738001-24	5.00	2335																								
CCV	1.00	2340				X																				
CCB	1.00	2345				X																				
738001-23	1.00	2349				X																				
738001-23A	1.00	2354	110.8			X																				
738001-23	5.00	2359																								
738001-23	5.00	0005																								
ZZZZZ		0010																								
ZZZZZ		0015																								
ZZZZZ		0020																								
ZZZZZ		0025																								
CCV	1.00	0030				X																				
CCB	1.00	0035				X																				

Comments:
AA14-27 COMPUCHEM RUN ID: A18912131700 FOR ANALYTE AS - PAGE 3

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: SDG No.: 18410B

Instrument ID Number: V1 Method: CV

Start Date: 11/21/89 End Date: 11/21/89

Client Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.00	1730																X												
S2	1.00	1733																X												
S1	1.00	1736																X												
S4	1.00	1739																X												
S6	1.00	1742																X												
S8	1.00	1745																X												
ICV	1.00	1748																X												
ICB	1.00	1751																X												
738001-12	1.00	1754																X												
738001-02	1.00	1757																X												
738001-01	1.00	1800																X												
738001-03	1.00	1803																X												
738001-08	1.00	1806																X												
738001-05	1.00	1809																X												
738001-10	1.00	1812																X												
738001-06	1.00	1815																X												
738001-15	1.00	1818																X												
738001-16	1.00	1821																X												
CCV	1.00	1824																X												
CCB	1.00	1827																X												
738001-22	1.00	1830																X												
738001-25	1.00	1833																X												
738001-26	1.00	1836																X												
738001-21	1.00	1839																X												
738001-17	1.00	1842																X												
738001-18	1.00	1845																X												
738001-13	1.00	1848																X												
738001-14	1.00	1851																X												
738001-24	1.00	1854																X												
738001-23	1.00	1857																X												
CCV	1.00	1900																X												
CCB	1.00	1903																X												

Comments:
AA14- 4 COMPUCHEM RUN ID: V18911211730 FOR ANALYTE HG - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: V1 Method: CV

Start Date: 11/21/89 End Date: 11/21/89

Client Sample No.	D/F	Time	% R	Analytes																											
				AL	SB	AS	AA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN				
738001-12S	1.00	1906																X													
738001-02D	1.00	1909																X													
LCSW	1.00	1912																X													
PBW	1.00	1915																X													
ZZZZZ		1918																													
SO	1.00	1921																X													
SO	1.00	1924																X													
ZZZZZ		1927																													
ZZZZZ		1930																													
ZZZZZ		1933																													
CCV	1.00	1936																X													
CCB	1.00	1939																X													
ZZZZZ		1942																													
ZZZZZ		1945																													
ZZZZZ		1948																													
ZZZZZ		1951																													
ZZZZZ		1954																													
ZZZZZ		1957																													
ZZZZZ		2000																													
ZZZZZ		2003																													
ZZZZZ		2006																													
CCV	1.00	2009																X													
CCB	1.00	2012																X													

Comments:
AA14- 5 COMPUCHEM RUN ID: V18911211730 FOR ANALYTE HG - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 184108

Instrument ID Number: C1 Method: AS

Start Date: 11/17/89 End Date: 11/17/89

Client Sample No.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	AN	TL	V	ZN	CN
S300	1.00	1917																								X
S300	1.00																									X
S200	1.00																									X
S100	1.00																									X
S50	1.00																									X
S10	1.00																									X
S0	1.00																									X
S300	1.00																									X
S0	1.00																									X
S0	1.00																									X
S100	1.00																									X
S100	1.00																									X
S100	1.00																									X
ICV	1.00																									X
ICB	1.00																									X
PBW	1.00																									X
738001-02	1.00																									X
738001-02S	1.00																									X
738001-02D	1.00																									X
738001-12	0.50																									X
738001-01	0.50																									X
738001-08	0.50																									X
738001-03	0.50																									X
CCV	1.00																									X
CCB	1.00																									X
738001-05	0.50																									X
738001-10	0.50																									X
738001-06	0.50																									X
738001-15	0.50																									X
738001-22	0.50																									X
738001-25	0.50																									X
738001-26	0.50																									X

Comments:
AA14- 1 COMPUCHEM RUN ID: C10911171917 FOR ANALYTE CN - PAGE 1

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: _____ SDG No.: 18410B

Instrument ID Number: C1 Method: AS

Start Date: 11/17/89 End Date: 11/17/89

Client Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	KE	SE	AG	NA	TL	V	ZN	CN
738001-21	0.50																									X
738001-17	0.50																									X
S0	1.00																									X
CCV	1.00																									X
CCB	1.00																									X
738001-18	0.50																									X
738001-13	0.50																									X
738001-14	0.50																									X
738001-24	0.50																									X
738001-23	0.50																									X
738001-16	0.50																									X
S0	1.00																									X
CCV	1.00																									X
CCB	1.00																									X
ICV	1.00																									X
ICB	1.00																									X
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
S0	1.00																									X
CCV	1.00																									X
CCB	1.00																									X
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										
ZZZZZ																										

Comments:
AA14- 2 COMPUCHEM RUN ID: C18911171917 FOR ANALYTE CN - PAGE 2

FORM XIV - IN 7/88

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: COMPUCHEM LABORATORIES Contract: 788

Lab Code: COMPU Case No.: 25550 SAS No.: ____ SDG No.: 18410B

Instrument ID Number: C1 Method: AS

Start Oate: 11/17/89 End Date: 11/17/89

Client Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	ASA	BAE	BED	CAR	CRO	CUE	FBG	MNG	HGI	NAE	SAG	ANA	TL	VN	ZN	CN								
ZZZZZ																												
ZZZZZ																												
ZZZZZ																												
S0	1.00																				X							
CCV	1.00																				X							
CCB	1.00																				X							
ZZZZZ																												
ZZZZZ																												
ZZZZZ																												
ZZZZZ																												
ZZZZZ																												
ZZZZZ																												
ZZZZZ																												
738001-02A	1.00																				X							
GW-1303-AA	1.00																				X							
S0	1.00																				X							
CCV	1.00																				X							
CCB	1.00																				X							
S100	1.00																				X							
S100	1.00																				X							
S100	1.00																				X							
S300	1.00	2043																			X							

Comments:
AA14- 3 COMPUCHEM RUN ID: C18911171917 FOR ANALYTE CN - PAGE 3

FORM XIV - IN 7/88

CompuChem Laboratories, Inc.
ICP Analysis Run Log

Operator: Anthony S. Nagel
Date: 12-10-89
Verification Data in: 184108

File Name: ASH12089
Case Name: 18410B, 18381A, 18377A, RCP221

#	SAMPLE ID.	COMMENTS	#	SAMPLE ID.	COMMENTS
	CALIBRATION	BLANK		CCV	SEE (2)
	CALIBRATION	SOLUTION ONE		CCB	-3-
	ICV	SEE (1)	1	301908	
	ICB		2	301911	SS(301908)
1	ICS A	1287	3	301912	D(301908)
2	ICS AB	0387	4	301908(HU)	SERIAL DIL
3	CRI	2xCRDL	5	301908	+4000 ppb Al
4	303474 B.	18410B	6	304287 B.	18377A
5	301931	LCS PW	7	300036	LCS(0287) 1:2
6	301909		8	301233	
7	301939	SS(301909)	9	300034	SS(301233)
8	301910		10	300035	D(301233)
9	301930	D(301910)		CCV	SEE (2)
10	301917			CCB	-4-
	CCV	SEE (2)	1	301233	+ 2x CRDL for Sb, Cd
	CCB	-1-	2	301235	
1	301918		3	301237	
2	301922		4	301239	
3	301937		5	301239(HU)	SERIAL DIL
4	301938		6	304474 B.	RCP221
5	301939		7	304474	+ SPIKE
6	302150		8	301708	L. BLK
7	302154		9	301708	+ SPIKE
8	302155		10	[illegible]	[illegible]
9	302157			CCV	SEE (2)
10	302166			CCB	-5-
	CCV	SEE (2)	1	301311	
	CCB	-2-	2	301311	+ SPIKE
1	302168		3	301312	SS(301311)
2	302172		4	301313	D(301311)
3	302173		5	301313	+ SPIKE
4	302174		6	301311	+ 24 ppb Cd
5	302175		7	301311(HU)	SERIAL DIL
6	302176		8	CRI	2xCRDL
7	302182		9	ICS A	1287
8	302182(HU)	SERIAL DIL	10	ICS AB	0387
9	302867 B.	18381A		CCV	SEE (2)
10	301913	LCS PW		CCB	-6-

(1) ICV SOLUTIONS:
ICV-1(0288)
SPEX AS
ICV-3(0787) } 11/29/89

(2) CCV SOLUTIONS:
CVSI - 12/8/89

Instrument Hours: 3½
Production Smpls: 27
QC Samples: 49

Continued on page N/A

11

ANTHONY S. NAGEL SDG: 18410B
12-10-89 FILE: ASN121089
UNITS: mg/L
PAGES: 1-78

1

BURN # 1 787A 10-DEC-89 15:31:53
CALIBRATION BLANK: PREPARED-12/10/89

LV
3723.5

AL	SB	AS	BA	BE	CD	CA	CR
.00107	-.0008	.00121	.00000	.00000	.00000	-.0013	.00081
CO	CU	FE	PB	MG	MN	NI	K
.02685	.00054	.00181	-.0011	.16879	.00295	-.0015	.22747
SE	AG	NA	TL	V	ZN	SR	B
.00107	-.0001	.02471	.00242	.04082	.00322	.00618	.00188
MO	TI	SN	SI	XX			
-.0019	.00000	.00067	.03303	.00161			

BURN # 2 787A 10-DEC-89 15:32:11
CALIBRATION BLANK: PREPARED-12/10/89

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.00107	.00040	.00054	.00000	.00000	.00054	-.0013	.00081
CO	CU	FE	PB	MG	MN	NI	K
.02685	.00054	.00134	-.0008	.15837	.00295	-.0004	.22537
SE	AG	NA	TL	V	ZN	SR	B
-.0026	.00054	.02511	-.0054	.04135	.00161	.00336	.00067
MO	TI	SN	SI	XX			
.00322	.00054	-.0003	.03169	.00161			

BURN # 3 787A 10-DEC-89 15:32:29
CALIBRATION BLANK: PREPARED-12/10/89

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.00081	-.0011	.00013	.00000	.00000	.00000	-.0015	.00054
CO	CU	FE	PB	MG	MN	NI	K
.02685	.00054	.00121	.00081	.16822	.00295	.00537	.22610
SE	AG	NA	TL	V	ZN	SR	B
.00201	-.0003	.02524	.00430	.04149	.00107	.00242	.00067
MO	TI	SN	SI	XX			
-.0011	.00054	.00054	.03303	.00161			

AVERAGE N=3 787A 10-DEC-89 15:32:43
CALIBRATION BLANK: PREPARED-12/10/89

LV
3723.8

AL	SB	AS	BA	BE	CD	CA	CR
.00099	-.0005	.00063	.00000	.00000	.00018	-.0014	.00072
CO	CU	FE	PB	MG	MN	NI	K
.02685	.00054	.00139	-.0004	.16779	.00295	.00112	.22665
SE	AG	NA	TL	V	ZN	SR	B
.00018	.00004	.02502	.00045	.04122	.00197	.00398	.00107
MO	TI	SN	SI	XX			
.00009	.00038	.00031	.03258	.00161			

2

BURN # 1 787A 10-DEC-89 15:35:35
CALIBRATION SOLUTION ONE: SOURCE-SPEX; PREPARED-12/10/89

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.48980	.80236	.57277	1.6321	.96590	.64420	2.2922	1.2137
CO	CU	FE	PB	MG	MN	NI	K
1.9049	.32935	1.7198	.90414	5.1202	.83754	1.6078	.52927
SE	AG	NA	TL	V	ZN	SR	B
1.9927	.18824	.10714	.76155	3.6869	1.8191	.07143	.00188
MO	TI	SN	SI	XX			
2.6825	.00000	-.0019	.05344	.00161			

BURN # 2 787A 10-DEC-89 15:35:53
CALIBRATION SOLUTION ONE: SOURCE-SPEX; PREPARED-12/10/89

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.49570	.81364	.57760	1.6557	.97879	.64890	2.3187	1.2296
CO	CU	FE	PB	MG	MN	NI	K
1.9209	.33365	1.7425	.91152	5.1649	.84600	1.6206	.53370
SE	AG	NA	TL	V	ZN	SR	B
1.9981	.18972	.10741	.74517	3.7360	1.8349	.06982	.00094
MO	TI	SN	SI	XX			
2.7050	.00000	-.0032	.05263	.00161			

BURN # 3 787A 10-DEC-89 15:36:11
CALIBRATION SOLUTION ONE: SOURCE-SPEX; PREPARED-12/10/89

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.49718	.81807	.57868	1.6592	.97852	.64689	2.3257	1.2339
CO	CU	FE	PB	MG	MN	NI	K
1.9252	.33432	1.7425	.91259	5.1870	.84962	1.6173	.53437
SE	AG	NA	TL	V	ZN	SR	B
1.9906	.19106	.10741	.74194	3.7397	1.8406	.07116	.00121
MO	TI	SN	SI	XX			
2.7119	.00000	-.0024	.05371	.00161			

AVERAGE N=3 787A 10-DEC-89 15:36:28
CALIBRATION SOLUTION ONE: SOURCE-SPEX; PREPARED-12/10/89

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.49423	.81136	.57635	1.6490	.97440	.64666	2.3122	1.2257
CO	CU	FE	PB	MG	MN	NI	K
1.9170	.33244	1.7349	.90942	5.1574	.84435	1.6152	.53245
SE	AG	NA	TL	V	ZN	SR	B
1.9938	.18967	.10732	.74955	3.7209	1.8315	.07080	.00134
MO	TI	SN	SI	XX			
2.6998	.00000	-.0025	.05326	.00161			

3

BURN # 1 787A 10-DEC-89 15:37:21
ICV ICV-1(0287)
LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9514	-.0019	-.0214	2.0160	.50155	.50852	49.899	.51147
CO	CU	FE	PB	MG	MN	NI	K
.51079	.55825	2.0104	4.9031	25.384	.51057	.51878	48.425
SE	AG	NA	TL	V	ZN		
-.0076	.52301	49.676	.07381	.50326	3.0066		

BURN # 2 787A 10-DEC-89 15:37:42
ICV ICV-1(0287)
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9600	-.0020	-.0214	2.0084	.50171	.49387	49.803	.51490
CO	CU	FE	PB	MG	MN	NI	K
.50955	.55841	2.0171	4.8365	25.513	.51071	.50893	48.765
SE	AG	NA	TL	V	ZN		
.00045	.51678	50.206	.08460	.49973	3.0133		

BURN # 3 787A 10-DEC-89 15:38:03
ICV ICV-1(0287)
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9628	.01128	.00243	2.0157	.50448	.50192	50.331	.51490
CO	CU	FE	PB	MG	MN	NI	K
.50957	.54627	2.0280	4.9148	25.658	.51869	.48229	49.556
SE	AG	NA	TL	V	ZN		
-.0157	.52386	50.708	.11690	.50410	3.0339		

AVERAGE N=3 787A 10-DEC-89 15:39:00
ICV ICV-1(0287)
LV
3723.3

AL	SB	AS	BA	BE	CD	CA	CR
1.9581	.00249	-.0134	2.0133	.50257	.50144	50.011	.51376
CO	CU	FE	PB	MG	MN	NI	K
.50997	.55431	2.0185	4.8848	25.517	.51332	.50333	48.915
SE	AG	NA	TL	V	ZN		
-.0076	.52122	50.197	.09177	.50236	3.0179		

4

BURN # 1 787A 10-DEC-89 15:39:33
ICV SPEXAS

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.00182	.00273	1.0082	.00326	-.0000	-.0027	.01548	-.0015
CO	CU	FE	PB	MG	MN	NI	K
.00354	.01214	-.0034	.01573	.07340	-.0000	.01054	-.0033
SE	AG	NA	TL	V	ZN		
.00786	-.0009	.28022	.00131	.00252	-.0079		

BURN # 2 787A 10-DEC-89 15:39:54
ICV SPEXAS

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.00182	-.0089	.99627	.00326	-.0000	-.0025	.00387	.00073
CO	CU	FE	PB	MG	MN	NI	K
.00285	.01214	-.0065	.01578	.06264	-.0000	-.0086	-.5741
SE	AG	NA	TL	V	ZN		
.01392	.00118	.45026	.04439	.00216	-.0079		

BURN # 3 787A 10-DEC-89 15:40:15
ICV SPEXAS

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.00454	.01614	1.0320	.00326	-.0000	-.0031	.00387	-.0080
CO	CU	FE	PB	MG	MN	NI	K
.00568	.01618	-.0072	.01130	.04380	-.0000	.01470	.43573
SE	AG	NA	TL	V	ZN		
-.0696	.00118	.44930	.02467	.00180	-.0079		

AVERAGE N=3 787A 10-DEC-89 15:40:50
ICV SPEXAS

LV
3724.0

AL	SB	AS	BA	BE	CD	CA	CR
.00273	.00332	1.0121	.00326	-.0000	-.0028	.00774	-.0025
CO	CU	FE	PB	MG	MN	NI	K
.00402	.01348	-.0057	.01426	.05995	-.0000	.00555	-.0472
SE	AG	NA	TL	V	ZN		
-.0159	.00047	.39326	.02345	.00216	-.0079		

5

```
BURN # 1        787A    10-DEC-89 15:41:23
ICV ICV-3(0787)
  LV
3723.0
  AL      SB      AS      BA      BE      CD      CA      CR
-.0036  1.0605  -.0302  .00163  -.0000  -.0065  -.0194  -.0047
  CO      CU      FE      PB      MG      MN      NI      K
.00431  .00810  .02996  .01134  .13085  .00001  -.0135  1.5976
  SE      AG      NA      TL      V       ZN
-.0332  -.0002  .62609  .00391  .00254  -.0079

BURN # 2        787A    10-DEC-89 15:41:44
ICV ICV-3(0787)
  LV
3724.0
  AL      SB      AS      BA      BE      CD      CA      CR
-.0035  1.0668  .00315  .00326  -.0000  -.0029  .01548  -.0015
  CO      CU      FE      PB      MG      MN      NI      K
.00429  .01214  .03073  .00389  .11914  -.0000  -.0352  1.5773
  SE      AG      NA      TL      V       ZN
-.0103  .00330  .61742  .01029  .00507  -.0079

BURN # 3        787A    10-DEC-89 15:42:05
ICV ICV-3(0787)
  LV
3724.0
  AL      SB      AS      BA      BE      CD      CA      CR
.01268  1.0802  -.0089  .00326  -.0000  -.0027  .02708  -.0015
  CO      CU      FE      PB      MG      MN      NI      K
.00568  .00809  .03305  .01276  .11645  -.0000  .01886  1.7529
  SE      AG      NA      TL      V       ZN
.00988  .00330  .44737  .03003  .00361  -.0079

AVERAGE N=3     787A    10-DEC-89 15:42:40
ICV ICV-3(0787)
  LV
3723.7
  AL      SB      AS      BA      BE      CD      CA      CR
.00183  1.0692  -.0120  .00271  -.0000  -.0040  .00773  -.0026
  CO      CU      FE      PB      MG      MN      NI      K
.00475  .00944  .03124  .00936  .12215  .00000  -.0100  1.6426
  SE      AG      NA      TL      V       ZN
-.0112  .00212  .56362  .04141  .00374  -.0079
```

6

BURN # 1 787A 10-DEC-89 15:43:12
ICB
LV
3723.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0063	.02260	-.0325	.00163	-.0000	.00195	.01547	-.0004
CO	CU	FE	PB	MG	MN	NI	K
.00362	.00000	-.0018	.00109	.10616	.00000	-.0589	2.2022
SE	AG	NA	TL	V	ZN		
.04019	.00189	.63233	.10347	.00328	-.0079		

BURN # 2 787A 10-DEC-89 15:43:34
ICB
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.00726	-.0005	-.0184	.00326	-.0000	.00172	.02707	-.0026
CO	CU	FE	PB	MG	MN	NI	K
.00429	.00000	-.0026	-.0020	.12548	.00001	.01138	1.7733
SE	AG	NA	TL	V	ZN		
.01527	.00260	.63666	.02269	.00439	-.0079		

BURN # 3 787A 10-DEC-89 15:43:55
ICB
LV
3723.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0145	.00290	-.0159	.00326	-.0000	.00167	-.0077	-.0058
CO	CU	FE	PB	MG	MN	NI	K
.00285	.00000	-.0003	-.0167	.08463	.00000	.00805	1.4996
SE	AG	NA	TL	V	ZN		
.00382	.00118	.63170	.10167	.00401	-.0064		

AVERAGE N=3 787A 10-DEC-89 15:44:42
ICB
LV
3723.3

AL	SB	AS	BA	BE	CD	CA	CR
-.0045	.00834	-.0222	.00271	-.0000	.00178	.01160	-.0029
CO	CU	FE	PB	MG	MN	NI	K
.00359	.00000	-.0015	-.0059	.10542	.00000	-.0125	1.8250
SE	AG	NA	TL	V	ZN		
.01975	.00189	.63356	.07584	.00389	-.0074		

7

BURN # 1 787A 10-DEC-89 15:45:14
ICSA 1287
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
493.19	.02896	.05873	.00163	.00009	-.0017	495.52	.04021
CO	CU	FE	PB	MG	MN	NI	K
.06307	.01620	187.79	-.0040	496.32	.04589	-.0253	.38793
SE	AG	NA	TL	V	ZN		
.04222	-.0002	4.5571	.00925	-.0107	-.0138		

BURN # 2 787A 10-DEC-89 15:45:35
ICSA 1287
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
495.86	.05818	.00174	.00000	.00008	.00138	497.93	.04242
CO	CU	FE	PB	MG	MN	NI	K
.06159	.01621	188.25	.00954	497.92	.04584	-.0086	.75948
SE	AG	NA	TL	V	ZN		
.03886	-.0002	5.0774	.06974	-.0103	-.0140		

BURN # 3 787A 10-DEC-89 15:45:56
ICSA 1287
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
498.10	.02207	.11935	.00000	.00006	.00153	500.01	.04460
CO	CU	FE	PB	MG	MN	NI	K
.06257	.01620	189.48	-.0068	500.96	.04574	.02967	.65150
SE	AG	NA	TL	V	ZN		
.10691	.00047	5.0686	-.0471	-.0077	-.0143		

AVERAGE N=3 787A 10-DEC-89 15:46:31
ICSA 1287
LV
3721.7

AL	SB	AS	BA	BE	CD	CA	CR
495.65	.03974	.05994	.00054	.00008	.00041	497.82	.04241
CO	CU	FE	PB	MG	MN	NI	K
.06244	.01620	188.51	-.0004	498.40	.04583	-.0014	.59954
SE	AG	NA	TL	V	ZN		
.06266	.00000	4.9011	.01054	-.0096	-.0140		

8

BURN # 1 787A 10-DEC-89 15:47:13
ICSAB 0387
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
492.18	.02185	.09288	.48539	.47697	.99480	490.40	.51161
CO	CU	FE	PB	MG	MN	NI	K
.53408	.55031	186.00	4.8507	492.61	.51835	.87188	-.8618
SE	AG	NA	TL	V	ZN		
.14865	1.0210	4.3110	1.1380	.46621	.95293		

BURN # 2 787A 10-DEC-89 15:47:34
ICSAB 0387
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
493.12	.06668	.13274	.48389	.47430	.99001	491.48	.51285
CO	CU	FE	PB	MG	MN	NI	K
.53207	.55047	186.87	4.8280	493.70	.52007	.91042	-.2271
SE	AG	NA	TL	V	ZN		
.07053	1.0213	4.6577	1.2389	.46972	.95388		

BURN # 3 787A 10-DEC-89 15:47:56
ICSAB 0387
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
492.63	.06496	.01915	.48389	.47433	.99580	489.15	.50407
CO	CU	FE	PB	MG	MN	NI	K
.53144	.55047	186.19	4.8047	493.73	.51849	.93873	-.0514
SE	AG	NA	TL	V	ZN		
.12577	1.0213	4.6602	.91306	.46657	.94807		

AVERAGE N=3 787A 10-DEC-89 15:48:49
ICSAB 0387
LV
3722.3

AL	SB	AS	BA	BE	CD	CA	CR
492.64	.05116	.07826	.48439	.47520	.99154	490.34	.50951
CO	CU	FE	PB	MG	MN	NI	K
.53253	.55041	186.62	4.8278	493.34	.51897	.90701	-.3801
SE	AG	NA	TL	V	ZN		
.11498	1.0212	4.5429	1.0967	.46717	.95163		

9

BURN # 1 787A 10-DEC-89 15:49:21
CRI 2X CROL
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
.05920	.12283	.06330	.00000	.01026	.00458	.05029	.02048
CO	CU	FE	PB	MG	MN	NI	K
.10822	.04859	.02532	.06312	.07302	.02557	.07962	.48581
SE	AG	NA	TL	V	ZN		
.00988	.02244	-.0503	.02630	.10515	.03326		

BURN # 2 787A 10-DEC-89 15:49:42
CRI 2X CROL
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.03473	.11841	.04436	.00000	.01027	.00912	.05028	.01608
CO	CU	FE	PB	MG	MN	NI	K
.10525	.04856	.01601	.07486	.07163	.02555	.11289	.63142
SE	AG	NA	TL	V	ZN		
.03009	.02101	.27812	-.0814	.10287	.03324		

BURN # 3 787A 10-DEC-89 15:50:03
CRI 2X CROL
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
.02932	.11841	.07775	.00000	.01026	.00434	.02707	.02047
CO	CU	FE	PB	MG	MN	NI	K
.10533	.04858	.01059	.00080	.04563	.02556	.10126	-.1392
SE	AG	NA	TL	V	ZN		
.01864	.02031	.28511	.03709	.10513	.03473		

AVERAGE N=3 787A 10-DEC-89 15:50:38
CRI 2X CROL
LV
3722.2

AL	SB	AS	BA	BE	CD	CA	CR
.04108	.12055	.06190	.00000	.01026	.00601	.04255	.01901
CO	CU	FE	PB	MG	MN	NI	K
.10627	.04857	.01731	.07292	.06343	.02556	.09792	.32600
SE	AG	NA	TL	V	ZN		
.01954	.02125	.17098	-.0080	.10438	.03374		

10

BURN # 1 787A 10-DEC-89 15:51:14
303474 PREP BLANK WATER SDG=18410B
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
.02354	-.0071	.00295	.00326	-.0000	.00136	.15479	-.0058
CO	CU	FE	PB	MG	MN	NI	K
.00361	.01215	.01911	.00983	.17977	.00001	-.0003	1.6078
SE	AG	NA	TL	V	ZN		
-.0211	.00401	.46561	.10167	.00548	.00462		

BURN # 2 787A 10-DEC-89 15:51:35
303474 PREP BLANK WATER SDG=18410B
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.01539	.00605	-.0280	.00000	-.0000	-.0023	.11995	-.0058
CO	CU	FE	PB	MG	MN	NI	K
.00286	.00000	.01756	-.0138	.17391	.00001	.01637	1.3341
SE	AG	NA	TL	V	ZN		
-.0036	-.0002	.63167	.18425	.00474	.00392		

BURN # 3 787A 10-DEC-89 15:51:57
303474 PREP BLANK WATER SDG=18410B
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.02354	.01422	-.0113	.00163	-.0000	-.0026	.13156	-.0037
CO	CU	FE	PB	MG	MN	NI	K
.00430	.00405	.01524	.02754	.17122	.00001	-.0019	1.5098
SE	AG	NA	TL	V	ZN		
-.0022	-.0017	.46159	.03882	.00474	.00391		

AVERAGE N=3 787A 10-DEC-89 15:53:47
303474 PREP BLANK WATER SDG=18410B
LV
3722.8

AL	SB	AS	BA	BE	CD	CA	CR
.02082	.00439	-.0121	.00163	-.0000	-.0012	.13543	-.0051
CO	CU	FE	PB	MG	MN	NI	K
.00359	.00540	.01730	.00786	.17497	.00001	.00472	1.4839
SE	AG	NA	TL	V	ZN		
-.0090	.00071	.51962	.10825	.00499	.00415		

11

BURN # 1 787A 10-DEC-89 15:54:19
301931 LCS PW
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
10.750	11.049	10.685	10.362	11.558	11.253	53.844	10.849
CO	CU	FE	PB	MG	MN	NI	K
10.734	10.732	10.650	11.001	54.633	10.703	10.989	55.019
SE	AG	NA	TL	V	ZN		
10.735	1.0892	55.817	10.889	10.549	11.098		

BURN # 2 787A 10-DEC-89 15:54:40
301931 LCS PW
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
10.790	11.061	10.704	10.400	11.574	11.319	54.139	10.894
CO	CU	FE	PB	MG	MN	NI	K
10.789	10.772	10.709	11.110	54.774	10.745	11.090	55.617
SE	AG	NA	TL	V	ZN		
10.908	1.0890	55.783	10.877	10.623	11.150		

BURN # 3 787A 10-DEC-89 15:55:01
301931 LCS PW
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
10.703	11.078	10.694	10.309	11.465	11.243	54.011	10.862
CO	CU	FE	PB	MG	MN	NI	K
10.746	10.691	10.647	11.048	54.351	10.703	11.049	55.968
SE	AG	NA	TL	V	ZN		
10.820	1.0897	55.626	11.552	10.545	11.118		

AVERAGE N=3 787A 10-DEC-89 15:55:37
301931 LCS PW
LV
3722.8

AL	SB	AS	BA	BE	CD	CA	CR
10.747	11.062	10.694	10.357	11.533	11.272	53.998	10.868
CO	CU	FE	PB	MG	MN	NI	K
10.760	10.732	10.669	11.053	54.586	10.717	11.045	55.535
SE	AG	NA	TL	V	ZN		
10.821	1.0893	55.742	11.106	10.573	11.122		

12

BURN # 1 787A 10-DEC-89 15:56:09
301909 738001-12
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.42518	.02924	.02419	.14252	.00411	-.0011	99.357	.00292
CO	CU	FE	PB	MG	MN	NI	K
.01234	.01519	.67997	-.0053	20.049	.22984	-.0061	8.5366
SE	AG	NA	TL	V	ZN		
-.0110	.00260	43.148	-.0716	.00772	.01773		

BURN # 2 787A 10-DEC-89 15:56:31
301909 738001-12
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.41702	.02274	-.0115	.14008	.00409	-.0026	99.532	-.0037
CO	CU	FE	PB	MG	MN	NI	K
.00878	.00810	.88152	.00359	20.251	.22984	-.0036	8.3610
SE	AG	NA	TL	V	ZN		
.00314	-.0002	43.821	.04342	.00911	.01774		

BURN # 3 787A 10-DEC-89 15:56:52
301909 738001-12
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.42518	.02913	-.0235	.14008	.00132	-.0024	100.52	-.0058
CO	CU	FE	PB	MG	MN	NI	K
.01377	.00000	.68152	.01246	20.407	.22984	-.0086	8.0975
SE	AG	NA	TL	V	ZN		
-.0184	-.0009	44.161	.06137	.00834	.01777		

AVERAGE N=3 787A 10-DEC-89 15:57:27
301909 738001-12
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.42248	.02703	-.0036	.14089	.00317	-.0021	99.802	-.0022
CO	CU	FE	PB	MG	MN	NI	K
.01163	.00810	.68101	.00360	20.235	.22984	-.0061	8.3317
SE	AG	NA	TL	V	ZN		
-.0088	.00047	43.710	.01105	.00839	.01775		

13

BURN # 1 787A 10-DEC-89 15:58:17
301929 SS(301909)
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
2.4709	.56222	2.2076	2.2448	.05943	.05330	100.72	.22222
CO	CU	FE	PB	MG	MN	NI	K
.57108	.27520	1.7368	.55051	20.464	.78854	.54227	8.5477
SE	AG	NA	TL	V	ZN		
2.1618	.05643	43.928	2.3619	.54893	.58273		

BURN # 2 787A 10-DEC-89 15:58:38
301929 SS(301909)
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
2.4680	.55587	2.2244	2.2408	.06221	.05514	100.76	.22441
CO	CU	FE	PB	MG	MN	NI	K
.57107	.27520	1.7337	.57264	20.483	.79013	.55059	9.3823
SE	AG	NA	TL	V	ZN		
2.2952	.05643	43.760	2.2003	.54819	.58126		

BURN # 3 787A 10-DEC-89 15:58:59
301929 SS(301909)
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
2.4785	.54229	2.2240	2.2323	.05942	.05091	100.60	.21780
CO	CU	FE	PB	MG	MN	NI	K
.56958	.27516	1.7296	.57259	20.465	.79002	.52630	8.4150
SE	AG	NA	TL	V	ZN		
2.2006	.05217	43.414	2.3050	.54884	.58560		

AVERAGE N=3 787A 10-DEC-89 15:59:34
301929 SS(301909)
LV
3722.7

AL	SB	AS	BA	BE	CD	CA	CR
2.4752	.55346	2.2187	2.2393	.06035	.05312	100.69	.22148
CO	CU	FE	PB	MG	MN	NI	K
.57057	.27518	1.7334	.56525	20.471	.78956	.53975	9.1150
SE	AG	NA	TL	V	ZN		
2.2192	.05501	43.701	2.2893	.54865	.58319		

14

BURN # 1 787A 10-DEC-89 16:01:33
301910 738001-02
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
.13759	.00794	-.0027	.10266	-.0001	-.0028	70.298	.00073
CO	CU	FE	PB	MG	MN	NI	K
.01103	-.0081	.89730	-.0052	18.167	.44233	-.0128	11.294
SE	AG	NA	TL	V	ZN		
.02202	-.0002	65.301	.01431	.00971	.00173		

BURN # 2 787A 10-DEC-89 16:01:55
301910 738001-02
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.14304	.00106	-.0242	.10267	-.0001	-.0024	70.441	-.0058
CO	CU	FE	PB	MG	MN	NI	K
.00891	.00001	.89685	.01547	16.251	.44239	-.0011	10.602
SE	AG	NA	TL	V	ZN		
.01123	.00118	65.312	.10777	.00824	.00170		

BURN # 3 787A 10-DEC-89 16:02:16
301910 738001-02
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.14304	.02614	-.0029	.10267	-.0001	-.0028	70.151	-.0026
CO	CU	FE	PB	MG	MN	NI	K
.00963	.00001	.89432	-.0022	16.167	.44239	-.0069	11.130
SE	AG	NA	TL	V	ZN		
.01932	.00118	65.313	.02154	.00790	.00097		

AVERAGE N=3 787A 10-DEC-89 16:02:51
301910 738001-02
LV
3721.2

AL	SB	AS	BA	BE	CD	CA	CR
.14122	.01172	-.0099	.10267	-.0001	-.0027	70.297	-.0026
CO	CU	FE	PB	MG	MN	NI	K
.00986	-.0027	.89609	.00289	16.195	.44237	-.0069	11.009
SE	AG	NA	TL	V	ZN		
.01752	.00071	65.309	.04787	.00862	.00146		

15

BURN # 1 787A 10-DEC-89 16:03:23
301930 D(301910)
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.12675	.01251	-.0003	.10349	-.0001	-.0028	69.797	-.0026
CO	CU	FE	PB	MG	MN	NI	K
.00984	-.0162	.87417	.02141	16.070	.43441	-.0144	10.163
SE	AG	NA	TL	V	ZN		
.04224	.00118	64.975	.08620	.00829	.00029		

BURN # 2 787A 10-DEC-89 16:03:45
301930 D(301910)
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.13219	.01964	.00679	.10349	-.0001	-.0029	70.017	-.0015
CO	CU	FE	PB	MG	MN	NI	K
.01244	.00001	.87682	.02134	16.108	.43441	.03137	10.866
SE	AG	NA	TL	V	ZN		
.04088	.00118	64.975	.05566	.00974	.00023		

BURN # 3 787A 10-DEC-89 16:04:06
301830 D(301910)
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.11860	.02269	-.0026	.10267	-.0001	-.0028	69.849	-.0069
CO	CU	FE	PB	MG	MN	NI	K
.00821	.00001	.87882	-.0111	16.057	.43441	-.0028	10.075
SE	AG	NA	TL	V	ZN		
-.0049	-.0002	65.824	.11138	.00829	.00023		

AVERAGE N=3 787A 10-DEC-89 16:04:41
301930 D(301910)
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.12585	.01820	.00131	.10322	-.0001	-.0028	69.888	-.0037
CO	CU	FE	PB	MG	MN	NI	K
.01010	-.0054	.87727	.01055	16.078	.43441	.00472	10.368
SE	AG	NA	TL	V	ZN		
.02606	.00071	65.258	.08441	.00878	.00025		

16

BURN # 1 787A 10-DEC-89 16:07:00
301917 738001-01
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
1.3550	.03457	-.0022	.58097	.00265	.00115	56.988	.00694
CO	CU	FE	PB	MG	MN	NI	K
.01120	.05480	4.1150	.00642	20.528	.27074	.04240	1.3633
SE	AG	NA	TL	V	ZN		
-.0009	.00245	53.555	-.0250	.00829	.07200		

BURN # 2 787A 10-DEC-89 16:07:21
301917 738001-01
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
1.3602	.03721	-.0022	.58485	-.0000	-.0028	57.319	.01120
CO	CU	FE	PB	MG	MN	NI	K
.00778	.04297	4.1458	-.0091	20.791	.27074	.01894	1.5304
SE	AG	NA	TL	V	ZN		
-.0217	.00246	55.853	.05103	.00392	.05710		

BURN # 3 787A 10-DEC-89 16:07:42
301917 738001-01
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
1.3548	.03579	-.0135	.58645	-.0000	-.0026	57.177	.01120
CO	CU	FE	PB	MG	MN	NI	K
.00775	.03507	4.1513	.00783	20.736	.27070	.03350	.93524
SE	AG	NA	TL	V	ZN		
.00818	-.0002	54.202	-.0449	.00464	.06642		

AVERAGE N=3 787A 10-DEC-89 16:08:17
301917 738001-01
LV
3722.2

AL	SB	AS	BA	BE	CD	CA	CR
1.3567	.03585	-.0060	.58413	.00086	-.0014	57.161	.00978
CO	CU	FE	PB	MG	MN	NI	K
.00891	.04428	4.1374	.00171	20.582	.27073	.03161	1.2763
SE	AG	NA	TL	V	ZN		
-.0048	.00156	54.537	-.0063	.00561	.06850		

17

BURN # 1 787A 10-DEC-89 16:08:49
CCV1 CVS1
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
5.0548	5.1077	5.0515	5.1954	5.2502	5.0080	50.931	5.1816
CO	CU	FE	PB	MG	MN	NI	K
5.1989	5.1606	5.2262	5.1240	51.162	5.1088	5.2509	46.735
SE	AG	NA	TL	V	ZN		
5.0190	.50532	50.105	4.9894	5.1547	5.1077		

BURN # 2 787A 10-DEC-89 16:09:11
CCV1 CVS1
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
5.0425	5.0517	5.0429	5.1659	5.2453	5.0677	51.308	5.2122
CO	CU	FE	PB	MG	MN	NI	K
5.2243	5.1416	5.2412	5.1078	51.344	5.2265	5.2427	47.086
SE	AG	NA	TL	V	ZN		
5.1765	.50674	50.754	5.2777	5.1746	5.1555		

BURN # 3 787A 10-DEC-89 16:09:32
CCV1 CVS1
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
5.1040	5.1190	5.1537	5.2138	5.3062	5.0625	52.046	5.2789
CO	CU	FE	PB	MG	MN	NI	K
5.2737	5.1796	5.3082	5.1715	51.624	5.2824	5.2696	47.805
SE	AG	NA	TL	V	ZN		
5.1766	.50929	50.710	5.3391	5.2338	5.2025		

AVERAGE N=3 787A 10-DEC-89 16:10:08
CCV1 CVS1
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
5.0871	5.0929	5.0827	5.1917	5.2672	5.0461	51.428	5.2242
CO	CU	FE	PB	MG	MN	NI	K
5.2323	5.1606	5.2585	5.1344	51.376	5.2326	5.2544	47.209
SE	- AG	NA	TL	V	ZN		
5.1241	.50712	50.523	5.2021	5.1877	5.1552		

18

BURN # 1 787A 10-DEC-89 15:10:41
CCB1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.00102	.02492	.00705	.00318	.00000	-.0029	.03947	-.0048
CO	CU	FE	PB	MG	MN	NI	K
-.0021	.01530	-.0005	.02089	.04364	-.0011	-.0005	-3.456
SE	AG	NA	TL	V	ZN		
.00300	.00246	-.5086	.00058	-.0001	-.0080		

BURN # 2 787A 10-DEC-89 16:11:02
CCB1
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0095	.00136	-.0383	.00318	-.0000	-.0022	.00583	.00268
CO	CU	FE	PB	MG	MN	NI	K
-.0035	.01537	-.0012	.01523	.03228	-.0011	.00197	-2.723
SE	AG	NA	TL	V	ZN		
-.0015	.00044	-.5810	.00177	.00098	-.0080		

BURN # 3 787A 10-DEC-89 16:11:23
CCB1
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0042	-.0004	-.0293	.00319	-.0000	.00160	.00580	.00055
CO	CU	FE	PB	MG	MN	NI	K
-.0034	.01144	-.0005	.01810	.01061	-.0011	-.0231	-2.936
SE	AG	NA	TL	V	ZN		
-.0295	.00179	-.8284	-.0226	.00068	-.0080		

AVERAGE N=3 787A 10-DEC-89 16:11:58
CCB1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0042	.00064	-.0202	.00318	-.0000	-.0012	.01703	-.0005
CO	CU	FE	PB	MG	MN	NI	K
-.0030	.01406	-.0007	.01807	.02884	-.0011	-.0072	-3.038
SE	AG	NA	TL	V	ZN		
-.0093	.00156	-.5727	.01325	.00052	-.0080		

19

BURN # 1 787A 10-DEC-89 16:12:38
301918 738001-03
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
3.0821	.00863	.00767	.03503	-.0001	-.0014	52.187	.10764
CO	CU	FE	PB	MG	MN	NI	K
.01646	.03287	4.1549	-.0025	13.852	.09882	.00674	2.6759
SE	AG	NA	TL	V	ZN		
.00195	.00090	8.4936	.04787	.00978	.05223		

BURN # 2 787A 10-DEC-89 16:12:59
301918 738001-03
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
3.0848	.01517	.01205	.03502	-.0001	-.0015	52.207	.10548
CO	CU	FE	PB	MG	MN	NI	K
.01363	.03286	4.1620	-.0196	13.921	.09878	.04719	2.7397
SE	AG	NA	TL	V	ZN		
-.0123	-.0011	8.6470	.08753	.00866	.05222		

BURN # 3 787A 10-DEC-89 16:13:20
301918 738001-03
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
3.0909	-.0100	.02562	.03503	-.0001	-.0017	52.546	.10551
CO	CU	FE	PB	MG	MN	NI	K
.01094	.03287	4.1902	.01013	13.928	.09882	.03101	3.5539
SE	AG	NA	TL	V	ZN		
-.0357	.00380	8.0014	.00481	.01120	.05223		

AVERAGE N=3 787A 10-DEC-89 16:13:55
301918 738001-03
LV
3720.8

AL	SB	AS	BA	BE	CD	CA	CR
3.0792	.00459	.01511	.03503	-.0001	-.0016	52.313	.10621
CO	CU	FE	PB	MG	MN	NI	K
.01368	.03287	4.1690	-.0040	13.900	.09881	.02831	2.9898
SE	AG	NA	TL	V	ZN		
-.0154	.00112	8.3807	.04674	.00988	.05222		

20

BURN # 1 787A 10-DEC-89 16:14:27
301922 738001-08
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.06013	.00041	.00390	.08752	-.0000	-.0014	61.244	.00319
CO	CU	FE	PB	MG	MN	NI	K
.01140	-.0145	.92635	-.0087	14.722	.34435	-.0216	9.6459
SE	AG	NA	TL	V	ZN		
.03439	-.0005	69.653	.07851	.00549	.00777		

BURN # 2 787A 10-DEC-89 16:14:49
301922 738001-08
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
.05231	.02739	.00848	.08754	-.0000	-.0015	61.490	.00106
CO	CU	FE	PB	MG	MN	NI	K
.01278	-.0145	.93112	-.0059	14.829	.34504	.00512	9.1661
SE	AG	NA	TL	V	ZN		
.00584	.00225	70.334	-.0057	.00514	.00777		

BURN # 3 787A 10-DEC-89 16:15:10
301922 738001-08
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.03681	-.0245	-.0050	.08752	-.0000	-.0012	61.288	-.0053
CO	CU	FE	PB	MG	MN	NI	K
.00999	-.0224	.93162	-.0087	14.840	.34439	.00997	8.3506
SE	AG	NA	TL	V	ZN		
.00585	-.0058	70.636	.03893	.00439	.00779		

AVERAGE N=3 787A 10-DEC-89 16:15:48
301922 738001-08
LV
3722.7

AL	SB	AS	BA	BE	CD	CA	CR
.04968	.00118	.00245	.08753	-.0000	-.0013	61.341	-.0004
CO	CU	FE	PB	MG	MN	NI	K
.01139	-.0171	.92970	-.0078	14.797	.34494	-.0022	9.0542
SE	AG	NA	TL	V	ZN		
.01538	-.0013	70.208	.03729	.00501	.00778		

21

BURN # 1 787A 10-DEC-89 16:16:20
301937 738001-05
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
13.318	.00532	.00511	.36211	.00110	.01038	61.658	.02237
CO	CU	FE	PB	MG	MN	NI	K
.02169	.06435	22.341	-.0094	26.057	.61291	.02614	7.0763
SE	AG	NA	TL	V	ZN		
.03180	.00090	18.906	.04610	.03217	.08295		

BURN # 2 787A 10-DEC-89 16:16:41
301937 738001-05
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
13.540	.03196	.01729	.36689	.00108	.00821	62.213	.02557
CO	CU	FE	PB	MG	MN	NI	K
.02438	.06439	22.587	.01024	26.425	.61754	.03908	6.9928
SE	AG	NA	TL	V	ZN		
.06034	.00022	19.069	.18138	.03425	.08154		

BURN # 3 787A 10-DEC-89 16:17:03
301937 738001-05
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
13.527	.00524	.01746	.36305	-.0003	.00625	61.992	.02132
CO	CU	FE	PB	MG	MN	NI	K
.01966	.06838	22.479	-.0123	26.353	.61625	.03748	7.4424
SE	AG	NA	TL	V	ZN		
-.0032	.00360	20.733	-.0335	.03289	.08298		

AVERAGE N=3 787A 10-DEC-89 16:17:38
301937 738001-05
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
13.461	.01417	.01329	.36402	.00064	.00828	61.954	.02308
CO	CU	FE	PB	MG	MN	NI	K
.02191	.06572	22.469	-.0038	26.278	.61557	.03424	7.1705
SE	AG	NA	TL	V	ZN		
.02983	.00157	19.569	.06466	.03310	.08250		

22

BURN # 1 787A 10-DEC-89 16:18:10
301938 738001-10
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.04709	.00047	.01309	.08758	-.0000	-.0015	59.860	-.0032
CO	CU	FE	PB	MG	MN	NI	K
.00599	-.0145	.87504	-.0031	14.523	.36010	.00431	7.8505
SE	AG	NA	TL	V	ZN		
.01753	-.0011	71.198	.03903	.00312	.00779		

BURN # 2 787A 10-DEC-89 16:18:31
301939 738001-10
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.05755	-.0025	.02668	.08599	-.0000	-.0018	60.298	-.0011
CO	CU	FE	PB	MG	MN	NI	K
.00600	-.0145	.87052	-.0031	14.560	.36165	-.0062	8.4458
SE	AG	NA	TL	V	ZN		
.02791	.00225	72.017	.04898	.00275	.00920		

BURN # 3 787A 10-DEC-89 16:18:53
301936 738001-10
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
.03926	.00063	-.0119	.08841	-.0000	-.0011	59.952	-.0053
CO	CU	FE	PB	MG	MN	NI	K
.00469	-.0145	.86786	-.0214	14.486	.36181	-.0070	7.8086
SE	AG	NA	TL	V	ZN		
-.0045	-.0004	71.731	-.0255	.00353	.00780		

AVERAGE N=3 787A 10-DEC-89 16:19:33
301938 738001-10
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.04797	-.0005	.00931	.08733	-.0000	-.0015	60.037	-.0032
CO	CU	FE	PB	MG	MN	NI	K
.00566	-.0145	.87114	-.0082	14.523	.36118	-.0030	8.0383
SE	AG	NA	TL	V	ZN		
.01363	.00022	71.648	.02085	.00314	.00826		

23

BURN # 1 787A 10-DEC-89 16:20:05
301939 738001-06
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
1.9978	-.0230	-.0068	.28105	-.0001	.00273	99.685	.00959
CO	CU	FE	PB	MG	MN	NI	K
.01035	.01709	6.4744	-.0054	29.201	8.3148	.00350	5.2682
SE	AG	NA	TL	V	ZN		
.00844	.00022	31.614	.07437	.00862	.07528		

BURN # 2 787A 10-DEC-89 16:20:26
301939 738001-06
LV
3718.5

AL	SB	AS	BA	BE	CD	CA	CR
2.0146	-.0025	.03626	.28120	-.0001	-.0019	99.239	.00320
CO	CU	FE	PB	MG	MN	NI	K
.01045	.00133	6.4576	-.0167	29.294	8.2978	-.0103	5.6439
SE	AG	NA	TL	V	ZN		
.02792	.00090	32.304	-.0910	.00793	.07397		

BURN # 3 787A 10-DEC-89 16:20:47
301939 738001-06
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
1.9944	-.0056	.02721	.28014	-.0001	.00216	98.747	-.0011
CO	CU	FE	PB	MG	MN	NI	K
.01026	.01708	6.4342	-.0154	29.026	8.2743	.05041	4.9031
SE	AG	NA	TL	V	ZN		
.00866	.00022	31.427	-.0215	.00825	.07385		

AVERAGE N=3 787A 10-DEC-89 16:21:22
301939 738001-06
LV
3720.3

AL	SB	AS	BA	BE	CD	CA	CR
2.0023	-.0104	.01888	.28080	-.0001	.00099	99.224	.00391
CO	CU	FE	PB	MG	MN	NI	K
.01035	.01183	6.4554	-.0125	29.174	8.2956	.01455	5.2717
SE	AG	NA	TL	V	ZN		
.01234	.00045	31.782	-.0127	.00827	.07437		

24

BURN # 1 787A 10-DEC-89 16:21:55
302150 738001-1S
LV
3718.5

AL	SB	AS	BA	BE	CD	CA	CR
.99397	.02030	.02009	.10433	-.0000	-.0016	175.01	.47119
CO	CU	FE	PB	MG	MN	NI	K
.01159	-.0066	3.0515	-.0254	51.062	.12058	.08120	2.7794
SE	AG	NA	TL	V	ZN		
-.0071	-.0018	67.097	.04602	.00154	.04963		

BURN # 2 787A 10-DEC-89 16:22:16
302150 738001-1S
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.98832	.01068	-.0117	.10508	-.0000	.00281	175.30	.48059
CO	CU	FE	PB	MG	MN	NI	K
.00877	.00131	3.0653	-.0070	51.356	.12050	.08441	2.4152
SE	AG	NA	TL	V	ZN		
.00195	-.0018	68.699	-.0533	.00104	.04816		

BURN # 3 787A 10-DEC-89 16:22:37
302150 738001-1S
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.96479	.01262	.00208	.10428	.00000	-.0013	175.27	.47420
CO	CU	FE	PB	MG	MN	NI	K
.00737	.00131	3.0713	-.0297	51.314	.12050	.11111	2.4988
SE	AG	NA	TL	V	ZN		
-.0045	-.0038	69.355	.08233	-.0004	.04957		

AVERAGE N=3 787A 10-DEC-89 16:23:12
302150 738001-1S
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.98236	.01453	.00349	.10456	-.0000	-.0001	175.19	.47533
CO	CU	FE	PB	MG	MN	NI	K
.00924	-.0013	3.0627	-.0207	51.244	.12052	.09224	2.5644
SE	AG	NA	TL	V	ZN		
-.0032	-.0025	68.384	.02503	.00073	.04912		

25

BURN # 1 787A 10-DEC-89 16:23:45
302154 738001-16
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.75584	.00707	.00058	.15364	-.0001	-.0013	396.58	.00320
CO	CU	FE	PB	MG	MN	NI	K
.01266	-.0145	25.080	-.0380	46.846	9.8157	.03748	7.0137
SE	AG	NA	TL	V	ZN		
.01103	-.0031	185.80	-.0385	.01495	.09615		

BURN # 2 787A 10-DEC-89 16:24:06
302154 738001-16
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
.76045	.01618	.01652	.15276	-.0001	-.0055	394.26	.00745
CO	CU	FE	PB	MG	MN	NI	K
.01262	-.0145	24.989	.03272	46.657	9.7687	.00027	5.6347
SE	AG	NA	TL	V	ZN		
-.0045	.00359	187.32	.14026	.01204	.09471		

BURN # 3 787A 10-DEC-89 16:24:27
302154 738001-16
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.75575	.03046	.01872	.15286	-.0001	.00230	399.71	.00745
CO	CU	FE	PB	MG	MN	NI	K
.01405	-.0145	25.160	-.0041	46.889	9.8820	.02130	7.2751
SE	AG	NA	TL	V	ZN		
.05258	.00225	188.29	.02760	.01567	.09897		

AVERAGE N=3 787A 10-DEC-89 16:25:02
302154 738001-16
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
.75728	.01790	.01194	.15309	-.0001	-.0015	396.85	.00504
CO	CU	FE	PB	MG	MN	NI	K
.01311	-.0145	25.076	-.0031	46.797	9.8222	.01988	6.6412
SE	AG	NA	TL	V	ZN		
.01969	.00090	187.14	.04313	.01422	.09561		

26

BURN # 1 787A 10-DEC-89 16:25:35
302155 738001-22
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
2.1910	.02966	.06175	1.0253	.00005	-.0023	409.84	-.0000
CO	CU	FE	PB	MG	MN	NI	K
.02051	.00131	24.203	.00787	157.42	2.9097	1.2162	4.5054
SE	AG	NA	TL	V	ZN		
.01428	-.0018	126.07	.00508	-.0067	.12554		

BURN # 2 787A 10-DEC-89 16:25:56
302155 738001-22
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
2.2224	.01249	.06604	1.0325	.00006	-.0024	415.22	.00745
CO	CU	FE	PB	MG	MN	NI	K
.02179	.00131	24.458	-.0064	159.25	2.9391	1.2397	4.1710
SE	AG	NA	TL	V	ZN		
.04478	-.0018	125.90	.01891	-.0075	.12684		

BURN # 3 787A 10-DEC-89 16:26:17
302155 738001-22
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
2.2024	.00952	.03438	1.0329	.00005	-.0019	415.73	.00320
CO	CU	FE	PB	MG	MN	NI	K
.02052	.00132	24.486	.00218	159.18	2.9418	1.1916	4.5359
SE	AG	NA	TL	V	ZN		
.06428	-.0018	127.45	.03544	-.0056	.12549		

AVERAGE N=3 787A 10-DEC-89 16:26:52
302155 738001-22
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
2.2053	.01722	.05406	1.0302	.00005	-.0022	413.60	.00355
CO	CU	FE	PB	MG	MN	NI	K
.02094	.00132	24.382	.00123	158.62	2.9302	1.2159	4.4041
SE	AG	NA	TL	V	ZN		
.04111	-.0018	126.47	.02015	-.0066	.12595		

27

BURN # 1 787A 10-DEC-89 16:27:24
302157 738001-25
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.04709	.01315	.01334	.04777	.00001	-.0015	53.971	.00107
CO	CU	FE	PB	MG	MN	NI	K
.00737	-.0145	.15081	-.0339	20.665	.02164	-.0135	19.066
SE	AG	NA	TL	V	ZN		
-.0201	-.0018	19.189	.05863	-.0010	.00975		

BURN # 2 787A 10-DEC-89 16:27:46
302157 738001-25
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
.03680	.00357	.01790	.04774	.00000	-.0016	54.188	.00532
CO	CU	FE	PB	MG	MN	NI	K
.00450	-.0145	.15223	-.0198	20.814	.02161	.02615	19.101
SE	AG	NA	TL	V	ZN		
.01168	-.0005	18.835	.01027	-.0004	.01044		

BURN # 3 787A 10-DEC-89 16:28:07
302157 738001-25
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
.03662	-.0028	-.0003	.04775	-.0000	-.0013	54.397	.00319
CO	CU	FE	PB	MG	MN	NI	K
.00866	-.0302	.14925	-.0255	20.930	.02161	.00108	18.695
SE	AG	NA	TL	V	ZN		
-.0084	-.0045	20.154	.03012	.00098	.00979		

AVERAGE N=3 787A 10-DEC-89 16:28:42
302157 738001-25
LV
3721.7

AL	SB	AS	BA	BE	CD	CA	CR
.04010	.00464	.01033	.04775	.00000	-.0015	54.185	.00319
CO	CU	FE	PB	MG	MN	NI	K
.00584	-.0197	.15076	-.0264	20.803	.02162	.00450	18.954
SE	AG	NA	TL	V	ZN		
-.0056	-.0022	19.392	.03234	-.0002	.00999		

28

BURN # 1 787A 10-DEC-89 16:30:49
302166 738001-26
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
1.4174	.00042	-.0036	.06057	.00503	.00260	60.621	.56420
CO	CU	FE	PB	MG	MN	NI	K
.01740	.04176	5.5461	-.0219	22.842	.32792	.14902	14.223
SE	AG	NA	TL	V	ZN		
-.0323	.00215	18.754	.09202	.00899	.05854		

BURN # 2 787A 10-DEC-89 16:31:10
302166 738001-26
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
1.4023	-.0026	.01609	.05827	-.0000	-.0016	60.549	.56024
CO	CU	FE	PB	MG	MN	NI	K
.01745	.03040	5.5447	-.0327	22.949	.32797	.10916	14.235
SE	AG	NA	TL	V	ZN		
-.0113	.00084	17.644	.02788	.00490	.05455		

BURN # 3 787A 10-DEC-89 16:31:32
302166 738001-26
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
1.4052	-.0116	.01603	.05829	-.0001	-.0016	60.752	.56140
CO	CU	FE	PB	MG	MN	NI	K
.01485	.03041	5.5554	.00669	22.981	.32806	.13911	15.231
SE	AG	NA	TL	V	ZN		
-.0138	-.0031	18.775	.06953	.00863	.05456		

AVERAGE N=3 787A 10-DEC-89 16:32:07
302166 738001-26
LV
3722.3

AL	SB	AS	BA	BE	CD	CA	CR
1.4083	-.0046	.00949	.05904	.00165	-.0002	60.640	.56194
CO	CU	FE	PB	MG	MN	NI	K
.01657	.03419	5.5487	-.0159	22.924	.32798	.13243	14.563
SE	AG	NA	TL	V	ZN		
-.0191	-.0000	18.391	.05308	.00694	.05588		

29

BURN # 1 787A 10-DEC-89 16:32:40
CCV2 CVS1
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
4.9912	5.0399	5.0160	5.0202	5.0023	5.1024	50.205	5.0535
CO	CU	FE	PB	MG	MN	NI	K
5.0914	4.9993	5.0530	5.0209	50.164	5.0852	5.0968	48.879
SE	AG	NA	TL	V	ZN		
4.9187	.50733	50.220	5.0731	5.0051	5.0868		

BURN # 2 787A 10-DEC-89 16:33:01
CCV2 CVS1
LV
3721.5

AL	SB	AS	BA	BE	CD	CA	CR
4.9833	5.0798	5.0050	5.0037	4.9513	5.0747	49.729	5.0336
CO	CU	FE	PB	MG	MN	NI	K
5.0638	4.9966	5.0388	4.9897	50.067	5.0589	5.0051	49.220
SE	AG	NA	TL	V	ZN		
5.0903	.50310	51.146	5.0284	4.9850	5.0672		

BURN # 3 787A 10-DEC-89 16:33:22
CCV2 CVS1
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
5.0168	5.0611	5.0376	4.9987	4.9436	5.1406	50.248	5.0666
CO	CU	FE	PB	MG	MN	NI	K
5.0861	4.9651	5.0551	5.0711	50.239	5.0823	5.1352	50.502
SE	AG	NA	TL	V	ZN		
5.0510	.51063	51.497	4.9570	4.9982	5.0983		

AVERAGE N=3 787A 10-DEC-89 16:33:58
CCV2 CVS1
LV
3720.2

AL	SB	AS	BA	BE	CD	CA	CR
4.9971	5.0602	5.0195	5.0075	4.9657	5.1058	50.061	5.0512
CO	CU	FE	PB	MG	MN	NI	K
5.0804	4.9870	5.0498	5.0272	50.157	5.0755	5.0791	49.533
SE	AG	NA	TL	V	ZN		
5.0200	.50702	50.954	5.0195	4.9981	5.0841		

30

BURN # 1 787A 10-DEC-89 16:34:30
CCB2
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.00464	.00354	.04822	-.0001	.00004	-.0021	.02348	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0051	-.0037	.00202	-.0182	-.0778	-.0016	.01025	-.3150
SE	AG	NA	TL	V	ZN		
.03686	.00084	-.6598	.04674	-.0045	-.0001		

BURN # 2 787A 10-DEC-89 16:34:51
CCB2
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
.00463	-.0087	.00909	-.0001	.00003	-.0015	.01279	-.0003
CO	CU	FE	PB	MG	MN	NI	K
-.0051	.00009	.00202	-.0142	-.1084	-.0016	.02636	-.7708
SE	AG	NA	TL	V	ZN		
-.0033	.00018	-.6639	-.0644	-.0039	-.0001		

BURN # 3 787A 10-DEC-89 16:35:12
CCB2
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0005	-.0238	-.0169	-.0001	.00004	-.0010	-.0086	-.0053
CO	CU	FE	PB	MG	MN	NI	K
-.0057	-.0037	.00274	-.0196	-.1310	-.0015	-.0105	-.6896
SE	AG	NA	TL	V	ZN		
.02574	.00216	-.8236	-.0129	-.0053	-.0001		

AVERAGE N=3 787A 10-DEC-89 16:35:48
CCB2
LV
3720.3

AL	SB	AS	BA	BE	CD	CA	CR
.00294	-.0097	.01347	-.0001	.00004	-.0015	.00922	-.0023
CO	CU	FE	PB	MG	MN	NI	K
-.0053	-.0024	.00226	-.0173	-.1058	-.0016	.00872	-.5918
SE	AG	NA	TL	V	ZN		
.01977	.00106	-.7158	-.0102	-.0046	-.0001		

31

BURN # 1 787A 10-DEC-89 16:36:20
302168 738001-21

LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
2.6111	.03153	.02588	.82394	-.0000	-.0017	335.49	.00680
CO	CU	FE	PB	MG	MN	NI	K
.02827	.01527	25.495	-.0064	115.61	12.589	.52286	3.5802
SE	AG	NA	TL	V	ZN		
-.0027	.00216	110.13	.01249	.00147	.08178		

BURN# 0 787A 10-DEC-89 16:36:41
302168 738001-21

[illegible]

787A 10-DEC-89 16:37:02
302168 738001-21

LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
2.5879	.03493	.03472	.81822	-.0000	.00197	335.56	.00579
CO	CU	FE	PB	MG	MN	NI	K
.02563	.00768	25.449	-.0173	115.54	12.564	.53737	3.3268
SE	AG	NA	TL	V	ZN		
.05292	.00216	108.84	.05280	.00010	.05912		

AVERAGE N=3 787A 10-DEC-89 16:37:37
302968 738001-21

3719.8							
AL	SB	AS	BA	BE	CD	CA	CR
2.6011	.03222	.02449	.82552	.00000	-.0004	335.48	.00848
CO	CU	FE	PB	MG	MN	NI	K
.02850	.01021	25.518	-.0119	115.85	12.589	.54591	3.0695
SE	AG	NA	TL	V	ZN		
.03109	.00128	109.08	.03230	-.0002	.06044		

BURN # 1 787A 10-DEC-89 16:38:10
302172 738001-17
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.60459	-.0084	.00960	.43179	.00003	-.0015	42.518	.00275
CO	CU	FE	PB	MG	MN	NI	K
-.0011	.00009	.97751	-.0052	22.263	.04548	.02406	3.5602
SE	AG	NA	TL	V	ZN		
.03438	-.0005	21.498	-.0318	-.0036	.05731		

BURN # 2 787A 10-DEC-89 16:38:31
302172 738001-17
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.60967	.01092	.01394	.43179	.00004	.00817	42.593	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0011	.00009	.97536	-.0052	22.303	.04548	.01255	3.3574
SE	AG	NA	TL	V	ZN		
.01462	-.0011	23.255	-.0141	-.0054	.05529		

BURN # 3 787A 10-DEC-89 16:38:52
302172 738001-17
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
.59934	-.0120	.03570	.43321	.00004	-.0019	42.314	.00073
CO	CU	FE	PB	MG	MN	NI	K
-.0011	.00008	.97724	-.0174	22.367	.04546	.00181	2.6479
SE	AG	NA	TL	V	ZN		
-.0027	-.0031	21.005	.03738	-.0044	.05528		

AVERAGE N=3 787A 10-DEC-89 16:39:27
302172 738001-17
LV
3721.3

AL	SB	AS	BA	BE	CD	CA	CR
.60453	-.0032	.01975	.43226	.00004	.00093	42.475	.00073
CO	CU	FE	PB	MG	MN	NI	K
-.0011	.00009	.97670	-.0093	22.311	.04547	.01280	3.1685
SE	AG	NA	TL	V	ZN		
.01544	-.0018	21.919	-.0029	-.0045	.05596		

33

```
BURN # 1        787A    10-DEC-89 16:40:00
302173 738001-18
  LV
3720.0
  AL      SB      AS      BA      BE      CD      CA      CR
.40133  .02155  .01748  .13518  .00004  -.0016  71.922  .00276
  CO      CU      FE      PB      MG      MN      NI      K
-.0011  .00010  .58790  -.0145  24.608  .04551  -.0074  1.3080
  SE      AG      NA      TL      V       ZN
.01338  .00084  32.842  .00944  -.0054  .08753

BURN # 2        787A    10-DEC-89 16:40:21
302173 738001-18
  LV
3720.0
  AL      SB      AS      BA      BE      CD      CA      CR
.39623  -.0027  .01530  .13518  .00005  -.0016  72.456  .00478
  CO      CU      FE      PB      MG      MN      NI      K
-.0044  .00010  .59078  -.0091  24.769  .04551  .03711  .33421
  SE      AG      NA      TL      V       ZN
-.0014  -.0011  33.634  .03158  -.0052  .08887

BURN # 3        787A    10-DEC-89 16:40:42
302173 738001-18
  LV
3722.0
  AL      SB      AS      BA      BE      CD      CA      CR
.39093  .02327  .02839  .13588  .00006  -.0018  72.573  .00679
  CO      CU      FE      PB      MG      MN      NI      K
-.0051  .00008  .59902  -.0036  24.907  .04546  .01101  .37695
  SE      AG      NA      TL      V       ZN
-.0169  -.0044  33.122  .02186  -.0073  .08747

AVERAGE N=3     787A    10-DEC-89 16:41:18
302173 738001-18
  LV
3720.7
  AL      SB      AS      BA      BE      CD      CA      CR
.39818  .01404  .02039  .13541  .00005  -.0016  72.317  .00478
  CO      CU      FE      PB      MG      MN      NI      K
-.0035  .00009  .59256  -.0091  24.761  .04549  .01357  .67306
  SE      AG      NA      TL      V       ZN
-.0016  -.0016  33.200  .04763  -.0063  .08795
```

BURN # 1 787A 10-DEC-89 16:41:50
302174 738001-13
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
.27402	.01523	.00079	.22423	.00011	.00253	117.74	.00073
CO	CU	FE	PB	MG	MN	NI	K
-.0038	-.0151	1.2097	-.0173	55.214	.25740	.02022	1.2691
SE	AG	NA	TL	V	ZN		
.01770	-.0005	46.562	.09652	-.0132	.01505		

BURN # 2 787A 10-DEC-89 16:42:11
302174 738001-13
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.26401	-.0090	.00305	.22435	.00010	-.0014	117.79	-.0073
CO	CU	FE	PB	MG	MN	NI	K
-.0018	-.0151	1.2096	-.0200	55.311	.25756	-.0074	1.1457
SE	AG	NA	TL	V	ZN		
.00350	.00084	47.250	.00153	-.0128	.01637		

BURN # 3 787A 10-DEC-89 16:42:32
302174 738001-13
LV
3718.5

AL	SB	AS	BA	BE	CD	CA	CR
.28688	.00219	.00730	.22598	.00010	.00050	118.52	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0004	-.0151	1.2165	-.0147	55.382	.25768	.04787	1.6620
SE	AG	NA	TL	V	ZN		
.01586	.00084	47.276	-.0112	-.0121	.01638		

AVERAGE N=3 787A 10-DEC-89 16:43:07
302174 738001-13
LV
3720.2

AL	SB	AS	BA	BE	CD	CA	CR
.26824	.00279	.00372	.22485	.00010	.00058	118.01	-.0026
CO	CU	FE	PB	MG	MN	NI	K
-.0020	-.0151	1.2119	-.0173	55.303	.25755	.02023	1.3589
SE	AG	NA	TL	V	ZN		
.01235	.00040	47.029	.02897	-.0127	.01727		

BURN # 1 787A 10-DEC-89 16:43:40
302175 738001-14
LV
3718.5

AL	SB	AS	BA	BE	CD	CA	CR
.48036	.03082	.04493	.23675	.00008	-.0001	125.20	.00074
CO	CU	FE	PB	MG	MN	NI	K
.00072	-.0037	2.0481	-.0095	56.758	.25767	.03712	1.9055
SE	AG	NA	TL	V	ZN		
.02575	-.0018	49.481	-.0254	-.0102	.09886		

BURN # 2 787A 10-DEC-89 16:44:01
302175 738001-14
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.47749	-.0117	.00586	.24120	.00010	-.0014	126.15	-.0043
CO	CU	FE	PB	MG	MN	NI	K
.00128	-.0037	2.0711	.00681	57.261	.25748	.03096	1.0452
SE	AG	NA	TL	V	ZN		
.00226	.00084	48.745	-.0076	-.0118	.09542		

BURN # 3 787A 10-DEC-89 16:44:22
302175 738001-14
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
.46497	.02443	.02765	.23889	.00009	-.0018	125.03	.00074
CO	CU	FE	PB	MG	MN	NI	K
.00201	.00010	2.0676	-.0340	57.167	.25759	.01409	1.3583
SE	AG	NA	TL	V	ZN		
.00350	.00018	48.501	-.0351	-.0104	.09747		

AVERAGE N=3 787A 10-DEC-89 16:44:57
302175 738001-14
LV
3719.7

AL	SB	AS	BA	BE	CD	CA	CR
.47428	.01450	.02615	.23898	.00009	-.0011	125.79	-.0009
CO	CU	FE	PB	MG	MN	NI	K
.00134	-.0024	2.0623	-.0122	57.066	.25758	.02739	1.4363
SE	AG	NA	TL	V	ZN		
.01050	-.0003	49.242	-.0227	-.0108	.09658		

BURN # 1 787A 10-DEC-89 16:45:30
302176 738001-24
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
14.295	.00307	.01144	.13516	-.0002	-.0015	102.20	.03913
CO	CU	FE	PB	MG	MN	NI	K
.02579	.09110	29.215	-.0014	35.752	4.2134	.03555	4.8250
SE	AG	NA	TL	V	ZN		
.03933	-.0044	66.314	.00124	.02692	.10051		

BURN # 2 787A 10-DEC-89 16:45:51
302176 738001-24
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
14.319	.00636	-.0105	.13593	-.0002	.00657	102.48	.03913
CO	CU	FE	PB	MG	MN	NI	K
.02313	.09110	29.290	.00398	35.930	4.2266	.06164	4.2193
SE	AG	NA	TL	V	ZN		
.01091	-.0018	65.036	-.0729	.02654	.10184		

BURN # 3 787A 10-DEC-89 16:46:12
302176 738001-24
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
14.388	.00341	.03690	.13591	-.0002	.00193	102.72	.03306
CO	CU	FE	PB	MG	MN	NI	K
.02574	.09100	29.361	-.0273	36.184	4.2481	.03248	4.3715
SE	AG	NA	TL	V	ZN		
.00968	-.0005	67.260	-.0907	.02749	.09845		

AVERAGE N=3 787A 10-DEC-89 16:46:47
302176 738001-24
LV
3720.7

AL	SB	AS	BA	BE	CD	CA	CR
14.334	.00428	.01263	.13567	-.0002	.00233	102.47	.03711
CO	CU	FE	PB	MG	MN	NI	K
.02488	.09109	29.288	-.0082	35.955	4.2294	.04323	4.4053
SE	AG	NA	TL	V	ZN		
.01997	-.0022	66.204	-.0541	.02698	.10027		

37

BURN # 1 787A 10-DEC-89 16:47:20
302182 738001-23
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.00976	.01595	.04926	1.3251	.00004	.00172	259.21	-.0023
CO	CU	FE	PB	MG	MN	NI	K
.00502	-.0302	12.973	-.0259	77.691	3.6975	.18752	5.2844
SE	AG	NA	TL	V	ZN		
-.0249	-.0031	203.62	-.0184	-.0051	.00862		

BURN # 2 787A 10-DEC-89 16:47:41
302182 738001-23
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.00975	.03702	.04926	1.3344	.00005	-.0060	260.26	-.0033
CO	CU	FE	PB	MG	MN	NI	K
.00565	-.0302	13.039	-.0042	78.252	3.7196	.18445	5.6090
SE	AG	NA	TL	V	ZN		
.01956	-.0005	202.02	-.0346	-.0066	.00859		

BURN # 3 787A 10-DEC-89 16:48:02
302182 738001-23
LV
3722.5

AL	SB	AS	BA	BE	CD	CA	CR
.01991	.01308	.00137	1.3273	.00004	.00637	261.52	-.0033
CO	CU	FE	PB	MG	MN	NI	K
.00685	-.0302	13.036	-.0137	78.315	3.7288	.20733	5.7197
SE	AG	NA	TL	V	ZN		
.01451	.00084	203.46	-.0218	-.0050	.00858		

AVERAGE N=3 787A 10-DEC-89 16:48:37
302182 738001-23
LV
3720.8

AL	SB	AS	BA	BE	CD	CA	CR
.01314	.02202	.03330	1.3289	.00005	.00070	260.33	-.0030
CO	CU	FE	PB	MG	MN	NI	K
.00584	-.0302	13.016	-.0146	78.086	3.7153	.19310	5.5377
SE	AG	NA	TL	V	ZN		
.00306	-.0009	203.03	-.0250	-.0056	.00960		

38

BURN # 1 787A 10-DEC-89 16:49:44
302182(1+4) SERIAL DIL
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
.00468	-.0070	.02571	.25748	-.0000	-.0056	53.063	-.0074
CO	CU	FE	PB	MG	MN	NI	K
.00536	-.0302	2.6554	.01234	15.984	.77319	.03404	6.4414
SE	AG	NA	TL	V	ZN		
.02142	.00084	40.246	.00595	.00553	.00168		

BURN # 2 787A 10-DEC-89 16:50:05
302182(1+4) SERIAL DIL
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.00467	-.0055	.00831	.25818	-.0000	-.0014	53.150	-.0053
CO	CU	FE	PB	MG	MN	NI	K
.00464	-.0302	2.6697	-.0135	16.082	.77444	.05859	6.6640
SE	AG	NA	TL	V	ZN		
.01091	.00084	41.665	.02202	.00411	-.0018		

BURN # 3 787A 10-DEC-89 16:50:27
302182(1+4) SERIAL DIL
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0004	.00637	.01055	.25671	-.0000	-.0015	52.367	-.0053
CO	CU	FE	PB	MG	MN	NI	K
.00535	-.0302	2.6418	-.0067	15.984	.75993	.05554	5.5485
SE	AG	NA	TL	V	ZN		
.00473	-.0018	42.004	.07363	.00212	.00034		

AVERAGE N=3 787A 10-DEC-89 16:51:02
302182(1+4) SERIAL DIL
LV
3719.3

AL	SB	AS	BA	BE	CD	CA	CR
.00298	-.0020	.01485	.25745	-.0000	-.0028	52.860	-.0060
CO	CU	FE	PB	MG	MN	NI	K
.00512	-.0302	2.6557	-.0026	16.023	.76919	.04939	6.2179
SE	AG	NA	TL	V	ZN		
.01235	-.0000	41.305	.03387	.00392	.00034		

41

BURN # 1 787A 10-DEC-89 16:59:08
CCV3 CVS1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
4.9029	4.9361	4.8960	4.9658	4.8592	4.9777	48.320	4.8915
CO	CU	FE	PB	MG	MN	NI	K
4.9338	4.8804	4.9336	4.9229	48.498	4.9248	4.8899	47.954
SE	AG	NA	TL	V	ZN		
4.9631	.49137	48.689	4.9687	4.8536	4.8890		

BURN # 2 787A 10-DEC-89 16:59:29
CCV3 CVS1
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
4.9048	4.9111	4.8954	4.9390	4.8355	4.9713	48.239	4.8969
CO	CU	FE	PB	MG	MN	NI	K
4.9391	4.8607	4.9058	4.8979	48.448	4.9183	4.8332	48.100
SE	AG	NA	TL	V	ZN		
4.8105	.48999	48.675	5.1919	4.8550	4.8965		

BURN # 3 787A 10-DEC-89 16:59:51
CCV3 CVS1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
4.9106	4.9470	4.9043	4.9543	4.8552	4.9872	48.555	4.9197
CO	CU	FE	PB	MG	MN	NI	K
4.9671	4.8728	4.9264	4.9188	48.643	4.9366	4.9804	47.548
SE	AG	NA	TL	V	ZN		
4.8519	.49401	48.843	4.9558	4.8688	4.9011		

AVERAGE N=3 787A 10-DEC-89 17:00:26
CCV3 CVS1
LV
3720.7

AL	SB	AS	BA	BE	CD	CA	CR
4.9061	4.9314	4.8986	4.9531	4.8500	4.9787	48.371	4.9027
CO	CU	FE	PB	MG	MN	NI	K
4.9467	4.8713	4.9219	4.9132	48.530	4.9265	4.9012	47.867
SE	AG	NA	TL	V	ZN		
4.8752	.49179	48.736	5.0388	4.8591	4.8955		

42

BURN # 1 787A 10-DEC-89 17:00:58
CCB3
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0005	-.0180	.00270	-.0001	.00006	-.0052	-.0086	.00074
CO	CU	FE	PB	MG	MN	NI	K
-.0070	-.0075	.00131	-.0223	-.1878	-.0016	-.0381	-3.786
SE	AG	NA	TL	V	ZN		
.03934	-.0018	-1.614	.02911	-.0073	-.0014		

BURN # 2 787A 10-DEC-89 17:01:20
CCB3
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0004	.00953	.01133	-.0001	.00004	-.0015	.00208	-.0033
CO	CU	FE	PB	MG	MN	NI	K
-.0057	-.0151	.00703	.01033	-.1524	-.0016	-.0028	-1.757
SE	AG	NA	TL	V	ZN		
.01833	.00018	-1.291	.09024	-.0052	.00128		

BURN # 3 787A 10-DEC-89 17:01:41
CCB3
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
.00464	-.0209	.01351	-.0001	.00006	.00232	-.0086	-.0033
CO	CU	FE	PB	MG	MN	NI	K
-.0057	-.0151	-.0016	-.0141	-.2203	-.0016	-.0059	-2.812
SE	AG	NA	TL	V	ZN		
.03316	-.0018	-1.131	.06770	-.0069	-.0001		

AVERAGE N=3 787A 10-DEC-89 17:02:16
CCB3
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
.00125	-.0098	.00518	-.0001	.00005	-.0015	-.0051	-.0020
CO	CU	FE	PB	MG	MN	NI	K
-.0061	-.0125	.00226	-.0097	-.1901	-.0016	-.0156	-2.785
SE	- AG	NA	TL	V	ZN		
.03028	-.0011	-1.345	.06235	-.0065	-.0001		

53

BURN # 1 787A 10-DEC-89 17:46:14
CCV4 CVS1
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
4.9878	4.9760	4.9694	5.0848	5.0960	5.0252	49.883	5.0810
CO	CU	FE	PB	MG	MN	NI	K
5.0734	5.0356	5.0896	4.9887	50.180	5.0820	5.1107	46.954
SE	AG	NA	TL	V	ZN		
4.9116	.50087	49.645	4.7629	5.0379	5.0104		

BURN # 2 787A 10-DEC-89 17:46:35
CCV4 CV51
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
4.9864	4.9896	4.9147	5.0951	5.1080	4.9592	49.747	5.0764
CO	CU	FE	PB	MG	MN	NI	K
5.0597	5.0573	5.1012	5.0169	50.128	5.0851	5.0327	46.304
SE	AG	NA	TL	V	ZN		
4.9189	.50074	49.779	4.9332	5.0324	5.0077		

BURN # 3 787A 10-DEC-89 17:46:57
CCV4 CVS1
LV
3722.0

AL	SB	AS	BA	BE	CD	CA	CR
4.9415	4.9748	5.0177	5.0879	5.0894	4.9356	49.689	5.0530
CO	CU	FE	PB	MG	MN	NI	K
5.0603	5.0265	5.0702	4.9861	50.003	5.0674	5.0649	46.459
SE	AG	NA	TL	V	ZN		
5.0178	.50456	48.854	4.8420	5.0211	4.9893		

AVERAGE N=3 787A 10-DEC-89 17:47:32
CCV4 CVS1
LV
3721.7

AL	SB	AS	BA	BE	CD	CA	CR
4.9652	4.9802	4.9673	5.0826	5.0978	4.9733	49.773	5.0704
CO	CU	FE	PB	MG	MN	NI	K
5.0645	5.0398	5.0870	4.9972	50.104	5.0782	5.0694	46.572
SE	AG	NA	TL	V	ZN		
4.9494	.50205	49.426	4.8460	5.0305	5.0025		

54

BURN # 1 787A 10-DEC-89 17:48:04
CCB4
LV
3721.0

AL	SB	AS	BA	BE	CD	CA	CR
.00424	.00193	-.0102	-.0001	.00003	-.0011	.01293	-.0013
CO	CU	FE	PB	MG	MN	NI	K
-.0034	.00080	.00282	-.0142	-.0591	-.0016	.02250	-4.062
SE	AG	NA	TL	V	ZN		
-.0099	.00711	-1.389	-.0073	-.0038	-.0002		

BURN # 2 787A 10-DEC-89 17:48:25
CCB4
LV
3723.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0008	-.0024	.01552	-.0001	.00002	-.0016	-.0190	-.0053
CO	CU	FE	PB	MG	MN	NI	K
-.0061	.00058	.00209	-.0115	-.0809	-.0016	.01790	-4.716
SE	AG	NA	TL	V	ZN		
.01210	.00456	-1.561	.09817	-.0021	-.0002		

BURN # 3 787A 10-DEC-89 17:48:46
CCB4
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
.00425	-.0175	.01763	-.0001	.00002	.00204	-.0084	.00077
CO	CU	FE	PB	MG	MN	NI	K
-.0053	.00061	.00427	-.0195	-.0552	-.0016	.02482	-2.952
SE	AG	NA	TL	V	ZN		
.00355	.00457	-1.533	.00238	-.0024	.00116		

AVERAGE N=3 787A 10-DEC-89 17:49:21
CCB4
LV
3721.2

AL	SB	AS	BA	BE	CD	CA	CR
.00258	-.0060	.00766	-.0001	.00002	-.0002	-.0048	-.0019
CO	CU	FE	PB	MG	MN	NI	K
-.0050	.00060	.00305	-.0151	-.0884	-.0018	.02174	-3.910
SE	AG	NA	TL	V	ZN		
.00192	.00541	-1.494	.00448	-.0027	.00027		

65

BURN # 1 787A 10-DEC-89 18:21:48
CCVS CVS1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
4.9711	4.9396	5.0292	5.2293	5.3334	4.8026	49.926	5.1809
CO	CU	FE	PB	MG	MN	NI	K
5.1549	5.1706	5.2091	4.9727	50.334	5.1712	4.9562	47.710
SE	AG	NA	TL	V	ZN		
5.2024	.48535	50.073	5.2987	5.1545	4.9832		

BURN # 2 787A 10-DEC-89 18:22:10
CCVS CVS1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
5.0062	5.0416	5.1087	5.2184	5.3559	4.8869	50.491	5.1972
CO	CU	FE	PB	MG	MN	NI	K
5.2024	5.2015	5.2394	5.0621	51.033	5.1992	5.2061	49.334
SE	AG	NA	TL	V	ZN		
5.1774	.49425	51.901	4.7419	5.1950	5.0783		

BURN # 3 787A 10-DEC-89 18:22:31
CCVS CVS1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
5.0312	5.1027	5.0667	5.1632	5.3198	4.9606	50.821	5.2144
CO	CU	FE	PB	MG	MN	NI	K
5.2122	5.1359	5.2207	5.0902	51.136	5.2169	5.1861	50.068
SE	AG	NA	TL	V	ZN		
5.2525	.49935	52.196	5.0667	5.1850	5.1176		

AVERAGE N=3 787A 10-DEC-89 18:23:06
CCVS CVS1
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
5.0028	5.0280	5.0695	5.2036	5.3364	4.8834	50.413	5.1975
CO	CU	FE	PB	MG	MN	NI	K
5.1898	5.1653	5.2231	5.0417	50.835	5.1958	5.1161	49.038
SE	AG	NA	TL	V	ZN		
5.2108	.49298	51.390	5.0357	5.1748	5.0597		

BURN # 1 787A 10-DEC-89 18:23:38
CCBS
LV
3720.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0033	-.0145	.01216	.00000	-.0000	-.0014	.00709	-.0014
CO	CU	FE	PB	MG	MN	NI	K
.00027	-.0039	.00048	-.0031	-.0103	.00001	-.0299	-1.302
SE	AG	NA	TL	V	ZN		
.01018	-.0053	-.0485	.07529	.00072	-.0004		

BURN # 2 787A 10-DEC-89 18:24:00
CCBS
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0008	-.0115	.00143	.00000	-.0000	-.0012	-.0142	.00271
CO	CU	FE	PB	MG	MN	NI	K
.00223	-.0038	.00121	.01296	.03291	.00001	-.0146	-.3658
SE	AG	NA	TL	V	ZN		
-.0057	-.0015	.11338	-.0299	.00071	-.0004		

BURN # 3 787A 10-DEC-89 18:24:21
CCBS
LV
3718.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0033	.01784	.01430	.00000	-.0000	-.0015	-.0036	-.0014
CO	CU	FE	PB	MG	MN	NI	K
.00298	-.0154	-.0010	.01969	.01457	.00003	-.0322	.52109
SE	AG	NA	TL	V	ZN		
.04198	-.0047	.12834	.02740	.00077	-.0004		

AVERAGE N=3 787A 10-DEC-89 18:24:56
CCBS
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
-.0025	-.0027	.00930	.00000	-.0000	-.0014	-.0036	.00000
CO	CU	FE	PB	MG	MN	NI	K
.00183	-.0077	.00024	.00586	.01239	.00001	-.0256	-.3824
SE	AG	NA	TL	V	ZN		
.01549	-.0038	.05507	.02427	.00073	-.0004		

74

BURN # 1 787A 10-DEC-89 18:46:39
CRI 2X CRDL
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
.00949	.11298	.07127	-.0031	.00969	.01367	.00989	.02109
CO	CU	FE	PB	MG	MN	NI	K
.09534	.03730	.01098	.04533	-.1930	.02367	.10195	-3.255
SE	AG	NA	TL	V	ZN		
.01094	.01904	-.7903	.06003	.09287	.04010		

BURN # 2 787A 10-DEC-89 18:47:00
CRI 2X CRDL
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
-.0005	.12484	.05442	-.0031	.00968	.01023	.00989	.02313
CO	CU	FE	PB	MG	MN	NI	K
.09738	.03731	.00092	.02645	-.1749	.02367	.06677	-3.018
SE	AG	NA	TL	V	ZN		
-.0207	.01773	-.4760	-.0210	.09393	.04078		

BURN # 3 787A 10-DEC-89 18:47:21
CRI 2X CRDL
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
.00700	.13036	.04159	-.0031	.00966	.00673	-.0009	.02925
CO	CU	FE	PB	MG	MN	NI	K
.09795	.03729	.00379	.05619	-.1707	.02366	.08205	-2.389
SE	AG	NA	TL	V	ZN		
-.0230	.01904	-.4855	.00906	.09593	.04009		

AVERAGE N=3 787A 10-DEC-89 18:47:56
CRI 2X CRDL
LV
3719.5

AL	SB	AS	BA	BE	CD	CA	CR
.00533	.12273	.05576	-.0031	.00968	.01021	.00629	.02449
CO	CU	FE	PB	MG	MN	NI	K
.09689	.03730	.00523	.04266	-.1795	.02367	.08359	-2.887
SE	AG	NA	TL	V	ZN		
-.0109	.01860	-.5839	.01804	.09424	.04032		

BURN # 1 787A 10-DEC-89 18:48:29
ICSA 1287

LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
471.86	.07965	.12307	-.0001	.00004	.00723	471.35	.04150
CO	CU	FE	PB	MG	MN	NI	K
.05037	-.0231	180.29	-.0114	473.80	.04642	.04384	-3.931
SE	AG	NA	TL	V	ZN		
.07065	-.0008	2.6378	.09632	-.0050	-.0051		

BURN # 2 787A 10-DEC-89 18:48:50
ICSA 1287

LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
474.36	.03176	.06333	-.0001	.00003	-.0048	473.95	.04558
CO	CU	FE	PB	MG	MN	NI	K
.05025	-.0231	181.25	.00885	474.51	.04487	-.0051	-3.170
SE	AG	NA	TL	V	ZN		
.08472	.00189	3.2603	.17889	-.0036	-.0063		

BURN # 3 787A 10-DEC-89 18:49:11
ICSA 1287

LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
473.93	.05844	.09781	-.0001	.00004	.00023	472.35	.04966
CO	CU	FE	PB	MG	MN	NI	K
.05298	-.0231	180.67	-.0449	473.65	.04488	-.0051	-3.855
SE	AG	NA	TL	V	ZN		
.04900	.00057	3.2603	.02372	-.0052	-.0061		

AVERAGE N=3 787A 10-DEC-89 18:49:46
ICSA 1287

LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
473.38	.05662	.09473	-.0001	.00004	.00090	472.55	.04558
CO	CU	FE	PB	MG	MN	NI	K
.05120	-.0231	180.74	-.0150	473.99	.04539	.01120	-3.652
SE	AG	NA	TL	V	ZN		
.06812	.00057	3.0528	.09964	-.0046	-.0062		

76

BURN # 1 787A 10-DEC-89 18:50:19
ICSAB 0387
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
463.64	.03100	.04007	.46537	.45609	.91273	460.51	.48610
CO	CU	FE	PB	MG	MN	NI	K
.49609	.51318	177.32	4.4924	465.21	.48193	.87284	-5.241
SE	AG	NA	TL	V	ZN		
.13738	.97057	1.1718	.81574	.44707	.88480		

BURN # 2 787A 10-DEC-89 18:50:40
ICSAB 0387
LV
3720.0

AL	SB	AS	BA	BE	CD	CA	CR
463.00	.07185	.07523	.46537	.45609	.90472	459.54	.48203
CO	CU	FE	PB	MG	MN	NI	K
.49414	.52073	177.36	4.4720	465.02	.48193	.84893	-5.317
SE	AG	NA	TL	V	ZN		
.11161	.97189	-.5321	1.0001	.44684	.88612		

BURN # 3 787A 10-DEC-89 18:51:01
ICSAB 0387
LV
3719.0

AL	SB	AS	BA	BE	CD	CA	CR
466.10	.01236	.01313	.47084	.46142	.90971	462.00	.49236
CO	CU	FE	PB	MG	MN	NI	K
.50201	.52088	178.41	4.5559	467.15	.49086	.82391	-5.758
SE	AG	NA	TL	V	ZN		
.02850	.97479	2.5736	1.0440	.44971	.88614		

AVERAGE N=3 787A 10-DEC-89 18:51:37
ICSAB 0387
LV
3719.7

AL	SB	AS	BA	BE	CD	CA	CR
464.51	.03857	.04201	.46719	.45785	.90905	460.68	.48683
CO	CU	FE	PB	MG	MN	NI	K
.49741	.51826	177.70	4.5068	465.79	.48490	.84849	-5.439
SE	AG	NA	TL	V	ZN		
.09250	.97241	1.0711	.95329	.44788	.88569		

77

```
BURN # 1          787A     10-DEC-89 18:52:09
CCV6 CVS1
  LV
3719.0
  AL        SB        AS        BA        BE        CD        CA        CR
5.3467    4.8847    4.8592    4.9737    4.9866    4.8679    49.706    4.9948
  CO        CU        FE        PB        MG        MN        NI         K
4.9974    4.8768    5.1956    4.9231    49.358    4.9975    4.9946    46.596
  SE        AG        NA        TL         V        ZN
4.9208    .49956    48.261    4.8229    4.9588    4.9217

BURN # 2          787A     10-DEC-89 18:52:30
CCV6 CVS1
  LV
3719.0
  AL        SB        AS        BA        BE        CD        CA        CR
5.2094    4.8974    4.9763    5.0058    5.0543    4.8362    49.462    4.9826
  CO        CU        FE        PB        MG        MN        NI         K
5.0131    4.9297    5.1632    4.9570    49.527    5.0093    5.0504    45.150
  SE        AG        NA        TL         V        ZN
4.8399    .49826    48.878    4.9089    4.9881    4.9343

BURN # 3          787A     10-DEC-89 18:52:52
CCV6 CVS1
  LV
3720.0
  AL        SB        AS        BA        BE        CD        CA        CR
5.1581    4.9251    4.8929    4.9701    5.0192    4.8511    49.383    5.0017
  CO        CU        FE        PB        MG        MN        NI         K
5.0078    4.9019    5.1245    4.9002    49.430    5.0021    5.0322    46.185
  SE        AG        NA        TL         V        ZN
4.8388    .50074    48.852    4.8277    4.9613    4.9377

AVERAGE N=3       787A     10-DEC-89 18:53:27
CCV6 CVS1
  LV
3719.3
  AL        SB        AS        BA        BE        CD        CA        CR
5.2380    4.9024    4.9095    4.9832    5.0201    4.8517    49.517    4.9930
  CO        CU        FE        PB        MG        MN        NI         K
5.0061    4.9028    5.1611    4.9258    49.438    5.0030    5.0258    45.977
  SE        AG        NA        TL         V        ZN
4.8664    .49885    48.664    4.8525    4.9694    4.9312
```

78

BURN # 1 787A 10-DEC-89 18:53:44
CCB6
LV
3718.8

AL	SB	AS	BA	BE	CD	CA	CR
-.0125	-.0097	.03468	.00102	.00000	-.0006	-.0145	.00340
CO	CU	FE	PB	MG	MN	NI	K
.00112	.00504	-.0098	.01352	-.0141	.00001	.02372	.35127
SE	AG	NA	TL	V	ZN		
.02421	.00132	.00763	.10309	-.0005	-.0000		

BURN # 2 787A 10-DEC-89 18:54:01
CCB6
LV
3719.8

AL	SB	AS	BA	BE	CD	CA	CR
-.0075	-.0187	-.0014	-.0005	-.0000	.00002	-.0145	.00545
CO	CU	FE	PB	MG	MN	NI	K
-.0002	.00504	-.0105	.00273	-.0579	.00000	-.0115	.40900
SE	AG	NA	TL	V	ZN		
-.0221	-.0013	-.0012	.05708	.00013	-.0000		

BURN # 3 787A 10-DEC-89 18:54:18
CCB6
LV
3719.8

AL	SB	AS	BA	BE	CD	CA	CR
-.0225	-.0158	.00511	-.0005	.00002	-.0001	-.0352	.00442
CO	CU	FE	PB	MG	MN	NI	K
-.0009	-.0101	-.0141	-.0027	-.1084	.00000	.00383	-.4280
SE	AG	NA	TL	V	ZN		
-.0098	.00000	.00066	.04605	-.0019	.00004		

AVERAGE N=3 787A 10-DEC-89 18:55:07
CCB6
LV
3718.7

AL	SB	AS	BA	BE	CD	CA	CR
-.0141	-.0147	.01281	.00000	.00001	-.0002	-.0217	.00475
CO	CU	FE	PB	MG	MN	NI	K
.00002	.00000	-.0115	.00452	-.0601	.00000	.00536	.11075
SE	AG	NA	TL	V	ZN		
-.0025	.00000	.00235	.07207	-.0009	.00000		

...Laboratories Inc.

ELEMENTS AS/SE (PB/TL) CD AG SB

PAGE 1 of 2
DATE: 12-11-89
Operator: A. Alwell / F. Littleton
Case Name: 1258/A, 1241/08
File Name:

NO.	SAMPLE ID	COMMENTS		NO.	SAMPLE NO.	COMMENTS	
R25	ICV	SEE 101-4(6357)25			CCB 2		
R30	ICB			1	304438		2030
1	CRA		1835	2	304438	A	2035
2	CRA	A	1840	3	303474	PBW	2040
3	306685	PBW	1845	4	303474	A	2045
4	306685	A	1850	5	301931	LCS 5X	2050
5	306109	LCS 5X	1855	6	301931	A	2055
6	306109	5X A	1900	7	~~301909~~		2100
7	306105		1905	8	~~301909~~	~~A~~	2105
8	306105	A	1910	9	301929	SS(301909)	2110
9	CARBOY PB		1915	10	~~301929~~	~~[illegible] 12/11/89~~ 301929 D	2115 / 2120
10	CARBOY PB	A	1920		CCV 3		2125
	CCV 1		1925		CCB 3		2130
	CCB 1		1930	1	301912		2135
1	305763		1935	2	301912A	A	2140
2	305763	A	1940	3	301930	D(301910)	2145
3	305759		1945	4	301930	A	2150
4	305759	A	1950	5	301917		2155
5	304830		1955	6	301917	A	2200
6	304830	A	2000 [illegible]	7	301915		2205
7	304458		2005	8	301915	A	2210
8	304458	A	2010	9	301922		2215
9	304439		2015	10	301922	A	2220
10	304439	A	2020		CCV 4		2225
	CCV 2		2025		CCB 4		2230

# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS
~~130~~ 134	~~[illegible]~~ 17	~~[illegible]~~ 1	24	17	8	

ELEMENTS AS/SE CD AG SB
(PB/TL)

DATE:
Operator: A Hagel / Frederick L Heighy
Case Name:
File Name:

NO.	SAMPLE ID	COMMENTS	NO.	SAMPLE NO.	COMMENTS
	~~ccb~~ 2/16/89			CCB	
	~~CCB~~		1		
1	301937	2235	2		
2	301937 A	2240	3		
3	301938	2245	4		
4	301938 A	2250	5		
5	301939	2300	6		
6	301939 A	2305	7		
7	302150	2310	8		
8	302150 A	2315	9		
9	302154	2320	10		
10	302154 A	2325		CCV	
	CCV ✓	2330		CCB	
	CCB ✓	2335	1		
1			2		
2			3		
3			4		
4			5		
5			6		
6			7		
7			8		
8			9		
9			10		
10				CCV	
	CCV			CCB	

FB 2/16/89

FB 2/16/89

# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS

See Previous Page.

Atomic Absorption Raw Data Package

SDG 18578A / 18430B

Analyst A Nagel / Frederick Littlejohn Date 12/11/89

	Channel A	Channel B
Element	PB	TI
Background Correction	S-H	S-H
Wavelength	283 nm	277 nm

AA Spectrophotometer Instrument I.D. A3

Integration Time 2.9 sec Delay 12 sec

Integration Mode PEAK AREA

Set Up Parameters ** Fill In or See Attached (screen dump) **

Furnace

	Dry	Pyr1	Pyr2	Atom	Clean
Temp	150	350	440	1800	2100
Ramp	0	10	5	0	
Hold	0	0	5	4	1
Purge	1	2	2	0	3

Fastac

Aspiration Rate 1.0 mL/min

Delay 10 sec Deposition 10 sec

Calibration Standards

Source SPEX

Preparation Date 12/11/89

Preparer ABC Andrew B. Littlejohn

Concentration Units ug/L

Performance Check - 2 ug/L STANDARD ABSORBANCES
Channel A .114
Channel B .145

PAGES 1 THRU 12

Mean		-0.005	0.004
P/H		-0.005	0.000
Abs	2	0.000	0.003
Mean		-0.003	0.003
P/H		0.000	0.000

AUTO ZERO
14:02:25
Sat 9 DEC 1989

		Pb-S	Tl-D
Standard C			
Abs	1	0.113	0.164
Mean		0.113	0.164
P/H		0.222	0.303
Abs	2	0.119	0.166
Mean		0.116	0.165
P/H		0.238	0.311
		Pb-S	Tl-D
Mean		0.116	0.165
SD		0.004	0.001
RSD		03.62	00.94
		Pb-S	Tl-D
Standard 1			
Abs	1	0.020	0.084
Mean		0.020	0.084
P/H		0.030	0.173
Abs	2	0.019	0.090
Mean		0.019	0.087
P/H		0.028	0.163
		Pb-S	Tl-D
Mean		0.019	0.087
SD		0.001	0.004
RSD		05.26	04.92
		Pb-S	Tl-D

0/0

1805

20/20

1810

3/0

1900

1815

Abs	1	0.216	0.317
Mean		0.216	0.317
P/H		0.471	0.579
Abs	2	0.215	0.313
Mean		0.215	0.315
P/H		0.451	0.559
		Pb-S	Tl-D
Mean		0.215	0.315
SD		0.001	0.003
RSD		00.46	00.88

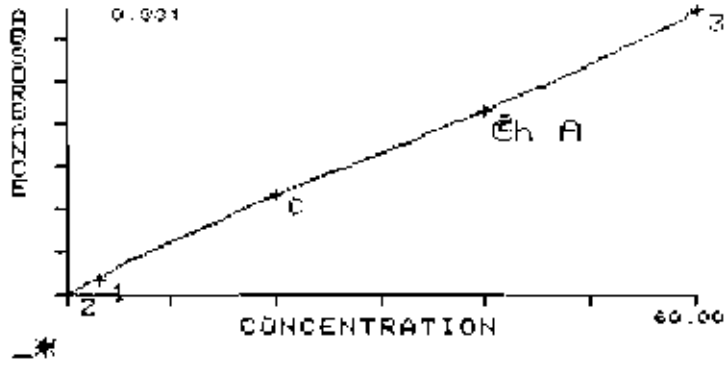
10/45

1820

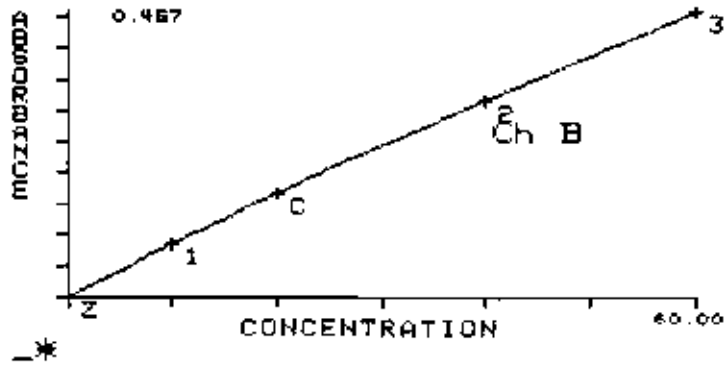
		Pb-S	Tl-D
Standard		3	
Abs	1	0.324	0.455
Mean		0.324	0.455
P/H		0.651	0.753
Abs	2	0.338	0.459
Mean		0.331	0.457
P/H		0.654	0.740
		Pb-S	Tl-D
Mean		0.331	0.457
SD		0.010	0.003
RSD		02.96	00.61

60/60

Pb-S



Tl-D



CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	20.00	0.116
1	03.00	0.019
2	40.00	0.215
3	60.00	0.331

APP CONC

STD Z	00.00
STD C	20.05
STD 1	02.90
STD 2	39.96
STD 3	60.00

CALIBRATE B

STD	CONC	MEAN
Z	00.00	0.000
C	20.00	0.165
1	10.00	0.087
2	40.00	0.315
3	60.00	0.457

APP CONC

STD Z	00.00
STD C	19.86
STD 1	10.13
STD 2	40.03
STD 3	60.00

RSD

		Pb-S	Tl-D
SN= 000387			
Conc	1	41.00	37.68
Mean		41.00	37.68
P/H		0.515	0.599
Conc	2	41.53	37.61
Mean		41.26	37.64
P/H		0.508	0.581
		Pb-S	Tl-D
Mean		41.26	37.64
SD		00.37	00.05
RSD		00.90	00.13
		Pb-S	Tl-D
SN= 000000			
Conc	1	-00.30	-01.16
Mean		-00.30	-01.16
P/H		-0.002	-0.004
Conc	2	00.29	-00.81
Mean		-00.01	-00.99
P/H		0.005	-0.008
		Pb-S	Tl-D
Mean		-00.01	-00.99
SD		00.42	00.25
RSD		DIO HI	-24.94
		Pb-S	Tl-D
SN= 030010			
Conc	1	02.53	09.12
Mean		02.53	09.12
P/H		0.047	0.192
Conc	2	02.47	09.63
Mean		02.50	09.37
P/H		0.040	0.184
		Pb-S	Tl-D
Mean		02.50	09.37
SD		00.04	00.36
RSD		01.68	03.84
		Pb-S	Tl-D
SN= 030011			
Conc	1	22.96	28.66
Mean		22.96	28.66
P/H		0.318	0.489
Conc	2	20.39	28.62
Mean		21.67	28.64
P/H		0.274	0.458
		Pb-S	Tl-D
Mean		21.67	28.64
SD		01.82	00.03
RSD		08.38	00.09

ICV

ICV-4 2:5

T_{Pb} = 97.9 = 105%

T_{Tl} = 97.3 97%

-5-

1825

ICB

1830

1835

CRA

Pb 83%

Tl 94%

CRAA

1840

+20ppb Pb 96%

+20ppb Tl 96%

		Pb-S	Tl-D
SN= 000135			
Conc	1	25.11	20.74
Mean		25.11	20.74
P/H		0.305	0.348
Conc	2	26.36	18.50
Mean		25.73	19.62
P/H		0.314	0.337
		Pb-S	Tl-D
Mean		25.73	19.62
SD		00.88	01.58
RSD		03.43	08.06
		Pb-S	Tl-D
SN= 000001			
Conc	1	-00.46	-00.62
Mean		-00.46	-00.62
P/H		-0.004	-0.004
Conc	2	00.10	-00.67
Mean		-00.18	-00.65
P/H		-0.006	-0.001
		Pb-S	Tl-D
Mean		-00.18	-00.65
SD		00.40	00.04
RSD		DIG HI	-05.53

CCV 1 1925

$T_{PB} = 25$ 103%

$T_{Tl} = 20$ 98%

CCB 1 1930

		Pb-S	Tl-D
SN= 000135			
Conc	1	24.25	19.04
Mean		24.25	19.04
P/H		0.282	0.323
Conc	2	25.14	19.31
Mean		24.69	19.17
P/H		0.298	0.332
		Pb-S	Tl-D
Mean		24.69	19.17
SD		00.63	00.19
RSD		02.54	00.99
		Pb-S	Tl-D
SN= 000099			
Conc	1	00.36	-02.29
Mean		00.36	-02.29
P/H		-0.004	-0.009
Conc	2	01.12	-02.01
Mean		00.74	-02.15
P/H		-0.001	-0.006
		Pb-S	Tl-D
Mean		00.74	-02.15
SD		00.54	00.20
RSD		72.56	-09.16

CCV_2 20 25

$T_{PB} = 25$ 99%

$T_{TL} = 20$ 96%

CCB_2 20 30

	Pb-S	Tl-D
SN= 303474		
Conc 1	00.65	-00.26
Mean	00.65	-00.26
P/H	-0.003	-0.004
Conc 2	01.46	01.62
Mean	01.05	00.68
P/H	-0.002	0.004
	Pb-S	Tl-D
Mean	01.05	00.68
SD	00.57	01.33
RSD	54.47	DIG HI
	Pb-S	Tl-D
SN= 303474		
Conc 1	21.67	20.40
Mean	21.67	20.40
P/H	0.231	0.317
Conc 2	20.41	19.52
Mean	21.04	19.96
P/H	0.240	0.321
	Pb-S	Tl-D
Mean	21.04	19.96
SD	00.89	D0.62
RSD	04.23	03.11
	Pb-S	Tl-D
SN= 3D1931		
Conc 1	19.05	18.77
Mean	19.05	18.77
P/H	0.234	0.284
Conc 2	19.60	18.99
Mean	19.32	15.58
P/H	0.215	0.294
	Pb-S	Tl-D
Mean	19.32	18.88
SD	00.39	00.16
RSD	02.00	00.82
	Pb-S	Tl-D
SN= 301931		
Conc 1	40.38	35.48
Mean	40.38	35.48
P/H	0.450	0.563
Conc 2	39.55	36.51
Mean	39.96	35.99
P/H	0.450	0.563
	Pb-S	Tl-D
Mean	39.96	35.99
SD	00.59	00.73
RSD	01.46	02.02
	Pb-S	Tl-D
SN= 301909		
Conc 1	03.52	-00.09
Mean	03.52	-00.09
P/H	0.035	-0.003
Conc 2	04.88	01.11
Mean	04.20	00.51
P/H	0.034	0.009
	Pb-S	Tl-D
Mean	04.20	00.51
SD	00.96	00.85
RSD	22.88	DIG HI

PBW

2045

PB W A

2050

+20 Pb

+20 TL

LCS

T=100

5X

2055

2100

LCS 5X A

T=

+20 Pb

+20 TL

738001-12

RSD High Pb

See Bill H data

2105

		Pb-S	Tl-D
SN= 301909			
Conc	1	26.06	21.50
Mean		26.06	21.50
P/H		0.205	0.278
Conc	2	26.28	21.23
Mean		26.17	21.36
P/H		0.223	0.259
		Pb-S	Tl-D
Mean		26.17	21.36
SD		00.16	00.19
RSD		00.59	00.89
		Pb-S	Tl-D
SN= 301929			
Conc	1	22.77	49.50
Mean		22.77	49.50
P/H		0.200	0.530
Conc	2	23.67	49.10
Mean		23.22	49.30
P/H		0.197	0.536
		Pb-S	Tl-D
Mean		23.22	49.30
SD		00.64	00.28
RSD		02.73	00.57

738001-12 A

+20 Pb ~~110~~ 115 %

+20 Tl 107%

BHR 9/14/89 see BMH data

SS (301909)

T for 9/14/89

2/10

2/15

15

21 20

Pb-S Tl-D

SN= 301909

Conc	1	03.54	-00.44
Mean		03.54	-00.44
P/H		0.024	-0.005
Conc	2	02.89	-00.38
Mean		03.21	-00.03
P/H		0.031	-0.001

Pb-S Tl-D

Mean	03.21	-00.03
SD	00.46	00.58
RSD	14.29	DIG HI

738001 - 12

BHH 12/14/87

See BHH data

		Pb-S	Tl-D
SN= 000135			
Conc	1	25.58	20.15
Mean		25.58	20.15
P/H		0.290	0.332
Conc	2	25.15	18.93
Mean		25.36	19.54
P/H		0.269	0.313
		Pb-S	Tl-D
Mean		25.36	19.54
SD		00.30	00.86
RSD		01.19	04.41
		Pb-S	Tl-D
SN= 000003			
Conc	1	00.26	-00.19
Mean		00.26	-00.19
P/H		-0.002	-0.001
Conc	2	00.26	00.12
Mean		00.26	-00.04
P/H		0.000	-0.001
		Pb-S	Tl-D
Mean		00.26	-00.04
SD		00.00	00.22
RSD		00.00	DIG HI

CCV 3

$T_{Pb} = 25$ 101 %

$T_{Tl} = 20$ 98%

21 25

CCB 3

21 30

```
          Pb-S T1-D
SN= 301910
Conc   1  00.90  00.43
Mean      00.90  00.43
P/H       0.000 -0.002
Conc   2  02.57 -00.79
Mean      01.73 -00.18
P/H       0.004 -0.006
          Pb-S T1-D
Mean      01.73 -00.18
SD        01.18  00.96
RSD       68.20 DIO HI
          Pb-S T1-D
SN= 301910
Conc   1  24.24  24.67
Mean      24.24  24.67
P/H       0.196  0.267
Conc   2  25.34  24.14
Mean      24.79  24.40
P/H       0.221  0.269
          Pb-S T1-D
Mean      24.79  24.40
SD        00.78  00.37
RSD       03.13  01.53
          Pb-S T1-D
SN= 301930
Conc   1  01.74 -00.67
Mean      01.74 -00.67
P/H       0.002 -0.004
Conc   2  01.31  00.72
Mean      01.52  00.02
P/H       0.003 -0.001
          Pb-S T1-D
Mean      01.52  00.02
SD        00.30  00.98
RSD       20.00 DIG HI
          Pb-S T1-D
SN= 301930
Conc   1  20.24  22.78
Mean      20.24  22.78
P/H       0.207  0.264
Conc   2  21.66  22.28
Mean      20.95  22.53
P/H       0.193  0.252
          Pb-S T1-D
Mean      20.95  22.53
SD        01.00  00.35
RSD       04.79  01.56
          Pb-S T1-D
SN= 301917
Conc   1 -03.08 -01.44
Mean      03.08 -01.44
P/H       0.021 -0.004
Conc   2  02.46 -00.27
Mean      02.77 -00.86
P/H       0.018 -0.002
          Pb-S T1-D
Mean      02.77 -00.86
SD        00.44  00.83
RSD       15.81 -96.16
```

738001-02

21 35

738001-02 A

21 40

+20 Pb 115 %

+20 Tl 122 %

D(301910)

21 45

D(301910) A

21 50

+20 Pb 97 %

+20 Tl 113 %

738001-01

21 55

		Pb-S	Tl-D
SN= 301917			
Conc	1	24.86	22.33
Mean		24.86	22.33
P/H		0.218	0.263
Conc	2	25.13	23.05
Mean		24.99	22.69
P/H		0.240	0.268
		Pb-S	Tl-D
Mean		24.99	22.69
SD		00.19	00.51
RSD		00.76	02.24

738001-01 A

2200

+20 Pb 111%
+20 TL 113%

		Pb-S	Tl-D
SN= 301915			
Conc	1	05.11	-00.20
Mean		05.11	-00.20
P/H		0.041	-0.005
Conc	2	04.02	-00.43
Mean		04.56	-00.32
P/H		0.047	0.000
		Pb-S	Tl-D
Mean		04.56	-00.32
SD		00.77	00.16
RSD		16.88	-50.62

738001-03

2205

		Pb-S	Tl-D
SN= 301918			
Conc	1	25.92	21.46
Mean		25.92	21.46
P/H		0.275	0.315
Conc	2	25.89	22.95
Mean		25.90	22.20
P/H		0.281	0.322
		Pb-S	Tl-D
Mean		25.90	22.20
SD		00.02	01.05
RSD		00.08	04.74

738001-03A

2210

+20 Pb 107%
+20 Tl 111%

		Pb-S	Tl-D
SN= 301922			
Conc	1	00.22	-01.38
Mean		00.22	-01.38
P/H		-0.007	-0.002
Conc	2	00.09	-01.25
Mean		00.15	-01.32
P/H		-0.004	-0.003
		Pb-S	Tl-D
Mean		00.15	-01.32
SD		00.09	00.09
RSD		61.33	-06.96

738001-08

2215

		Pb-S	Tl-D
SN= 301922			
Conc	1	23.87	22.66
Mean		23.87	22.66
P/H		0.207	0.267
Conc	2	23.82	23.92
Mean		23.84	23.29
P/H		0.224	0.280
		Pb-S	Tl-D
Mean		23.84	23.29
SD		00.04	00.89
RSD		00.15	03.82

738001-08A

2220

+20 Pb 119% W
+20 TL 114% W

	Pb-S	Tl-D
SN= 000135		
Conc 1	26.18	20.76
Mean	26.18	20.76
P/H	0.272	0.316
Conc 2	25.23	19.98
Mean	25.70	20.37
P/H	0.292	0.324
	Pb-S	Tl-D
Mean	25.70	20.37
SD	00.67	00.55
RSD	02.61	02.70
	Pb-S	Tl-D
SN= 000004		
Conc 1	00.58	-01.82
Mean	00.58	-01.82
P/H	-0.003	-0.007
Conc 2	-00.26	-01.33
Mean	00.16	-01.58
P/H	-0.004	-0.006
	Pb-S	Tl-D
Mean	00.16	-01.58
SD	00.59	00.35
RSD	DIG HI	-21.89

CCV4 2225

T_{Pb} = 25 103%

T_{Tl} = 20 102%

CCB4 2230

```
        Pb-S T1-D
SN= 301937
Conc  1  05.66 -02.02
Mean     05.66 -02.02
P/H      0.051 -0.008
Conc  2  06.73 -00.87
Mean     06.19 -01.45
P/H      0.069 -0.006
        Pb-S T1-D
Mean     06.19 -01.45
SD       00.76  00.81
RSD      12.21 -56.06
        Pb-S T1-D
SN= 301937
Conc  1  30.24  21.28
Mean     30.24  21.28
P/H      0.298  0.328
Conc  2  30.80  22.90
Mean     30.52  22.09
P/M      0.312  0.350
        Pb-S T1-D
Mean     30.52  22.09
SD       00.40  01.15
RSD      01.29  05.18
        Pb-S T1-D
SN= 301938
Conc  1  00.34 -00.28
Mean     00.34 -00.28
P/H     -0.008  0.000
Conc  2  01.87 -00.37
Mean     01.10 -00.33
P/H     -0.003 -0.002
        Pb-S T1-D
Mean     01.10 -00.33
SD       01.08  00.06
RSD      98.27 -19.39
        Pb-S T1-D
SN= 301938
Conc  1  19.10  21.83
Mean     19.10  21.83
P/H      0.214  0.258
Conc  2  20.63  21.72
Mean     19.86  21.77
P/H      0.210  0.262
        Pb-S T1-D
Mean     19.86  21.77
SD       01.08  00.08
RSD      05.44  00.35
        Pb-S T1-D
SN= 301939
Conc  1  03.85 -02.16
Mean     03.85 -02.16
P/H      0.034 -0.009
Conc  2  04.27 -01.78
Mean     04.06 -01.97
P/H      0.040 -0.005
        Pb-S T1-D
Mean     04.06 -01.97
SD       00.30  00.27
RSD      07.29 -13.60
```

738001-05 — 2235

738001-05A — 2240

+20 PB 122 % W

+20 TL 111 %

738001-10 — 2245

738001-10A — 2250

+20 PB 94 %

+20 TL 109 %

738001-06 — ~~2255~~ 2300

	Pb-S	Tl-D	
SN= 301939			738001-06 A
Conc 1	24.85	21.04	
Mean	24.85	21.04	
P/H	0.257	0.296	+20 Pb 102%
Conc 2	23.88	20.47	
Mean	24.36	20.75	+20 Tl 104%
P/H	0.252	0.276	
	Pb-S	Tl-D	
Mean	24.36	20.75	
SD	00.69	00.40	
RSD	02.81	01.94	
	Pb-S	Tl-D	
SN= 302150			738001-15
Conc 1	02.34	-01.04	
Mean	02.34	-01.04	
P/H	0.014	-0.003	
Conc 2	02.86	-01.45	
Mean	02.60	-01.25	
P/H	0.012	-0.005	
	Pb-S	Tl-D	
Mean	02.60	-01.25	
SD	00.37	00.29	
RSD	14.11	-23.20	
	Pb-S	Tl-D	
SN= 302150			738001-15A
Conc 1	21.07	18.76	
Mean	21.07	18.76	
P/H	0.198	0.219	+20 Pb 93%
Conc 2	21.30	19.64	
Mean	21.18	19.20	+20 Tl 96%
P/H	0.205	0.229	
	Pb-S	Tl-D	
Mean	21.18	19.20	
SD	00.16	00.62	
RSD	00.76	03.23	
	Pb-S	Tl-D	
SN= 302154			738001-16
Conc 1	07.49	-01.27	
Mean	07.49	-01.27	
P/H	0.060	-0.008	
Conc 2	07.78	-01.89	
Mean	07.63	-01.58	
P/H	0.071	-0.004	
	Pb-S	Tl-D	
Mean	07.63	-01.58	
SD	00.21	00.44	
RSD	02.68	-27.72	
	Pb-S	Tl-D	
SN= 302154			738001-16A
Conc 1	24.11	15.03	
Mean	24.11	15.03	
P/H	0.200	0.159	+20 Pb 84% W
Conc 2	24.55	14.83	
Mean	24.33	14.93	+20 Tl 75% W
P/H	0.224	0.158	
	Pb-S	Tl-D	
Mean	24.33	14.93	
SD	00.31	00.14	
RSD	01.27	00.94	

-21-

23.06

23 10

23 15

23 20

23 25

		Pb-S	Tl-D
SN= 000135			
Conc	1	23.44	20.69
Mean		23.44	20.69
P/H		0.236	0.281
Conc	2	26.09	20.58
Mean		24.76	20.63
P/H		0.266	0.319
		Pb-S	Tl-D
Mean		24.76	20.63
SD		01.87	00.08
RSD		07.56	00.37
		Pb-S	Tl-D
SN= 000005			
Conc	1	00.99	-01.91
Mean		00.99	-01.91
P/H		-0.003	-0.006
Conc	2	00.00	-01.64
Mean		00.49	-01.78
P/H		-0.009	-0.008
		Pb-S	Tl-D
Mean		00.49	-01.78
SD		00.70	00.19
RSD		DIO HI	-10.73

CCV - 2330

$T_{Pb} = 25$ 99 %

$T_{Tl} = 20$ 103 %

CCB - 2335

Case No. : _____ SAS No. : _____ SDG No. : 18410-B

Analyst Bryce Holmes Date 12-12-89

	Channel A	Channel B
Element	Pb	Tl
Background Correction	S-H	D2
Wavelength	283.3 nm	276.8 nm

AA Spectrophotometer Instrument I.D. A3

Integration Time 2.9 sec Delay 0.0 sec

Integration Mode Peak Area

Set Up Paramters ** Fill In or See Attached (screen dump) **

Furnace

	Dry	Pyr1	Pyr2	Atom	Clean
Temp	150	350	425	1800	2100
Ramp					
Hold	0	1	2	1	1
Purge					

Fastac

Aspiratinn Rate 1.0 mL/min

Daley 12.0 sec Deposition 10.0 sec

Calibration Standards

Source SPEX

Preparation Date 12-12-89

Preparer B.M. Holmes

Concentration Units ug/l

Performance Check - 20 ug/L STANDARD ABSORBANCES
Channel A .116
Channel B .165

PAGES 1 TSRU ___

```
Abs    1 -0.004   0.008
Mean     -0.004   0.008
P/H      -0.005   0.005
         Pb-S T1-D
Mean     -0.004   0.008
SD
RSD
         Pb-S T1-D
Standard Z
Abs    1 -0.004  -0.001
Mean     -0.004  -0.001
P/H      -0.005   0.000
Abs    2  0.001  -0.002
Mean     -0.002  -0.002
P/H      -0.002   0.001
AUTO ZERO
04:32:37
Sun  10 DEC 1989
         Pb-S T1-D
Standard C
Abs    1  0.117   0.165
Mean      0.117   0.165
P/H       0.244   0.294
Abs    2  0.116   0.165
Mean      0.116   0.165
P/H       0.218   0.267
         Pb-S T1-D
Mean      0.116   0.165
SD        0.001   0.000
RSD       00.86   00.00
         Pb-S T1-D
Standard 1
Abs    1  0.018   0.086
Mean      0.018   0.086
P/H       0.037   0.150
Abs    2  0.016   0.085
Mean      0.017   0.085
P/H       0.029   0.149
         Pb-S T1-D
Mean      0.017   0.085
SD        0.001   0.001
RSD       08.23   01.17
         Pb-S T1-D
Standard 2
Abs    1  0.217   0.307
Mean      0.217   0.307
P/H       0.423   0.506
Abs    2  0.211   0.308
Mean      0.214   0.307
P/H       0.444   0.520
         Pb-S T1-D
Mean      0.214   0.307
SD        0.004   0.001
RSD       01.96   00.32
         Pb-S T1-D
Standard 3
```

0 ppb 0900

20 ppb 0904

3/10 ppb 0908

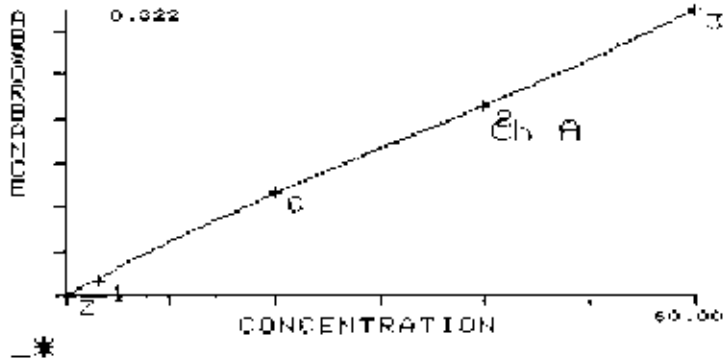
40 ppb 0912

Abs	1	0.321	0.442
Mean		0.321	0.442
P/H		0.630	0.721
Abs	2	0.324	0.442
Mean		0.322	0.442
P/H		0.614	0.668
		Pb-S	Tl-D
Mean		0.322	0.442
SD		0.002	0.000
RSD		00.68	00.00

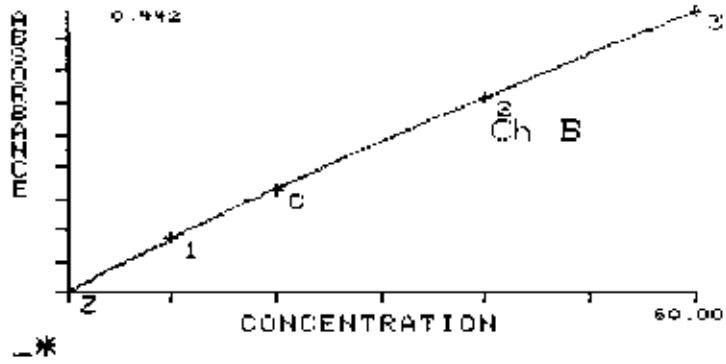
60 ppb

0918

Pb-S



Tl-D



CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	20.00	0.116
1	03.00	0.017
2	40.00	0.214
3	60.00	0.322

APP CONC

STD Z	00.00
STD C	20.15
STD 1	02.64
STD 2	39.91
STD 3	60.01

CALIBRATE B

STD	CONC	MEAN
Z	00.00	0.000
C	20.00	0.165
1	10.00	0.085
2	40.00	0.307
3	60.00	0.442

APP CONC

STD Z	00.00
STD C	20.07
STD 1	09.91
STD 2	39.96
STD 3	60.01

5

		Pb-S	Tl-D
SN= 000387			
Conc	1	42.51	40.21
Mean		42.51	40.21
P/H		0.448	0.511
Conc	2	43.08	40.71
Mean		42.79	40.46
P/H		0.484	0.523
		Pb-S	Tl-D
Mean		42.79	40.46
SD		00.40	00.35
RSD		00.94	00.87

ICV 0387

T= 97.9 - Pb 109% } 2:5

T= 97.3 - Tl 104% }

9 34

		Pb-S	Tl-D
SN= 000001			
Conc	1	-00.60	-00.05
Mean		-00.60	-00.05
P/H		-0.001	0.002
Conc	2	-00.39	00.06
Mean		-00.50	00.00
P/H		0.001	-0.002
		Pb-S	Tl-D
Mean		-00.50	00.00
SD		00.15	00.08
RSD		-29.60	OIG HI

ICB

9 38

		Pb-S	Tl-D
SN= 222222			
Conc	1	02.58	10.51
Mean		02.58	10.51
P/H		0.034	0.167
Conc	2	03.00	10.30
Mean		02.79	10.40
P/H		0.038	0.159
		Pb-S	Tl-D
Mean		02.79	10.40
SD		00.30	00.15
RSD		10.60	01.42

CRA

9 42

		Pb-S	Tl-D
SN= 222222			
Conc	1	22.58	30.60
Mean		22.58	30.60
P/H		0.264	0.419
Conc	2	24.01	30.90
Mean		23.29	30.75
P/H		0.285	0.421
		Pb-S	Tl-D
Mean		23.29	30.75
SD		01.01	00.21
RSD		04.34	00.68

CRA A

Pb - 103%

Tl - 102%

9 46

		Pb-S	Tl-D	
SN= 303474				Prep Blk
Conc	1	-00.40	-00.14	
Mean		-00.40	-00.14	
P/H		-0.001	0.002	
Conc	2	00.19	-00.23	
Mean		-00.11	-00.19	
P/H		-0.002	0.001	
		Pb-S	Tl-D	
Mean		-00.11	-00.19	
SD		00.42	00.06	
RSD		DIG HI	-33.68	
		Pb-S	Tl-D	
SN= 303474				A
Conc	1	19.78	21.66	
Mean		19.78	21.66	
P/H		0.231	0.296	
Conc	2	20.27	21.52	
Mean		20.02	21.59	
P/H		0.248	0.316	
		Pb-S	Tl-D	
Mean		20.02	21.59	
SD		00.35	00.10	
RSD		01.72	00.45	
		Pb-S	Tl-D	
SN= 301237				B-S
Conc	1	HIGH	00.24	
Mean		HIGH	00.24	
P/H		1.005	0.002	
Conc	2	HIGH	00.44	
Mean		HIGH	00.34	
P/H		0.909	0.001	
		Pb-S	Tl-D	
Mean		HIGH	00.34	
SD			00.14	
RSD			41.47	
		Pb-S	Tl-D	
SN= 301237				A
Conc	1	HIGH	11.87	
Mean		HIGH	11.87	
P/H		1.095	0.135	
Conc	2	HIGH	12.34	
Mean		HIGH	12.10	
P/H		1.081	0.136	
		Pb-S	Tl-D	
Mean		HIGH	12.10	
SD			00.33	
RSD			02.74	

9:50

Tl-

9:54

Pb - 100%

Tl - 108%

9:58

Tl -

10:02

Pb -

Tl - 54%

		Pb-S	Tl-D
SN= 301931			
Conc	1	19.35	19.87
Mean		19.35	19.87
P/H		0.231	0.301
Conc	2	19.46	20.10
Mean		19.40	19.98
P/H		0.242	0.299
		Pb-S	Tl-D
Mean		19.40	19.98
SD		00.08	00.16
RSD		00.40	00.81

BS 1:5

10:06

		Pb-S	Tl-D
SN= 301931			
Conc	1	38.19	38.97
Mean		38.19	38.97
P/H		0.414	0.504
Conc	2	37.84	36.89
Mean		38.01	37.93
P/H		0.425	0.509
		Pb-S	Tl-D
Mean		38.01	37.93
SD		00.25	01.47
RSD		00.64	03.87

A 1:5

Pb - 93%
Tl - 90%

10:10

		Pb-S	Tl-D
SN= 301909			
Conc	1	02.11	-00.39
Mean		02.11	-00.39
P/H		0.029	0.000
Conc	2	02.87	00.19
Mean		02.49	-00.10
P/H		0.036	0.003
		Pb-S	Tl-D
Mean		02.49	-00.10
SD		00.54	00.41
RSD		21.56	DIG HI

738001-12

10:14

		Pb-S	Tl-D
SN= 301909			
Conc	1	22.62	19.26
Mean		22.62	19.26
P/H		0.210	0.241
Conc	2	23.91	20.25
Mean		23.26	19.75
P/H		0.217	0.238
		Pb-S	Tl-D
Mean		23.26	19.75
SD		00.91	00.70
RSD		03.92	03.54

M

Pb - 104%
Tl - 99%

10:18

		Pb-S	Tl-D
SN= 000135			
Conc	1	25.54	21.57
Mean		25.54	21.57
P/H		0.284	0.296
Conc	2	26.53	21.56
Mean		26.03	21.56
P/H		0.324	0.321
		Pb-S	Tl-D
Mean		26.03	21.56
SD		00.70	00.01
RSD		02.68	00.04

CCV, SPEX

T = 25 104%

T = 20 108%

10:22

		Pb-S	Tl-D
SN= 000000			
Conc	1	-00.22	-00.57
Mean		-00.22	-00.57
P/H		0.003	-0.003
Conc	2	-00.29	-00.56
Mean		-00.26	-00.57
P/H		0.000	-0.002
		Pb-S	Tl-D
Mean		-00.26	-00.57
SD		00.05	00.01
RSD		-19.23	-01.75

CCB,

10:26

		Pb-S	Tl-D
SN= 301929			
Conc	1	21.40	50.01
Mean		21.40	50.01
P/H		0.206	0.524
Conc	2	21.71	51.92
Mean		21.55	50.96
P/H		0.224	0.513
		Pb-S	Tl-D
Mean		21.55	50.96
SD		00.22	01.35
RSD		01.01	02.64

35 (30/909)

NOT USED

See A. NAGEL's Data of 12/11/89

JT 12/20/89

10:30

		Pb-S	Tl-D
SN= 301904 10			
Conc	1	00.68	-00.69
Mean		00.68	-00.69
P/H		0.005	-0.002
Conc	2	00.72	-01.11
Mean		00.70	-00.90
P/H		0.006	-0.004
		Pb-S	Tl-D
Mean		00.70	-00.90
SD		00.03	00.30
RSD		04.00	-32.88

738001-02

10:34

		Pb-S	Tl-D
SN= 301910			
Conc	1	21.06	19.95
Mean		21.06	19.95
P/H		0.207	0.253
Conc	2	20.45	20.21
Mean		20.75	20.08
P/H		0.213	0.261
		Pb-S	Tl-D
Mean		20.75	20.08

A

Tl - 100%

Pb - 100%

10:38

NOT USED

See A. Nagel's Data of 12/11/89

JT

12/20/89

		Pb-S	Tl-D
SN= 301930			D(301910)
Conc	1	01.08	-00.59
Mean		01.08	-00.59
P/H		0.006	-0.002
Conc	2	00.41	-00.63
Mean		00.74	-00.61
P/H		0.011	0.000
		Pb-S	Tl-D
Mean		00.74	-00.61
SD		00.47	00.03
RSD		63.91	-04.69

10:42

		Pb-S	Tl-D
SN= 301930			A
Conc	1	22.02	20.21
Mean		22.02	20.21
P/H		0.221	0.267
Conc	2	19.89	19.83
Mean		20.95	20.02
P/H		0.214	0.261
		Pb-S	Tl-D
Mean		20.95	20.02
SD		01.51	00.27
RSD		07.18	01.33

Tl - 100%
Pb - 101%

10:46

		Pb-S	Tl-D
SN= 301917			738001-01
Conc	1	02.63	-00.44
Mean		02.63	-00.44
P/H		0.029	-0.002
Conc	2	02.27	-00.91
Mean		02.45	-00.68
P/H		0.031	-0.003
		Pb-S	Tl-D
Mean		02.45	-00.68
SD		00.25	00.33
RSD		10.36	-48.82

10:50

		Pb-S	Tl-D
SN= 301917			A
Conc	1	22.92	19.46
Mean		22.92	19.46
P/H		0.231	0.259
Conc	2	23.27	18.98
Mean		23.09	19.22
P/H		0.244	0.241
		Pb-S	Tl-D
Mean		23.09	19.22
SD		00.25	00.34
RSD		01.06	01.76

Tl - 96%
Pb - 103%

10:54

		Pb-S	Tl-D
SN= 301918			
Conc	1	03.16	-00.42
Mean		03.16	-00.42
P/H		0.043	-0.004
Conc	2	04.12	-00.60
Mean		03.64	-00.51
P/H		0.050	-0.004
		Pb-S	Tl-D
Mean		03.64	-00.51
SD		00.68	00.13
RSD		18.62	-24.90
		Pb-S	Tl-D
SN= 301918			
Conc	1	22.37	19.72
Mean		22.37	19.72
P/H		0.245	0.285
Conc	2	22.74	20.35
Mean		22.55	20.03
P/H		0.248	0.283
		Pb-S	Tl-D
Mean		22.55	20.03
SD		00.26	00.45
RSD		01.15	02.22
		Pb-S	Tl-D
SN= 301922			
Conc	1	00.18	-00.90
Mean		00.18	-00.90
P/H		0.002	-0.002
Conc	2	00.07	-00.76
Mean		00.12	-00.83
P/H		0.003	-0.003
		Pb-S	Tl-D
Mean		00.12	-00.83
SD		00.08	00.10
RSD		65.00	-11.80

738001-03 NOT USED

See A. Nagel's Data of 12/11/89 11:00

JT
12/20/89

A

Tl - 100%
Pb - 95%

11:04

738001-08

11:08

11

		Pb-S	Tl-D
SN= 000135			
Conc	1	26.96	21.30
Mean		26.96	21.30
P/H		0.302	0.318
Conc	2	27.58	21.55
Mean		27.27	21.42
P/H		0.323	0.340
		Pb-S	Tl-D
Mean		27.27	21.42
SD		00.44	00.18
RSD		01.60	00.82
		Pb-S	Tl-D
SN= 000000			
Conc	1	-00.08	-00.16
Mean		-00.08	-00.16
P/H		0.001	-0.003
Conc	2	-00.05	-00.77
Mean		-00.07	-00.47
P/H		-0.000	-0.005
		Pb-S	Tl-D
Mean		-00.07	-00.47
SD		00.02	00.43
RSD		-31.42	-91.70

CCV_2

Tl - 107%

11:12

CCB_2

11:14

		Pb-S	Tl-D
SN= 301922			
Conc	1	20.59	19.12
Mean		20.59	19.12
P/H		0.196	0.249
Conc	2	20.62	19.43
Mean		20.60	19.27
P/H		0.218	0.248
		Pb-S	Tl-D
Mean		20.60	19.27
SD		00.02	00.22
RSD		00.10	01.13

A

Tl - 96%

Pb - 102%

NOT USED

See A. Nagel's Data of 12/11/89

11:18

JT

12/20/89

		Pb-S	Tl-D
SN= 301937			
Conc	1	05.64	-00.91
Mean		05.64	-00.91
P/H		0.074	-0.002
Conc	2	05.80	-00.97
Mean		05.72	-00.94
P/H		0.068	-0.003
		Pb-S	Tl-D
Mean		05.72	-00.94
SD		00.11	00.04
RSD		01.97	-04.46
		Pb-S	Tl-D
SN= 301937			
Conc	1	25.90	18.89
Mean		25.90	18.89
P/H		0.275	0.294
Conc	2	24.80	18.50
Mean		25.35	18.69
P/H		0.287	0.276
		Pb-S	Tl-D
Mean		25.35	18.69
SD		00.78	00.28
RSD		03.06	01.47
		Pb-S	Tl-D
SN= 301938			
Conc	1	00.60	-01.02
Mean		00.60	-01.02
P/H		0.003	-0.005
Conc	2	00.35	00.06
Mean		00.47	-00.48
P/H		0.009	0.002
		Pb-S	Tl-D
Mean		00.47	-00.48
SD		00.18	00.76
RSD		37.44	OVC HI
		Pb-S	Tl-O
SN= 301938			
Conc	1	20.64	19.75
Mean		20.64	19.75
P/H		0.203	0.261
Conc	2	21.09	18.71
Mean		20.86	19.23
P/H		0.220	0.259
		Pb-S	Tl-D
Mean		20.86	19.23
SD		00.32	00.74
RSD		01.52	03.82

738001-05

NOT USED

See A. Nagel's Data of 12/11/89

11:22

JT

12/20/89

K

Tl - 93%

Pb - 98%

11:24

738001-10

11:28

A

Tl - 96%

Pb - 102%

11:32

	Pb-S T1-D		
SN= 301939			
Conc	1	04.61	-00.09
Mean		04.61	-00.09
P/H		0.047	0.000
Conc	2	03.64	-00.79
Mean		04.12	-00.44
P/H		0.040	-0.003
	Pb-S T1-D		
Mean		04.12	-00.44
SD		00.69	00.49
RSD		16.62	DIV HI
	Pb-S T1-D		
SN= 301939			
Conc	1	25.69	20.51
Mean		25.69	20.51
P/H		0.247	0.275
Conc	2	26.06	20.72
Mean		25.87	20.61
P/H		0.259	0.280
	Pb-S T1-D		
Mean		25.87	20.61
SD		00.26	00.15
RSD		01.00	00.71
	Pb-S T1-D		
SN= 302150			
Conc	1	02.08	-00.95
Mean		02.08	-00.95
P/H		0.026	-0.004
Conc	2	02.10	-00.62
Mean		02.09	-00.79
P/H		0.023	-0.001
	Pb-S T1-D		
Mean		02.09	-00.79
SD		00.01	00.23
RSD		00.66	-29.49
	Pb-S T1-D		
SN= 302150			
Conc	1	22.31	18.04
Mean		22.31	18.04
P/H		0.241	0.253
Conc	2	21.22	17.35
Mean		21.76	17.69
P/H		0.230	0.236
	Pb-S T1-D		
Mean		21.76	17.69
SD		00.77	00.49
RSD		03.53	02.75

738001-06

NOT USED

See A. Nagel's Data of 12/11/89

JT 12/20/89

11:36

A

Tl - 103%

Pb - 109%

11:40

738001-15

11:44

A

Tl 85%

Pb - 98%

11:48

		Pb-S	Tl-D
SN= 000135			
Conc	1	25.75	20.59
Mean		25.75	20.59
P/H		0.294	0.317
Conc	2	26.53	21.25
Mean		26.14	20.92
P/H		0.314	0.327
		Pb-S	Tl-D
Mean		26.14	20.92
SD		00.55	00.47
RSD		02.10	02.22

CCV_3

Pb - T = 25 105%

Tl - T = 20 105%

		Pb-S	Tl-D
SN= 000000			
Conc	1	00.21	-00.50
Mean		00.21	-00.50
P/H		0.005	-0.004
Conc	2	-00.38	-00.32
Mean		-00.09	-00.41
P/H		0.001	-0.002
		Pb-S	Tl-D
Mean		-00.09	-00.41
SD		00.42	00.13
RSD		DIG HI	-30.97

CCB_3

		Pb-S	Tl-D
SN= 302155			
Conc	1	02.50	-00.45
Mean		02.50	-00.45
P/H		0.025	-0.002
Conc	2	02.30	-00.70
Mean		02.40	-00.58
P/H		0.024	-0.001
		Pb-S	Tl-D
Mean		02.40	-00.58
SD		00.14	00.18
RSD		05.87	-30.34

738001-22

12:00

		Pb-S	Tl-D
SN= 302155			
Conc	1	23.69	12.97
Mean		23.69	12.97
P/H		0.241	0.178
Conc	2	23.12	12.38
Mean		23.40	12.67
P/H		0.241	0.165
		Pb-S	Tl-D
Mean		23.40	12.67
SD		00.40	00.42
RSD		01.72	03.29

A

Pb - 105%

Tl - 63%

12:04

15

	Pb-S	Tl-D	
SN= 302157			738001-25
Conc 1	02.86	-00.77	
Mean	02.86	-00.77	
P/H	0.037	-0.005	12:08
Conc 2	05.14	00.91	
Mean	04.00	00.07	
P/H	0.060	0.018	
	Pb-S	Tl-D	
Mean	04.00	00.07	
SD	01.61	01.19	
RSD	40.30	DIG MI	
	Pb-S	Tl-D	A
SN= 302157			
Conc 1	23.53	19.73	
Mean	23.53	19.73	
P/H	0.230	0.279	
Conc 2	24.99	20.90	Pb - 101%
Mean	24.26	20.31	Tl - 101% 12:12
P/H	0.233	0.288	
	Pb-S	Tl-D	
Mean	24.26	20.31	
SD	01.03	00.83	
RSD	04.25	04.07	
	Pb-S	Tl-D	
SN= 302166			738001-26
Conc 1	02.06	-00.70	
Mean	02.06	-00.70	
P/H	0.030	-0.003	
Conc 2	02.45	-00.83	12:16
Mean	02.25	-00.77	
P/H	0.030	-0.004	
	Pb-S	Tl-D	
Mean	02.25	-00.77	
SD	00.23	00.09	
RSD	12.22	-11.94	
	Pb-S	Tl-D	A
SN= 302166			
Conc 1	23.87	19.35	
Mean	23.87	19.35	Pb = 105%
P/H	0.268	0.267	
Conc 2	23.67	19.01	Tl - 96%
Mean	23.77	19.18	12:20
P/H	0.270	0.274	
	Pb-S	Tl-D	
Mean	23.77	19.18	
SD	00.14	00.24	
RSD	-00.59	01.25	

		Pb-S	Tl-D	
SN= 302168				738001-21
Conc	1	03.82	-00.79	
Mean		03.82	-00.79	
P/H		0.047	-0.004	
Conc	2	03.82	-00.82	12:24
Mean		03.82	-00.81	
P/H		0.045	-0.003	
		Pb-S	Tl-D	
Mean		03.82	-00.81	
SD		00.00	00.02	
RSD		00.00	-02.71	
		Pb-S	Tl-D	
SN= 302168				A
Conc	1	26.19	14.97	
Mean		26.19	14.97	Pb - 113%
P/H		0.278	0.214	
Conc	2	26.50	15.04	Tl - 75%
Mean		26.34	15.00	12:28
P/H		0.258	0.200	
		Pb-S	Tl-D	
Mean		26.34	15.00	
SD		00.22	00.05	
RSD		00.85	00.33	
		Pb-S	Tl-D	
SN= 302172				738001-17
Conc	1	01.54	-00.58	
Mean		01.54	-00.58	
P/H		0.021	-0.003	
Conc	2	04.52	02.12	12:32
Mean		03.03	00.77	
P/H		0.057	0.038	
		Pb-S	Tl-D	
Mean		03.03	00.77	
SD		02.11	01.91	
RSD		69.53	OIG MI	
		Pb-S	Tl-O	
SN= 302172				A
Conc	1	22.69	20.26	
Mean		22.69	20.26	
P/M		0.244	0.299	Pb - 97%
Conc	2	22.28	20.62	
Mean		22.48	20.44	Tl - 98% 12:36
P/H		0.250	0.275	
		Pb-S	Tl-D	
Mean		22.48	20.44	
SD		00.29	00.25	
RSD		01.29	01.24	

	Pb-S	Tl-D	
SN= 000135			CCV 34 12-11-89
Conc 1	25.91	20.97	Pb - 25 107%
Mean	25.91	20.97	
P/H	0.289	0.307	Tl - 20 107%
Conc 2	27.58	21.87	12:40
Mean	26.74	21.42	
P/H	0.311	0.321	
	Pb-S	Tl-D	
Mean	26.74	21.42	
SD	01.18	00.64	
RSD	04.41	02.96	
	Pb-S	Tl-D	CCB 34 12-11-89
SN= 000000			
Conc 1	-00.34	-00.25	
Mean	-00.34	-00.25	
P/H	-0.002	-0.002	12:44
Conc 2	-00.67	-00.52	
Mean	-00.51	-00.39	
P/H	0.002	-0.002	
	Pb-S	Tl-D	
Mean	-00.51	-00.39	
SD	00.23	00.19	
RSD	-45.68	-48.97	

	Pb-S	Tl-O	
SN= 302173			738001-18
Conc 1	02.23	-00.74	
Mean	02.23	-00.74	
P/H	0.030	-0.005	
Conc 2	02.15	-00.15	12:48
Mean	02.19	-00.45	
P/H	0.028	0.001	
	Pb-S	Tl-D	
Mean	02.19	-00.45	
SD	00.06	00.42	
RSD	02.55	-92.66	
	Pb-S	Tl-D	
SN= 302173			A
Conc 1	24.01	19.65	
Mean	24.01	19.65	
P/H	0.246	0.268	
Conc 2	23.40	19.54	Pb - 98%
Mean	23.70	19.59	12:52
P/H	0.233	0.273	Tl - 98%
	Pb-S	Tl-D	
Mean	23.70	19.59	
SD	00.43	00.08	
RSD	01.81	00.39	

	Pb-S	Tl-D
SN= 302174		
Conc 1	01.46	-00.41
Mean	01.46	-00.41
P/H	0.019	-0.001
Conc 2	01.44	-00.44
Mean	01.45	-00.43
P/H	0.021	0.004
	Pb-S	Tl-D
Mean	01.45	-00.43
SD	00.01	00.02
RSD	00.96	-05.11

	Pb-S	Tl-D
SN= 302174		
Conc 1	22.62	19.45
Mean	22.62	19.45
P/H	0.254	0.274
Conc 2	21.66	18.83
Mean	22.14	19.14
P/H	0.224	0.256
	Pb-S	Tl-D
Mean	22.14	19.14
SD	00.68	00.44
RSD	03.06	02.28

	Pb-S	Tl-D
SN= 302175		
Conc 1	00.41	-00.67
Mean	00.41	-00.67
P/H	0.010	0.000
Conc 2	01.30	-00.10
Mean	00.85	-00.39
P/H	0.015	0.003
	Pb-S	Tl-D
Mean	00.85	-00.39
SD	00.63	00.40
RSD	74.00	DIG HI

	Pb-S	Tl-D
SN= 302175		
Conc 1	21.57	18.68
Mean	21.57	18.68
P/H	0.230	0.253
Conc 2	20.79	18.89
Mean	21.18	18.78
P/H	0.231	0.264
	Pb-S	Tl-D
Mean	21.18	18.78
SD	00.55	00.15
RSD	02.60	00.78

738001-13

12:56

A

Pb - 104%

Tl - 96%

13:00

738001-14

13:04

A

Pb - 102%

Tl - 94%

13:08

		Pb-S	Tl-D	
SN= 302176				738001-24
Conc	1	06.65	-00.19	
Mean		06.65	-00.19	
P/H		0.083	0.000	
Conc	2	06.37	-00.48	13:12
Mean		06.51	-00.34	
P/H		0.079	-0.003	
		Pb-S	Tl-D	
Mean		06.51	-00.34	
SD		00.20	00.21	
RSD		03.02	-60.29	
		Pb-S	Tl-D	
SN= 302176				A
Conc	1	28.02	17.71	
Mean		28.02	17.71	Pb - 110%
P/H		0.278	0.236	
Conc	2	29.08	17.51	Tl - 88% 13:16
Mean		28.55	17.61	
P/H		0.279	0.222	
		Pb-S	Tl-D	
Mean		28.55	17.61	
SD		00.75	00.14	
RSD		02.62	00.80	
		Pb-S	Tl-D	
SN= 302182				738001-23
Conc	1	01.39	-00.48	
Mean		01.39	-00.48	
P/H		0.011	-0.002	
Conc	2	00.77	-00.28	13:20
Mean		01.08	-00.38	
P/H		0.013	0.000	
		Pb-S	Tl-D	
Mean		01.08	-00.38	
SD		00.44	00.14	
RSD		40.55	-37.10	
		Pb-S	Tl-D	
SN= 302182				A
Conc	1	22.87	17.72	
Mean		22.87	17.72	
P/H		0.226	0.226	Pb - 112%
Conc	2	24.09	17.39	
Mean		23.48	17.55	Tl - 88% 13:24
P/H		0.236	0.228	
		Pb-S	Tl-D	
Mean		23.48	17.55	
SD		-00.86	00.23	
RSD		03.67	01.32	

	Pb-S	Tl-D
SN= 000135		
Conc 1	25.19	20.04
Mean	25.19	20.04
P/H	0.305	0.267
Conc 2	25.43	20.01
Mean	25.31	20.02
P/H	0.328	0.277
	Pb-S	Tl-D
Mean	25.31	20.02
SD	00.17	00.02
RSD	00.66	00.10
	Pb-S	Tl-O
SN= 000000		
Conc 1	00.27	-01.27
Mean	00.27	-01.27
P/H	0.001	-0.008
Conc 2	-00.16	-00.97
Mean	00.05	-01.12
P/H	-0.002	-0.005
	Pb-S	Tl-D
Mean	00.05	-01.12
SD	00.30	00.21
RSD	DIG HI	-18.92

CCV_5

Pb - 25 101%

Tl - 20 100%

13:28

CCB_5

13:32

FURNACE AAS RUN LOG

CompuChem Laboratories Inc.

PAGE 1 of 2
DATE: 12-12-89

ELEMENTS AS/SE (PB/TL) CD AG SB

Operator: BM Holmes
Case Name: 12/12/89 - 0830
File Name:

NO.	SAMPLE ID	COMMENTS	NO.	SAMPLE NO.	COMMENTS
	ICV	9:34		CCB 2	11:14
	ICB	9:38	1	~~301922~~	~~A 11:18~~
1	CRA	9:42	2	~~301937~~	~~11:22~~
2	CRA	A 9:46	3	~~301937~~	~~A 11:24~~
3	~~303474~~	~~Prep Blk (?) 9:50~~	4	~~301938~~	~~11:28~~
4	~~303474~~	~~A 9:54~~	5	~~301938~~	~~A 11:32~~
5	301237	9:58	6	~~301939~~	~~11:36~~
6	301237	A 10:02	7	~~301939~~	~~A 11:40~~
7	~~301931~~	~~SS 1:5 10:06~~	8	~~302150~~	~~11:44~~
8	~~301931~~	~~1:5 A 10:10~~	9	~~302150~~	~~11:48~~
9	~~301909~~	~~10:14~~	10		
10	~~301909~~	~~A 10:18~~		CCV 2	11:52
	CCV 1	10:22		CCB 2	11:56
	CCB 1	10:26	1	302155	12:00
1	~~301935~~	~~SS(301909) 10:30~~	2	302155	A 12:04
2	~~301910~~	~~10:34~~	3	302157	12:08
3	~~301910~~	~~A 10:38~~	4	302157	A 12:12
4	~~301930~~	~~D(301910) 10:42~~	5	302166	12:16
5	~~301930~~	~~A 10:46~~	6	302166	A 12:20
6	~~301917~~	~~10:50~~	7	302168	12:24
7	~~301917~~	~~A 10:54~~	8	302168	A 12:28
8	~~301918~~	~~11:00~~	9	302172	12:32
9	~~301918~~	~~A 11:04~~	10	302172	A 12:36
10	~~301922~~	~~11:08~~		CCV 3	12:40
	CCV 2	11:12		CCB 3	12:44

INJECTS | # SAMPLES | DILUTIONS | PST DIG SPK | CALIB QC | QC SAMPLES | INST HRS

CompuChem Laboratories Inc. FURNACE AAS RUN LOG PAGE 2 of 2

DATE: 12-12-89

ELEMENTS AS/SE CD AG SB (PB/TL)

Operator: BM Holmes

Case Name:

File Name:

NO.	SAMPLE ID	COMMENTS		NO.	SAMPLE NO.	COMMENTS
	ICV				CCB	
	ICB			1		
1	302173	12:48		2		
2	302173	A 12:52		3		
3	302174	12:56		4		
4	302174	A 13:00		5		
5	302175	13:04		6		
6	302175	A 13:08		7		
7	302176	13:12		8		
8	302176	A 13:16		9		
9	302182	13:20		10		
10	302182	A 13:24			CCV	
	CCV 5	13:28			CCB	
	CCB 5	13:32		1		
1				2		
2				3		
3				4		
4				5		
5				6		
6				7		
7				8		
8				9		
9				10		
10					CCV	
	CCV				CCB	

INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS

CASE RA789 317 INORGANICS

CORPUCHEM CORP METALS PREPARATION LOG

CASE TYPE: PLATINUM

SDG ID : 255501 18401 5 (754/253)

PREPARED BY: EJ Hall

DATE: 12-5-89

PREPARATION ANALYSIS CODE : -62

#	CON (LAB ID)	DATE REC'D	CUSTOMER ID	INIT PLASMA (WT / VOL)	FINAL P VOL	INIT FURNACE (WT / VOL)	FINAL F VOL	DESCRIPTION BEFORE	DESCRIPTION AFTER	pH
1	301909	11-14-89	738ØØ1-12	100ml	100ml	100ml	100ml	B CLR		2
2	301910		738ØØ1-Ø2					B CLR		
3	301917		738ØØ1-Ø1					C CLDY		
4	301918		738ØØ1-Ø3					C Vert CLDY		
5	301922		738ØØ1-Ø8					B CLR		
6	301937		738ØØ1-Ø5					B CLDY opaque		
7	301938	↓	738ØØ1-1Ø					C C		
8	301939	11-14-89	738ØØ1-Ø6					B CLDY		
9	302150	11-15-89	738ØØ1-15					C CLDY		
10	302154		738ØØ1-16					B CLDY		
11	302155		738ØØ1-22					B CLDY		
12	302157		738ØØ1-25					C C		
13	302166		738ØØ1-26					C CLDY		
14	302168		738ØØ1-21					B CLDY		
15	302172		738ØØ1-17					C CLDY		
16	302173		738ØØ1-18					C C		
17	302174		738ØØ1-13					C C		
18	302175		738ØØ1-14					C CLDY		
19	302176	↓	738ØØ1-24					B CLDY, opaque		↓
20	302182	11-15-89	738ØØ1-23					B C		2
21	301929		SAMPLE SPIKE					REF CON:(301909)		
22	301930		DUPLICATE SAMPLE					REF CON:(301910)		
23	301931		LAB CTRL SAMPLE							
24	303474	B_1	PREP BLANK	↓	↓	↓	↓			
	303475	B_2		100ml	100ml	100ml	100ml			

QC PREPARATION INFORMATION

SAMPLE SPIKE:

Plasma Preparation 1ml XCL-19 → 100 ml

Furnace Preparation 1ml XCL-16 → 100 ml

LABORATORY CONTROL SAMPLE:

P1 1ml XCL-2, 2A, 11 & ½ml XCL-3A → 100ml

P2 1ml F_2 Soln → 100ml

Atomic Absorption Raw Data Package

Analyst James Medlin Date 12/13/89 SDG RCR221 ; 18410B

	Channel A	Channel B
Element	Se	As
Background Correction	B-S	B-S
Wavelength	196.0 nm	197.3 nm

AA Spectrophotometer Instrument I.D. Smith-Hieftje 22

Integration Time 2.9 sec Delay 0.5 sec

Integration Mode peak area

Set Up Paramters ** Fill In or See Attached (screen dump) **

Furnace

	Dry	Pyr1	Pyr2	Atom	Clean
Temp	140	500	850	2050	2350
Ramp	2	10	5	0	
Hold	0	5	5	4	1
Purge	1	2	2	0	3

Fastac

Aspiration Rate 1.0 mL/min

Delay 10.0 sec Deposition 22.0 sec

Calibration Standards

Source SPEX

Preparation Date 12/13/89

Preparer JAMES MEDLIN

Concentration Units ug/L

Performance Check - 20 ug/L STANDARD ABSORBANCES
Channel A 0.093
Channel B 0.122

PAGES 1 THRU 26

Abs		[illegible]	[illegible]	0/0	8:40
Mean		-0.007	0.005		
P/H		0.001	0.000		
Abs	2	-0.007	0.002		
Mean		-0.007	0.003		
P/H		-0.001	-0.001		

AUTO ZERO
08:44:28
OPERATOR 1
Wed 13 DEC 1989

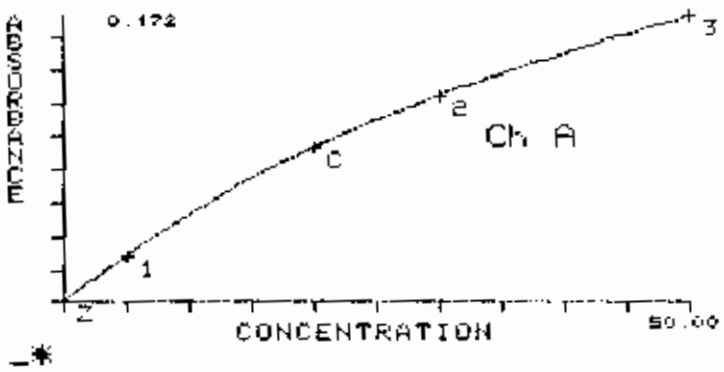
		Se-S	As-S		
Standard C				20/20	8:44
Abs	1	0.092	0.123		
Mean		0.092	0.123		
P/H		0.195	0.247		
Abs	2	0.094	0.121		
Mean		0.093	0.122		
P/H		0.166	0.239		
		Se-S	As-S		
Mean		0.093	0.122		
SD		0.001	D.001		
RSD		01.50	01.14		

		Se-S	As-S		
Standard 1				5/10	8:48
Abs	1	0.026	0.057		
Mean		0.026	0.057		
P/H		0.045	0.116		
Abs	2	0.030	0.060		
Mean		0.028	0.059		
P/H		0.053	0.129		
		Se-S	As-S		
Mean		0.028	0.058		
SD		0.003	0.002		
RSD		10.00	03.79		

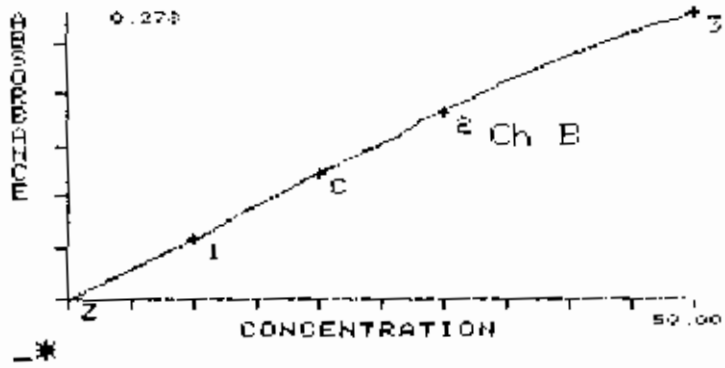
		Se-S	As-S		
Standard 2				30/30	8:52
Abs	1	0.122	0.186		
Mean		0.122	0.186		
P/H		0.238	0.360		
Abs	2	0.126	0.178		
Mean		0.124	0.182		
P/H		0.248	0.333		
		Se-S	As-S		
Mean		0.124	0.182		
SD		0.003	0.006		
RSD		02.25	03.07		

		Se-S	As-S		
Standard 3				50/50	8:56
Abs	1	0.176	0.279		
Mean		0.176	0.279		
P/H		0.277	0.528		
Abs	2	0.169	0.277		
Mean		0.172	0.278		
P/H		0.275	0.557		
		Se-S	As-S		
Mean		0.172	0.278		
SD		0.005	0.001		
RSD		02.90	00.50		

Se-S


0.172
ABSORBANCE
Ch A
1
2
3
C
CONCENTRATION
50.00

As-S


0.279
ABSORBANCE
Ch B
1
2
3
C
CONCENTRATION
50.00

CALIBRATE A

STD	CONC	MEAN
Z	00.00	0.000
C	20.00	0.093
1	05.00	0.028
2	30.00	0.124
3	50.00	0.172

APP CONC
STD Z 00.00
STD C 20.00
STD 1 04.99
STD 2 29.98
STD 3 50.02

CALIBRATE B

STD	CONC	MEAN
Z	00.00	0.000
C	20.00	0.122
1	10.00	0.058
2	30.00	0.182
3	50.00	0.278

APP CONC
STD Z 00.00
STD C 20.13
STD 1 09.90
STD 2 29.95
STD 3 50.05
Ready for
Se/As
in Waste

3
pp·D
< < $ (<
p x x @@ x x x p ((((h p x p (H p (H p H H ((p ((((h p x p
((h x p x p l @@@@@@ p (H p p
p
RECALLED METHOD # 0
Se/As
in Waste
Ready for
Se/As
in Waste

Se/As in Waste # 0

	Dry	Pyr1	Pyr2	Atom	Clean
Temp	140	500	850	2050	2350
Ramp	2	10	5	0	
Hold	0	5	5	4	1
Purge	1	2	2	0	3
				INT	

Pk Area 02.9 sec Delay= 0.5
FASTAC Delay 10.0 Dep 018.0

STORED
CTF Curve # 2 FURNACE READY
Temp <100 C

	Se-S	As-S
SN= 000887		
Conc 1	43.96	20.07
Mean	43.96	20.07
P/H	0.267	0.252
Conc 2	44.99	21.15
Mean	44.47	20.61
P/H	0.247	0.249
	Se-S	As-S
Mean	44.47	20.61
SD	00.73	00.76
RSD	01.63	03.70

ICV

ICV-2(0887) 12/1/89

9:24

Se 107%

Tse=104

TAs=47

D.F=1.25

As 110%

jam 2/13

~~Corrected for dilution to:~~

	Se-S	As-S
	-27.84	~~-12.90~~

Furnace reset to a Program using an autosampler w/dilutor.

	Se-S	As-S
SN= 000000		
Conc 1	01.28	02.24
Mean	01.28	02.24
P/H	0.004	0.006
Conc 2	-00.58	-00.47
Mean	00.35	00.88
P/H	0.001	0.008
	Se-S	As-S
Mean	00.35	00.88
SD	01.32	01.92
RSD	DIG HI	DIG HI

ICB

9:28

	Se-S	As-S
SN= 000510		
Conc 1	02.65	10.73
Mean	02.65	10.73
P/H	0.037	0.120
Conc 2	03.19	10.43
Mean	02.92	10.58
P/H	0.044	0.124
	Se-S	As-S
Mean	02.92	10.58
SD	00.38	00.21
RSD	13.04	02.00

CRA

9:34

	Se-S	As-S
SN= 001020		
Conc 1	13.24	28.18
Mean	13.24	28.18
P/H	0.135	0.366
Conc 2	11.82	28.55
Mean	12.53	28.36
P/H	0.143	0.372
	Se-S	As-S
Mean	12.53	28.36
SD	01.00	00.26
RSD	08.01	00.92

CRA A

9:40

+10 96%

+20 89%

	Se-S	As-S	
SN= 002025			CCV.
Conc 1	18.18	25.17	
Mean	18.18	25.17	
P/H	0.163	0.301	
Conc 2	19.59	27.22	Se 94%
Mean	18.88	26.19	
P/H	0.166	0.310	
	Se-S	As-S	
Mean	18.88	26.19	As 105%
SD	01.00	01.45	
RSD	05.28	05.53	

SPEX 1,3,5
12/5/84

TSe - 20

TAs = 25

10:18

	Se-S	As-S	
SN= 000000			CCB.
Conc 1	00.83	01.20	
Mean	00.83	01.20	
P/H	0.002	0.005	
Conc 2	-00.19	00.76	
Mean	00.32	00.98	
P/H	-0.004	0.003	
	Se-S	As-S	
Mean	00.32	00.98	
SD	00.72	00.31	
RSD	DIG HI	31.73	

10:22

		Se-S	As-S
SN= 002025			
Conc	1	19.49	24.30
Mean		19.49	24.30
P/H		0.178	0.290
Conc	2	18.17	25.55
Mean		18.83	24.92
P/H		0.163	0.316
		Se-S	As-S
Mean		18.83	24.92
SD		00.93	00.88
RSD		04.95	03.54

OOV2

10:58

Se 94%

As 100%

		Se-S	As-S
SN= 000000			
Conc	1	-00.63	01.22
Mean		-00.63	01.22
P/H		0.001	0.007
Conc	2	-01.18	01.52
Mean		-00.91	01.37
P/H		-0.005	0.004
		Se-S	As-S
Mean		-00.91	01.37
SD		00.39	00.21
RSD		-42.63	15.47

OOB2

11:02

11:10

		Se-S	As-S	
SN= 303474				PB 184108
Conc	1	-00.01	01.04	
Mean		-00.01	01.04	
P/H		-0.002	0.005	
Conc	2	-02.23	01.22	
Mean		-01.12	01.13	
P/H		0.000	0.008	
		Se-S	As-S	
Mean		-01.12	01.13	
SD		01.57	00.13	
RSD		DIG HI	11.23	
		Se-S	As-S	
SN= 303474				PB A
Conc	1	09.35	19.40	
Mean		09.35	19.40	11:16
P/H		0.097	0.249	
Conc	2	08.39	20.35	+10 89%
Mean		08.87	19.87	
P/H		0.091	0.266	
		Se-S	As-S	
Mean		08.87	19.87	
SD		00.68	00.67	+20 99%
RSD		07.64	03.37	

		Se-S	As-S	
SN= 301931				LOS W 1:5
Conc	1	19.38	19.96	11:20
Mean		19.38	19.96	
P/H		0.170	0.243	
Conc	2	19.32	20.72	
Mean		19.35	20.34	Se 97%
P/H		0.184	0.253	
		Se-S	As-S	
Mean		19.35	20.34	
SD		00.04	00.54	As 102%
RSD		00.21	02.64	
		Se-S	As-S	
SN= 301931				LOS W 1:5 A
Conc	1	29.64	38.05	11:24
Mean		29.64	38.05	
P/H		0.226	0.380	
Conc	2	29.95	39.68	
Mean		29.79	38.86	+10 104%
P/H		0.226	0.410	
		Se-S	As-S	
Mean		29.79	38.86	+20 93%
SD		00.22	01.15	
RSD		00.73	02.96	

	Se-S	As-S
SN= 301909		
Conc 1	-00.56	07.97
Mean	-00.56	07.97
P/H	0.002	0.053
Conc 2	00.40	07.67
Mean	-00.08	07.82
P/H	-0.001	0.044
	Se-S	As-S
Mean	-00.08	07.82
SD	00.68	00.21
RSD	OIG HI	02.71

738001-12 11:32

	Se-S	As-S
SN= 301909		
Conc 1	00.59	20.39
Mean	00.59	20.39
P/H	0.010	0.208
Conc 2	01.57	21.24
Mean	01.08	20.81
P/H	0.013	0.213
	Se-S	As-S
Mean	01.08	20.81
SD	00.69	00.60
RSD	64.07	02.88

738001-12 A 11:38

+10 0%

+20 65% ⇒ mcA

	Se-S	As-S
SN= 301909		
Conc 1	-00.14	03.14
Mean	-00.14	03.14
P/H	-0.002	0.018
Conc 2	-00.54	03.70
Mean	-00.34	03.42
P/H	0.004	0.017
	Se-S	As-S
Mean	-00.34	03.42
SD	00.28	00.40
RSD	-82.94	11.54

738001-12 1:5 11:44

Se

	Se-S	As-S
SN= 301909		
Conc 1	04.72	19.92
Mean	04.72	19.92
P/H	0.051	0.243
Conc 2	06.04	20.14
Mean	05.38	20.03
P/H	0.053	0.236
	Se-S	As-S
Mean	05.38	20.03
SD	00.93	00.16

738001-12 1:5 A 11:50

+10 5%

11:54

		Se-S	As-S
SN= 002025			
Conc	1	17.43	24.31
Mean		17.43	24.31
P/H		0.163	0.261
Conc	2	19.03	25.61
Mean		18.23	24.96
P/H		0.163	0.266
		Se-S	As-S
Mean		18.23	24.96
SD		01.13	00.92
RSD		06.20	03.68

CCV3

Se 91%

As 100%

11:58

		Se-S	As-S
SN= 000000			
Conc	1	-00.93	01.62
Mean		-00.93	01.62
P/H		-0.004	0.008
Conc	2	-00.80	01.28
Mean		-00.87	01.45
P/H		-0.002	0.006
		Se-S	As-S
Mean		-00.87	01.45
SD		00.09	00.24
RSD		-10.57	16.55

CCB3

		Se-S	As-S
SN= 002025			
Conc	1	20.14	25.47
Mean		20.14	25.47
P/H		0.171	0.270
Conc	2	22.47	25.46
Mean		21.30	25.46
P/H		0.159	0.258
		Se-S	As-S
Mean		21.30	25.46
SD		01.65	00.01
RSD		07.73	00.03

00V4

13:10

Se 106%

As 102%

13:14

		Se-S	As-S
SN= 000000			
Conc	1	-00.75	01.32
Mean		-00.75	01.32
P/H		-0.002	0.007
Conc	2	-00.76	01.51
Mean		-00.76	01.41
P/H		-0.001	0.005
		Se-S	As-S
Mean		-00.76	D1.41
SD		00.01	00.13
RSD		-01.31	09.50

00B4

As-S

SN= 000000
Abs 0.030
P/H 0 0.051
SN= 000001
Abs 0.085
P/H +10 0.127
SN= 000002
Abs 0.124
P/H +20 0.217
SN= 000003
Abs 0.184
P/H +30 0.297

MSA 738001-12 13:42

Y-intercept: 0.0306
Slope: 0.00501
Sample Conc: 6.11ppb
Corr. Coeff: 0.9970

		Se-S	As-S
SN= 301929			
Conc	1	01.48	35.21
Mean		01.48	35.21
P/H		0.012	0.374
Conc	2	00.44	35.58
Mean		00.96	35.39
P/H		0.005	0.372
		Se-S	As-S
Mean		00.96	35.39
SD		00.74	00.26
RSD		76.56	00.73

738001-12 S 13:52

		Se-S	As-S
SN= 301910			
Conc	1	-00.54	02.22
Mean		-00.54	02.22
P/H		0.000	0.015
Conc	2	00.27	03.29
Mean		-00.14	02.75
P/H		-0.001	0.014
		Se-S	As-S
Mean		-00.14	02.75
SD		00.57	00.76
RSD		OIG HI	27.49

738001-02 13:56

		Se-S	As-S
SN= 301910			
Conc	1	02.95	20.60
Mean		02.95	20.60
P/H		0.012	0.237
Conc	2	01.79	20.85
Mean		02.37	20.72
P/H		0.011	0.259
		Se-S	As-S
Mean		02.37	20.72
SD		00.82	00.18
RSD		34.59	00.84

738001-02 A 14:00

+10 24%

+20 90%

		Se-S	As-S
SN= 301910			
Conc	1	-01.63	01.79
Mean		-01.63	01.79
P/H		-0.004	0.008
Conc	2	-02.19	01.34
Mean		-01.91	01.56
P/H		-0.004	0.005
		Se-S	As-S
Mean		-01.91	01.54
SD		00.40	00.32
RSD		-20.68	20.38

738001-02 1:5 14:04

17

		Se-S	As-S
SN= 301910			
Conc	1	05.13	19.77
Mean		05.13	19.77
P/H		0.055	0.231
Conc	2	04.90	19.50
Mean		05.01	19.63
P/H		0.051	0.239
		Se-S	As-S
Mean		05.01	19.63
SD		00.16	00.19
RSD		03.23	00.97

738001-02 1:5 A

14:08

+10 5%

		Se-S	As-S
SN= 301930			
Conc	1	00.00	02.29
Mean		00.00	02.29
P/H		-0.001	0.015
Conc	2	-01.14	02.82
Mean		-00.57	02.55
P/H		-0.004	0.012
		Se-S	As-S
Mean		-00.57	02.55
SD		00.81	00.37
RSD		DIG H1	14.66

738001-02 D

14:12

		Se-S	As-S
SN= 301930			
Conc	1	02.00	20.33
Mean		02.00	20.33
P/H		0.012	0.240
Conc	2	02.38	20.65
Mean		02.19	20.49
P/H		0.014	0.238
		Se-S	As-S
Mean		02.19	20.49
SD		00.27	00.23
RSD		12.23	01.10

738001-02 D A

14:16

+10 22%

+20 9%

		Se-9	As-S
SN= 002025			
Conc	1	17.75	25.28
Mean		17.75	25.28
P/H		0.140	0.267
Conc	2	18.53	26.33
Mean		18.14	25.80
P/H		0.154	0.298
		Se-S	As-S
Mean		18.14	25.80
SD		00.55	00.74
RSD		03.03	02.87

CCVs 14:20

Se 91%

As 103%

		Se-S	As-9
SN= 000000			
Conc	1	-00.45	01.15
Mean		-00.45	01.15
P/H		-0.002	0.005
Conc	2	-01.19	01.35
Mean		-00.82	01.25
P/H		0.000	0.005
		Se-S	As-S
Mean		-00.82	01.25
SD		00.52	00.14
RSD		-63.78	11.28

CCBs 14:24

	Se-S	As-S		
SN= 301930			738001-02 D 1:5	14:28
Conc 1	-00.99	01.99		
Mean	-00.99	01.99		
P/H	-0.004	0.007		
Conc 2	-00.18	01.46		
Mean	-00.59	01.72		
P/H	-0.002	0.009	Se	
	Se-S	As-S		
Mean	-00.59	01.72		
SD	00.57	00.37		
RSD	-96.94	21.74		
	Se-S	As-S		
SN= 301930			738001-02 D 1:5 A	14:34
Conc 1	05.18	19.14		
Mean	05.18	19.14		
P/H	0.049	0.236		
Conc 2	06.39	19.52		
Mean	05.78	19.33	+10 58%	
P/H	0.058	0.235		
	Se-S	As-S		
Mean	05.78	19.33		
SD	00.86	00.27		
RSD	14.79	01.38		
	Se-S	As-S		
SN= 301917			738001-01	14:38
Conc 1	00.32	09.79		
Mean	00.32	09.79		
P/H	0.002	0.098		
Conc 2	00.64	08.89		
Mean	00.48	09.34		
P/H	-0.003	0.059		
	Se-S	As-S		
Mean	00.48	09.34		
SD	00.23	00.64		
RSD	47.08	06.80		
	Se-S	As-S		
SN= 301917			738001-01 A	14:42
Conc 1	00.67	25.99		
Mean	00.67	25.99		
P/H	0.007	0.266		
Conc 2	00.55	29.27	+10 0%	
Mean	00.61	27.63		
P/H	0.000	0.295		
	Se-S	As-S	+20 9%	
Mean	00.61	27.63		
SD	00.08	02.32		
RSD	13.77	08.39		
	Se-S	As-S		
SN= 301917			738001-01 1:5	14:46
Conc 1	-01.26	01.47		
Mean	-01.26	01.47		
P/H	-0.003	0.014		
Conc 2	-01.23	03.07		
Mean	-01.25	02.27		
P/H	-0.004	0.015	Se	
	Se-S	As-S		
Mean	-01.25	02.27		
SD	00.02	01.13		
RSD	-01.76	49.82		

```
          Se-S As-S
SN= 301917
Conc   1   00.36   21.03
Mean       00.36   21.03
P/H        0.010   0.245
Conc   2   02.35   22.10
Mean       01.35   21.56
P/H        0.013   0.246
          Se-S As-S
Mean       01.35   21.56
SD         01.41   00.76
RSD       DIG HI   03.50
          Se-S As-S
SN= 301918
Conc   1  -00.73   02.30
Mean      -00.73   02.30
P/H        0.000   0.005
Conc   2  -00.47   02.51
Mean      -00.60   02.40
P/H        0.000   0.009
          Se-S As-S
Mean      -00.60   02.40
SD         00.18   00.15
RSD       -30.50   06.16
          Se-S As-S
SN= 301915
Conc   1  -00.99   20.66
Mean      -00.99   20.66
P/H       -0.002   0.214
Conc   2  -00.10   20.52
Mean      -00.55   20.59
P/H        0.000   0.220
          Se-S As-S
Mean      -00.55   20.59
SD         00.63   00.10
RSD       DIG HI   00.47
          Se-S As-S
SN= 301918
Conc   1  -01.01   00.99
Mean      -01.01   00.99
P/H        0.001   0.009
Conc   2   00.89   02.27
Mean      -00.06   01.63
P/H        0.004   0.009
          Se-S As-S
Mean      -00.06   01.63
SD         01.34   00.91
RSD       DIG HI   55.52
          Se-S As-S
SN= 301918
Conc   1  -02.21   19.97
Mean       02.21   19.97
P/H        0.013   0.240
Conc   2   01.88   20.51
Mean       02.04   20.24
P/H        0.021   0.225
          Se-S As-S
Mean       02.04   20.24
SD         00.23   00.38
RSD        11.42   01.58
```

738001-01 1:5 A 14:50

+10 0%

738001-03 14:54

738001-03 A 14:58

+10 0%

+20 91%

738001-03 1:5 15:02

Se

738001-03 1:5 A 15:06

+10 20%

		Se-S	As-S
SN= 002025			
Conc	1	17.26	25.27
Mean		17.26	25.27
P/H		0.165	0.298
Conc	2	20.92	25.80
Mean		19.09	25.53
P/H		0.165	0.287
		Se-S	As-S
Mean		19.09	25.53
SD		02.59	00.37
RSD		13.55	01.46

COV 6

Se 95%

As 102%

15:10

		Se-S	As-S
SN= 000000			
Conc	1	00.23	01.20
Mean		00.23	01.20
P/H		0.003	0.005
Conc	2	00.67	00.59
Mean		00.45	00.89
P/H		0.001	0.005
		Se-S	As-S
Mean		00.45	00.89
SD		00.31	00.43
RSD		69.11	48.42

COB 6

15:14

```
          Se-S As-S
SN= 301922                                                  15:18
Conc  1  00.53  01.86   738001-08
Mean     00.53  01.86
P/H      0.001  0.006
Conc  2 -00.80  02.03
Mean    -00.14  01.94
P/H      0.000  0.007
          Se-S As-S
Mean    -00.14  01.94
SD       00.94  00.12
RSD     -16.06  06.18
          Se-S As-S                                         15:22
SN= 301922              738001-08 A
Conc  1  03.04  20.25
Mean     03.04  20.25
P/H      0.027  0.227
Conc  2  03.75  19.76
Mean     03.39  20.00   +10  34%
P/H      0.014  0.220
          Se-S As-S
Mean     03.39  20.00   +20  100%
SD       00.50  00.35
RSD      14.80  01.73
          Se-S As-S
SN= 301922                                                  15:26
Conc  1 -00.73  00.62   738001-08 1:5
Mean    -00.73  00.62
P/H     -0.001  0.000
Conc  2 -01.26  00.34
Mean    -01.00  00.48
P/H     -0.003  0.009   Se
          Se-S As-S
Mean    -01.00  00.48
SD       00.37  00.20
RSD     -37.40  41.04
          Se-S As-S
SN= 301922              738001-08 1:5 A                     15:30
Conc  1  05.41  20.38
Mean     05.41  20.38
P/H      0.049  0.225
Conc  2  05.64  20.52
Mean     05.52  20.45   +10  55%
P/H      0.049  0.219
          Se-S As-S
Mean     05.52  20.45
SD       00.16  00.10
RSD      02.93  00.47
          Se-S As-S
SN= 301937                                                  15:34
Conc  1 -00.35  06.62   738001-05
Mean    -00.35  06.62
P/H      0.003  0.054
Conc  2 -00.76  07.48
Mean    -00.56  07.05
P/H      0.003  0.047
          Se-S As-S
Mean    -00.56  07.05
SD       00.29  00.61
RSD     -51.78  08.62
```

	Se-S	As-S		
SN= 301937			738001-05 A	15:38
Conc 1	00.96	23.24		
Mean	00.96	23.24		
P/H	0.004	0.200		
Conc 2	-00.09	23.91	+10 0%	
Mean	00.43	23.57		
P/H	0.006	0.196		
	Se-S	As-S	+20 83%	
Mean	00.43	23.57		
SD	00.74	00.47		
RSD	OIG HI	02.00		
	Se-S	As-S		
SN= 301937			738001-05 1:5	15:42
Conc 1	-01.07	02.87		
Mean	-01.07	02.87		
P/H	-0.002	0.009		
Conc 2	-01.20	02.14		
Mean	-01.14	02.50	Se	
P/H	0.003	0.007		
	Se-S	As-S		
Mean	-01.14	02.50		
SD	00.09	00.52		
RSD	-08.07	20.64		
	Se-S	As-S		
SN= 301937			738001-05 1:5 A	15:46
Conc 1	00.75	20.43		
Mean	00.75	20.43		
P/H	0.008	0.208		
Conc 2	00.60	20.14		
Mean	00.67	20.30	+10 0%	
P/H	0.004	0.210		
	Se-S	As-S		
Mean	00.67	20.38		
SD	00.11	00.06		
RSD	15.82	00.31		
	Se-S	As-S		
SN= 301938			738001-10	15:50
Conc 1	-00.05	00.86		
Mean	-00.05	00.86		
P/H	-0.001	0.010		
Conc 2	-00.62	01.69		
Mean	-00.34	01.27		
P/H	0.001	0.004		
	Se-S	As-S		
Mean	-00.34	01.27		
SD	00.40	00.59		
RSD	OIG HI	46.14		
	Se-S	As-S		
SN= 301938			738001-10 A	15:54
Conc 1	02.81	20.29		
Mean	02.81	20.29		
P/H	0.022	0.232		
Conc 2	01.98	20.43		
Mean	02.39	20.36	+10 24%	
P/H	0.016	0.233		
	Se-S	As-S		
Mean	02.39	20.36	+20 102%	
SD	00.59	00.10		
RSD	24.51	00.48		

15:58

		Se-S	As-S
SN= 002025			
Conc	1	21.00	25.43
Mean		21.00	25.43
P/H		0.154	0.287
Conc	2	21.25	26.34
Mean		21.12	25.88
P/H		0.164	0.277
		Se-S	As-S
Mean		21.12	25.88
SD		00.18	00.64
RSD		00.83	02.48

00 V7

Se 106%

As 104%

16:02

		Se-S	As-S
SN= 000000			
Conc	1	-02.36	00.61
Mean		-02.36	00.61
P/H		-0.002	0.003
Conc	2	-01.80	00.41
Mean		-02.08	00.51
P/H		-0.005	0.004
		Se-S	As-S
Mean		-02.08	00.51
SD		00.40	00.14
RSD		-18.99	27.64

00 B7

		Se-S	As-S
SN= 301938			
Conc	1	01.12	01.22
Mean		01.12	01.22
P/H		0.001	0.005
Conc	2	-01.05	00.68
Mean		00.03	00.95
P/H		-0.001	0.000
		Se-S	As-S
Mean		00.03	00.95
SD		01.53	00.38
RSD		DIG MI	40.10

738001-10 1:5

Se

		Se-S	As-S
SN= 301938			
Conc	1	05.77	19.33
Mean		05.77	19.33
P/H		0.058	0.234
Conc	2	05.38	20.32
Mean		05.57	19.82
P/H		0.045	0.245
		Se-S	As-S
Mean		05.57	19.82
SD		00.28	00.70
RSD		04.93	03.53

738001-10 1:5 A

+10 56%

		Se-S	As-S
SN= 002025			
Conc	1	20.43	23.44
Mean		20.43	23.44
P/H		0.158	0.280
Conc	2	20.38	25.10
Mean		20.40	24.27
P/H		0.170	0.292
		Se-S	As-S
Mean		20.40	24.27
SD		00.04	01.17
RSD		00.17	04.83

00V₈

16:14

Se 102%

As 97%

		Se-S	As-S
SN= 000000			
Conc	1	-01.83	01.78
Mean		-01.83	01.78
P/H		-0.003	0.002
Conc	2	-00.47	00.46
Mean		-01.15	01.12
P/H		0.000	0.002
		Se-S	As-S
Mean		-01.15	01.12
SD		00.96	00.93
RSD		-83.56	83.30

00B₈

16:18

ELEMENTS AS/SE CD AG PB/TL BB

Operator: James Medlin

Case Name: RCR221:164108
File Name: AR912130840

NO.	SAMPLE ID	COMMENTS	Time	NO.	SAMPLE NO.	COMMENTS	Time
	ICV	(0987)	9:24		CCB_2		11:02
	ICB		9:28	1	303474	Prep Blank	11:10
1	CRA		9:34	2	303474	A	11:16
2	CRA	A	9:40	3	301931	1:5	11:20
3	304474	Prep Blank	9:44	4	301931	1:5 A	11:24
4	304474	A	9:48	5	301909		11:32
5	Serial 1:5	1:5	9:54	6	301909	A	11:38
6	" "	1:5 A	9:58	7	301909	1:5	11:44
7	301311		10:02	8	301909	1:5 A	11:50
8	301311	A	10:06	9			
9	301311	1:2	10:10	10			
10	301311	1:2 A	10:14		CCV_3/CCB_3	SPEX	11:54/11:58
	CCV_1	SPEX	10:18		CCV_4/CCB_4	SPEX	13:10/13:14
	CCB_1		10:22	1	301909	MSA-A	13:42
1	301312	SS(301311)	10:26	2	301909	0.10,20,30	
2	301312	SS 1:2	10:30	3	301929	SS(301909)	13:52
3	301313	D(301311)	10:34	4	301910		13:56
4	301313	Dup A	10:38	5	301910	A	14:00
5	301313	1:2 Dup	10:42	6	301910	1:5	14:04
6	301313	Dup. 1:2 A	10:46	7	301912	1:5 A	14:08
7	301708		10:50	8	301930	D(301910)	14:12
8	301708	A	10:54	9	301930	Dup A	14:16
9				10			
10					CCV_5	SPEX	14:20
	CCV_2	SPEX	10:58		CCB_5		14:24

# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS

See Next page

45

DATE: 12/13/89

ELEMENTS (AS/SE) (circled) PB/TL CD AG SB

Operator: James Medlin

Case Name: RA2211154106

File Name: A1891213084D

NO.	SAMPLE ID	COMMENTS	NO.	SAMPLE NO.	COMMENTS
	~~ICV~~			CCB7	16:02
	~~ICB~~		1	301938	1:5 16:06
1	301930	Dup 1:5 14:26	2	301938	1:5 A 16:10
2	301930	Dup. 1:5 A 14:34	3		
3	301917	14:38	4		
4	301917	A 14:42	5		
5	301917	1:5 14:46	6		
6	301917	1:5 A 14:50	7		
7	301918	14:54	8		
8	301918	A 14:58	9		
9	301918	1:5 15:02	10		
10	301918	1:5 A 15:06		CCV8	SPEX 16:14
	CCV6	SPEX 15:10		CCB8	16:18
	CCB6	15:14	1		
1	301922	15:18	2		
2	301922	A 15:22	3		
3	301922	1:5 15:26	4		
4	301922	1:5 A 15:30	5		
5	301937	15:34	6		
6	301937	A 15:38	7		
7	301937	1:5 15:42	8		
8	301937	1:5 A 15:46	9		
9	301938	15:50	10		
10	301938	A 15:54		CCV	
	CCV7	SPEX 15:58		CCB	

# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS
160	9	11	28	23	9	7.5

12/13/89

Atomic Absorption Raw Data Package

SDG 18410B & 18410C

Analyst ANN H. KIM Date 12/13/89

	Channel A	Channel B
Element	SE	AS
Background Correction	S-H	S-H
Wavelength	196.0 nm	197.3 nm

AA Spectropbotometer Instrument I.D. A1

Integration Time 2.9 sec Delay 0.5 sec

Integration Mode PEAR AREA

Set Up Paramters ** Fill In or See Attached (screen dump) **

Furnace

	Dry	Pyr1	Pyr2	Atom	Clean
Temp	150	500	850	2050	2350
Ramp	2	10	15	0	
Hold	0	5	0	4	2
Purge	1	2	2	0	3

Fastac

Aspiration Rate 1.0 mL/min

Delay 10 sec Deposition 20.0 sec

Calibration Standards

Source SPEX

Preparation Date 12/13/98

Preparer AMK

Concentration Units ug/L

Performance Check - 2 ug/L STANDARD ABSORBANCES

Channel A .096
Cbannel B .122

PAGES 1 THRU 19

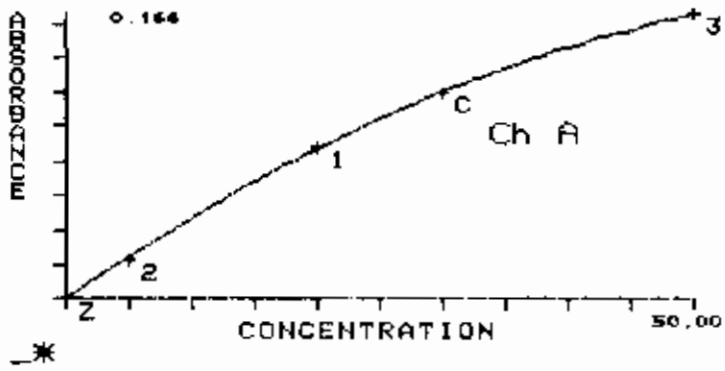
2

TIME				
		Se-S	As-S	
17:01	Standard Z			
	Abs 1	-0.008	0.005	
	Mean	-0.008	0.005	
	P/H	-0.005	-0.003	
	Abs 2	-0.003	0.014	
	Mean	-0.006	0.009	
	P/H	-0.004	0.004	
	AUTO ZERO			
	16:38:59			
	OPERATOR 1			
	Wed 13 DEC 1989			
		Se-S	As-S	
17:06	Standard C			30/30
	Abs 1	0.114	0.165	
	Mean	0.114	0.165	
	P/H	0.194	0.276	
	Abs 2	0.124	0.169	
	Mean	0.119	0.167	
	P/H	0.204	0.258	
		Se-S	As-S	
	Mean	0.119	0.167	
	SD	0.007	0.003	
	RSD	05.88	01.67	
		Se-S	As-S	
17:10	Standard 1			20/20
	Abs 1	0.087	0.124	
	Mean	0.087	0.124	
	P/H	0.149	0.212	
	Abs 2	0.090	0.120	
	Mean	0.088	0.122	
	P/H	0.168	0.207	
		Se-S	As-S	
	Mean	0.088	0.122	
	SD	0.002	0.003	
	RSD	02.50	02.29	
		Se-S	As-S	
17:15	Standard 2			5/10
	Abs 1	0.027	0.056	
	Mean	0.027	0.056	
	P/H	0.029	0.094	
	Abs 2	0.020	0.053	
	Mean	0.023	0.054	
	P/H	0.030	0.085	
		Se-S	As-S	
	Mean	0.023	0.054	
	SD	0.005	0.002	
	RSD	21.73	04.07	
		Se-S	As-S	
17:21	Standard 3			50/50
	Abs 1	0.162	0.268	
	Mean	0.162	0.268	
	P/H	0.255	0.420	
	Abs 2	0.170	0.265	
	Mean	0.166	0.266	
	P/H	0.272	0.420	
		Se-S	As-S	
	Mean	0.166	0.266	
	SD	0.006	0.002	
	RSD	03.37	00.82	

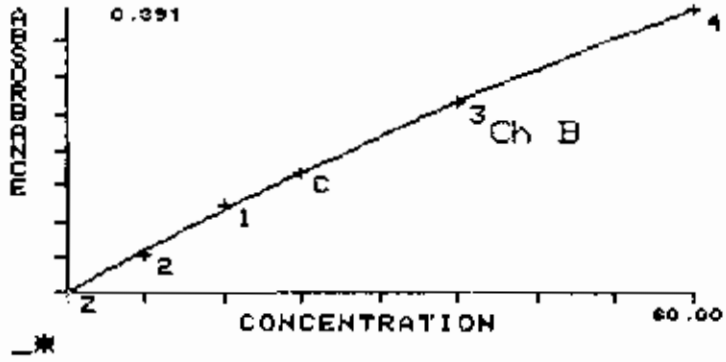
TIME		Se-S	As-S
	Standard	4	
17:26	Abs 1	0.005	0.392
	Mean	0.005	0.392
	P/H	0.005	0.567
	Abs 2	-0.002	0.390
	Mean	0.001	0.391
	P/H	-0.003	0.567
		Se-S	As-S
	Mean	0.001	0.391
	SD	0.005	0.001
	RSD	DIG HI	00.35

0/80

Se-S



As-S



```
CALIBRATE A
  STD   CONC      MEAN
   Z    00.00     0.000
   C    30.00     0.119
   1    20.00     0.088
   2    05.00     0.023
   3    50.00     0.166
APP CONC
STD Z    00.00
STD C    29.74
STD 1    20.36
STD 2    04.73
STD 3    50.09

CALIBRATE B
  STD   CONC      MEAN
   Z    00.00     0.000
   C    30.00     0.167
   1    20.00     0.122
   2    10.00     0.054
   3    50.00     0.266
   4    80.00     0.391
APP CONC
STD Z    00.00
STD C    29.61
STD 1    21.15
STD 2    09.08
STD 3    49.87
STD 4    80.06
RECALLED METHOD #156
 Se/As
 in Waste
Ready for
 Se/As
 in Waste
```

Se/As in Waste # 156

	Dry	Pyr1	Pyr2	Atom	Clean
Temp	150	500	850	2000	2350
Ramp	2	10	15	0	
Hold	0	0	0	4	2
Purge	1	2	2	0	3
				INT	

Pk Area 02.9 sec Delay= 0.5
FASTAC Delay 10.0 Dep 020.0

FURNACE READY

Temp <100 C

TIME		Se-S	As-S	
17:35	SN= 000002			ICU-2(0887)
	Conc 1	41.20	19.80	
	Mean	41.20	19.80	
	P/H	0.268	0.181	
	Conc 2	46.03	19.48	Se 105%
	Mean	43.61	19.64	
	P/H	0.251	0.196	As 105%
		Se-S	As-S	
	Mean	43.61	19.64	
	SD	03.42	00.23	
	RSD	07.83	01.15	
		Se-S	As-S	
17:41	SN= 000099			ICB
	Conc 1	00.76	-01.31	
	Mean	00.76	-01.31	
	P/H	0.000	-0.005	
	Conc 2	-00.06	-00.90	
	Mean	00.35	-00.91	
	P/H	-0.003	-0.005	
		Se-S	As-S	
	Mean	00.35	-00.91	
	SD	00.58	00.57	
	RSD	010 HI	-62.99	
		Se-S	As-S	
17:44	SN= 000100			CRA
	Conc 1	05.87	09.07	
	Mean	05.87	09.07	
	P/H	0.038	0.092	
	Conc 2	05.59	10.91	
	Mean	09.73	09.99	
	P/H	0.041	0.108	
		Se-S	As-S	
	Mean	09.73	09.99	
	SD	00.20	01.30	
	RSD	03.43	13.02	
		Se-S	As-S	
17:51	SN= 000100			CRA +10/20
	Conc 1	16.56	30.88	
	Mean	16.56	30.88	
	P/H	0.137	0.326	
	Conc 2	16.73	32.03	Se 109%
	Mean	16.64	31.45	
	P/H	0.141	0.331	
		Se-S	As-S	As 107%
	Mean	16.64	31.45	
	SD	00.12	00.81	
	RSD	00.72	02.58	

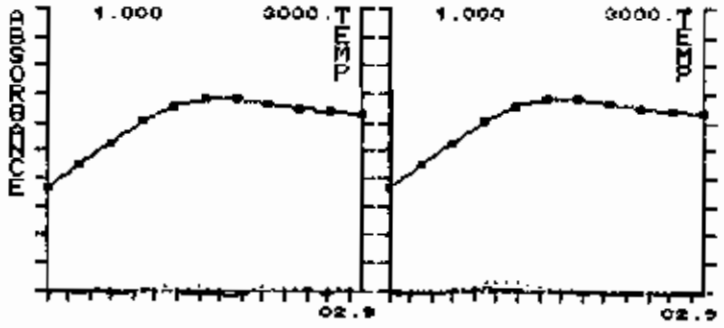
$T_{Se} = 104$ $\frac{dV}{V} = 1:2.5$ $T_{Se0} = 41.6$

$T_{As} = 47$ $\frac{dV}{V} = 1:2.5$ $T_{As} = 18.8$

TIME

		Se-S	As-S	
17:57	SN= 301939			738ØØ1 -Ø6
	Conc 1	-00.38	07.14	
	Mean	-00.38	07.14	
	P/H	0.003	0.079	
	Conc 2	00.78	06.87	
	Mean	00.20	07.00	
	P/H	-0.003	0.069	
		Se-S	As-S	
	Mean	00.20	07.00	
	SD	00.82	00.19	
	RSD	DIG HI	02.72	
		Se-S	As-S	
18:04	SN= 301939			1738ØØ1-Ø6 +10/20
	Conc 1	00.20	27.31	
	Mean	00.20	27.31	
	P/H	-0.001	0.295	
	Conc 2	01.72	27.84	
	Mean	00.96	27.57	S_e 0%
	P/H	0.004	0.293	
		Se-S	As-S	
	Mean	00.96	27.57	A_s 97%
	SD	01.07	00.37	
	RSD	OIO HI	01.35	
		Se-S	As-S	
18:09	SN= 301939			738ØØ1-Ø6 1:5
	Conc 1	00.50	01.87	
	Mean	00.50	01.87	
	P/H	0.002	0.014	
	Conc 2	00.88	00.56	
	Mean	00.69	01.21	
	P/H	0.003	0.010	

02	Se-S	As-S	#02
Mean	00.69	01.21	
SD	00.27	00.93	
RSD	38.84	76.52	



Temp <100 C

TIME			Se-S	As-S	
18:09	SN= 301939				738 Ø Ø 1 - Ø 6 1:5 +10
	Conc	1	02.71	20.73	
	Mean		02.71	20.73	
	P/H		0.026	0.245	
	Conc	2	02.67	20.98	
	Mean		02.69	20.85	
	P/H		0.014	0.263	Se 27%
			Se-S	As-S	
	Mean		02.69	20.85	
	SD		00.03	00.18	
	RSD		01.04	00.84	
			Se-S	As-S	
18:12	SN= 302150				738 Ø Ø 1 - 15
	Conc	1	01.07	-00.04	
	Mean		01.07	-00.04	
	P/H		0.001	0.000	
	Conc	2	-01.06	-00.50	
	Mean		00.00	-00.27	
	P/H		-0.003	0.001	
			Se-S	As-S	
	Mean		00.00	-00.27	
	SD		01.51	00.33	
	RSD		DIG HI	DIG HI	
			Se-S	As-S	
18:29	SN= 302150				738 Ø Ø 1 - 15 +10/20
	Conc	1	01.91	19.65	
	Mean		01.91	19.65	
	P/H		0.010	0.195	
	Conc	2	02.31	19.46	
	Mean		02.11	19.55	Se 21%
	P/H		0.006	0.212	
			Se-S	As-S	
	Mean		02.11	19.55	As 98%
	SD		00.28	00.13	
	RSD		13.36	00.68	
			Se-S	As-S	
18:32	SN= 302150				738 Ø Ø 1 - 15 1:5
	Conc	1	01.15	-01.22	
	Mean		01.15	-01.22	
	P/H		0.007	-0.005	
	Conc	2	-00.59	00.21	
	Mean		00.28	-00.51	
	P/H		-0.004	-0.003	
			Se-S	As-S	
	Mean		00.28	-00.51	
	SD		01.23	01.01	
	RSD		DIG HI	DIG HI	
			Se-S	As-S	
18:37	SN= 302150				738 Ø Ø 1 - 15 1:5 +10
	Conc	1	07.27	18.71	
	Mean		07.27	18.71	
	P/H		0.031	0.224	
	Conc	2	04.94	19.30	
	Mean		06.10	19.00	Se 61%
	P/H		0.031	0.228	
			Se-S	As-S	
	Mean		06.10	19.00	
	SD		01.65	00.42	
	RSD		27.00	02.19	RSD > 20%

TIME

		Se-S	As-S	
18:45	SN= 000002			CCV1
	Conc 1	19.11	24.39	
	Mean	19.11	24.39	
	P/H	0.182	0.271	
	Conc 2	20.13	25.52	
	Mean	19.62	24.95	Se 98%
	P/H	0.190	0.274	
		Se-S	As-S	
	Mean	19.62	24.95	As 100%
	SD	00.72	00.80	
	RSD	03.67	03.20	
		Se-S	As-S	
18:50	SN= 000099			CCB1
	Conc 1	00.03	-01.18	
	Mean	00.03	-01.18	
	P/H	-0.003	-0.005	
	Conc 2	01.73	-01.72	
	Mean	00.88	-01.45	
	P/H	0.000	-0.008	
		Se-S	As-S	
	Mean	00.88	-01.45	
	SD	01.20	00.38	
	RSD	DIG HI	-26.27	
		Se-S	As-S	
19:07	SN= 302150			738ØØ1-15 1:5 +10
	Conc 1	05.43	19.14	
	Mean	05.43	19.14	
	P/H	0.021	0.238	
	Conc 2	07.02	18.96	
	Mean	06.22	19.05	
	P/H	0.039	0.238	Se 62%
		Se-S	As-S	
	Mean	06.22	19.05	
	SD	01.12	00.13	
	RSD	18.07	00.66	
		Se-S	As-S	
19:22	SN= 302154			738ØØ1 - 16
	Conc 1	01.45	00.89	
	Mean	01.45	00.89	
	P/H	0.006	0.013	
	Conc 2	00.62	01.76	
	Mean	01.03	01.32	
	P/H	0.001	0.017	
		Se-S	As-S	
	Mean	01.03	01.32	
	SD	00.59	00.62	
	RSD	56.89	46.59	
		Se-S	As-S	
19:27	SN= 302154			738ØØ1 -16 +10/20
	Conc 1	-00.10	20.00	
	Mean	-00.10	20.00	
	P/H	0.008	0.169	
	Conc 2	00.90	18.80	
	Mean	00.40	19.40	Se 4%
	P/H	0.000	0.162	
		Se-S	As-S	
	Mean	00.40	19.40	As 97%
	SD	00.71	00.85	
	RSD	DIG HI	04.37	

TIME		Se-S	As-S	
	SN= 302154			738ØØ1-16 1:5
19:37	Conc 1	-00.50	-00.72	
	Mean	-00.80	-00.72	
	P/H	0.003	-0.002	
	Conc 2	00.57	-01.75	
	Mean	-00.12	-01.24	
	P/H	0.002	-0.004	
		Se-S	As-S	
	Mean	-00.12	-01.24	
	SD	00.97	00.73	
	RSD	DIG HI	-55.70	
		Se-S	As-S	738ØØ1-16 1:5 +10
19:37	SN= 302154			
	Conc 1	02.17	18.27	
	Mean	02.17	18.27	
	P/H	0.004	0.213	
	Conc 2	02.75	18.45	
	Mean	02.46	18.36	Se 25%
	P/H	0.015	0.219	
		Se-S	As-S	
	Mean	02.46	18.36	
	SD	00.41	00.13	
	RSD	16.66	00.69	
		Se-S	As-S	
19:42	SN= 302155			738ØØ1-22
	Conc 1	-00.80	41.37	
	Mean	-00.80	41.37	
	P/H	0.006	0.283	
	Conc 2	01.39	41.04	
	Mean	00.29	41.20	
	P/H	0.002	0.255	
		Se-S	As-S	
	Mean	00.29	41.20	
	SD	01.55	00.23	
	RSD	DIG HI	00.56	
		Se-S	As-S	
19:47	SN= 302155			738ØØ1-22 +10/20
	Conc 1	-00.09	61.30	
	Mean	-00.09	61.30	
	P/H	0.002	0.411	
	Conc 2	-00.57	64.52	Se 0%
	Mean	-00.33	62.91	
	P/H	0.005	0.382	
		Se-S	As-S	
	Mean	-00.33	62.91	As 10%
	SD	00.34	02.28	
	RSD	DIG HI	03.61	
		Se-S	As-S	
19:52	SN= 302159			738ØØ1-22 1:5
	Conc 1	01.31	-00.94	
	Mean	01.31	-00.94	
	P/H	0.003	-0.004	
	Conc 2	00.65	-00.91	
	Mean	00.98	-00.93	
	P/H	0.005	-0.002	
		Se-S	As-S	
	Mean	00.98	-00.93	
	SD	00.47	00.02	
	RSD	47.55	-02.36	

TIME			Se-S	As-S	
	SN= 302155				7580Ø1-22 1:5 +10
19:57	Conc	1	10.32	21.53	
	Mean		10.32	21.53	
	P/H		0.099	0.215	
	Conc	2	08.67	22.76	
	Mean		09.49	22.14	Se 95%
	P/H		0.071	0.229	
			Se-S	As-S	
	Mean		09.49	22.14	
	SD		01.17	00.87	
	RSD		12.28	03.92	
			Se-S	As-S	
20:02	SN= 000002				CCV
	Conc	1	23.19	25.75	
	Mean		23.19	25.75	
	P/H		0.175	0.274	
	Conc	2	20.17	25.23	Se 108%
	Mean		21.68	25.49	
	P/H		0.173	0.287	
			Se-S	As-S	As 102%
	Mean		21.68	25.49	
	SD		02.14	00.37	
	RSD		09.84	01.43	
			Se-S	As-S	
20:07	SN= 000099				CCB
	Conc	1	01.51	-01.23	
	Mean		01.51	-01.23	
	P/H		0.003	-0.007	
	Conc	2	-01.22	-00.83	
	Mean		00.14	-01.03	
	P/H		-0.006	-0.006	
			Se-S	As-S	
	Mean		00.14	-01.03	
	SD		01.93	00.28	
	RSD		67.85	-27.37	
			Se-S	As-S	
20:12	SN= 302157				7580Ø1-25
	Conc	1	00.57	-00.55	
	Mean		00.57	-00.55	
	P/H		0.006	-0.003	
	Conc	2	-00.27	-01.21	
	Mean		00.15	-00.88	
	P/H		-0.001	-0.005	
			Se-S	As-S	
	Mean		00.15	-00.88	
	SD		00.59	00.47	
	RSD		DIG HI	-52.95	
			Se-S	As-S	
20:17	SN= 302157				7580Ø1-25 +10/20
	Conc	1	04.23	19.18	
	Mean		04.23	19.18	
	P/H		0.012	0.241	
	Conc	2	03.88	19.35	Se 41%
	Mean		04.05	19.26	
	P/H		0.013	0.263	
			Se-S	As-S	As 96%
	Mean		04.05	19.26	
	SD		00.25	00.12	
	RSD		06.09	00.62	

TIME		Se-S	As-S	
20:22	SN= 302166			738001-26
	Conc 1	01.74	00.19	
	Mean	01.74	00.19	
	P/H	0.003	0.004	
	Conc 2	01.13	00.32	
	Mean	01.43	00.25	
	P/H	0.004	-0.002	
		Se-S	As-S	
	Mean	01.43	00.25	
	SD	00.43	00.09	
	RSD	30.13	36.80	
		Se-S	As-S	
20:27	SN= 302166			738001-21 +10/20
	Conc 1	01.73	18.38	
	Mean	01.73	18.38	
	P/H	0.016	0.224	
	Conc 2	01.80	20.78	
	Mean	01.76	19.58	
	P/H	0.003	0.231	
		Se-S	As-S	
	Mean	01.76	19.58	As 97.9%
	SD	00.05	01.70	
	RSD	02.84	08.66	
		Se-S	As-S	
20:32	SN= 302166			738001-21 1:5
	Conc 1	01.00	-00.55	
	Mean	01.00	-00.55	
	P/H	0.004	0.002	
	Conc 2	00.52	-01.55	
	Mean	00.76	-01.05	
	P/H	-0.001	-0.006	
		Se-S	As-S	
	Mean	00.76	-01.05	
	SD	00.34	00.71	
	RSD	44.60	-67.33	
		Se-S	As-S	
20:37	SN= 302166			738001-21 1:5 +10
	Conc 1	03.50	18.54	
	Mean	03.50	18.54	
	P/H	0.028	0.213	
	Conc 2	04.00	19.77	
	Mean	03.75	19.15	Se 98%
	P/H	0.021	0.225	
		Se-S	As-S	
	Mean	03.75	19.15	
	SD	00.35	00.87	
	RSD	09.41	04.53	
		Se-S	As-S	
20:42	SN= 302168			738001-21
	Conc 1	-00.63	20.93	
	Mean	-00.63	20.93	
	P/H	0.009	0.162	
	Conc 2	01.80	21.26	
	Mean	00.58	21.09	
	P/H	0.002	0.155	
		Se-S	As-S	
	Mean	00.58	21.09	
	SD	01.72	00.23	
	RSD	DIG HI	01.10	

TIME			Se-S	As-S	
20:47	SN= 302168				738001-21 +10/20
	Conc	1	01.10	42.94	
	Mean		01.10	42.94	
	P/H		0.002	0.300	Se 5%
	Conc	2	-00.17	43.03	
	Mean		00.46	42.98	As 110%
	P/H		-0.002	0.294	
			Se-S	As-S	
	Mean		00.46	42.98	
	SD		00.90	00.06	
	RSD		DIG HI	00.14	
			Se-S	As-S	
20:52	SN= 302168				738001-21 ~~+10/20~~ 1:5
	Conc	1	01.19	04.13	
	Mean		01.19	04.13	
	P/H		0.000	0.043	
	Conc	2	01.74	03.43	
	Mean		01.46	03.78	
	P/H		0.006	0.042	
			Se-S	As-S	
	Mean		01.46	03.78	
	SD		00.39	00.49	
	RSD		26.57	13.06	
			Se-S	As-S	
20:57	SN= 302168				738001-21 1:5 +10
	Conc	1	01.55	23.00	
	Mean		01.55	23.00	
	P/H		0.016	0.272	
	Conc	2	03.81	23.16	Se 27%
	Mean		02.68	23.08	
	P/H		0.008	0.272	
			Se-S	As-S	
	Mean		02.68	23.08	
	SD		01.60	00.11	
	RSD		59.62	00.48	
			Se-S	As-S	
21:02	SN= 000002				CCV3
	Conc	1	17.45	24.71	
	Mean		17.45	24.71	
	P/H		0.172	0.287	
	Conc	2	21.09	26.08	Se 96%
	Mean		19.27	25.39	
	P/H		0.190	0.312	
			Se-S	As-S	
	Mean		19.27	25.39	As 102%
	SD		02.57	00.97	
	RSD		13.33	03.81	
			Se-S	As-S	
21:07	SN= 000099				CCB3
	Conc	1	-00.90	-01.34	
	Mean		-00.90	-01.34	
	P/H		-0.001	-0.005	
	Conc	2	01.90	-01.52	
	Mean		00.50	-01.43	
	P/H		0.002	-0.007	
			Se-S	As-S	
	Mean		00.50	-01.43	
	SD		01.98	00.13	
	RSD		DIG HI	-08.88	

TIME			Se-S	As-S
	SN= 302172			
21:12	Conc	1	-00.99	00.51
	Mean		-00.99	00.51
	P/H		0.000	0.008
	Conc	2	-01.12	00.68
	Mean		-01.06	00.59
	P/H		-0.006	0.014
			Se-S	As-S
	Mean		-01.06	00.59
	SD		00.09	00.12
	RSD		-08.67	20.33
			Se-S	As-S
21:27	SN= 302172			
	Conc	1	02.45	22.10
	Mean		02.45	22.10
	P/H		0.006	0.251
	Conc	2	01.91	22.37
	Mean		02.18	22.23
	P/H		0.010	0.248
			Se-S	As-S
	Mean		02.18	22.23
	SD		00.38	00.19
	RSD		17.47	00.85
			Se-S	As-S
21:32	SN= 302172			
	Conc	1	00.77	-01.18
	Mean		00.77	-01.18
	P/H		0.007	-0.006
	Conc	2	-00.07	-01.13
	Mean		00.35	-01.16
	P/H		0.006	-0.006
			Se-S	As-S
	Mean		00.35	-01.16
	SD		00.59	00.04
	RSD		DIG HI	-03.10
			Se-S	As-S
21:37	SN= 302172			
	Conc	1	04.31	18.24
	Mean		04.31	18.24
	P/H		0.035	0.207
	Conc	2	04.55	19.21
	Mean		04.43	18.72
	P/H		0.029	0.221
			Se-S	As-S
	Mean		04.43	18.72
	SD		00.17	00.69
	RSD		03.81	03.65
			Se-S	As-S
21:42	SN= 302173			
	Conc	1	00.72	-00.34
	Mean		00.72	-00.34
	P/H		0.007	0.004
	Conc	2	-00.26	-00.02
	Mean		00.23	-00.18
	P/H		-0.002	0.010
			Se-S	As-S
	Mean		00.23	-00.18
	SD		00.69	00.23
	RSD		DIG HI	DIG HI

738ØØ1-17

738ØØ1-17 +10/20

Se 22%

As 111%

738ØØ1-17 1:5

738ØØ1-17 1:5 +10

Se 44%

Time			Se-S	As-S	
21:47	SN= 302173				738ØØ1 — 18 +10/20
	Conc	1	02.31	21.32	
	Mean		02.31	21.32	
	P/H		0.020	0.245	
	Conc	2	03.14	21.23	Se 27%
	Mean		02.72	21.27	
	P/H		0.011	0.241	
			Se-S	As-S	
	Mean		02.72	21.27	As 106%
	SD		00.59	00.06	
	RSD		21.54	00.30	
			Se-S	As-S	
21:52	SN= 302173				738 Ø Ø 1 — 18 1:5
	Conc	1	01.06	-00.82	
	Mean		01.06	-00.82	
	P/H		0.000	-0.006	
	Conc	2	00.73	-01.94	
	Mean		00.92	-01.38	
	P/H		0.004	-0.003	
			Se-S	As-S	
	Mean		00.92	-01.38	
	SD		00.20	00.79	
	RSD		21.41	-57.31	
			Se-S	As-S	
21:57	SN= 302173				738Ø Ø 1 - 18 1:5 +10
	Conc	1	06.13	18.75	
	Mean		06.13	18.75	
	P/H		0.043	0.198	
	Conc	2	04.82	19.29	
	Mean		05.47	19.02	Se 55%
	P/H		0.040	0.215	
			Se-S	As-S	
	Mean		05.47	19.02	
	SD		00.93	00.38	
	RSD		16.92	02.00	
			Se-S	As-S	
22:02	SN= 302174				738Ø Ø 1 - 13
	Conc	1	00.48	02.24	
	Mean		00.48	02.24	
	P/H		0.006	0.028	
	Conc	2	00.19	02.63	
	Mean		00.33	02.43	
	P/H		0.009	0.034	
			Se-S	As-S	
	Mean		00.33	02.43	
	SD		00.21	00.28	
	RSD		62.12	11.31	
			Se-S	As-S	
22:07	SN= 302174				738 Ø Ø 1 — 13 +10/20
	Conc	1	02.08	22.66	
	Mean		02.08	22.66	
	P/H		0.008	0.255	
	Conc	2	02.36	23.96	Se 22%
	Mean		02.22	23.31	
	P/H		0.019	0.249	
			Se-S	As-S	
	Mean		02.22	23.31	As 104%
	SD		00.20	00.92	
	RSD		08.87	03.94	

TIME

		Se-S	As-S	
22:12	SN= 000002			CCV 4
	Conc 1	17.80	26.08	
	Mean	17.80	26.08	
	P/H	0.153	0.280	
	Conc 2	19.70	26.13	
	Mean	18.75	26.10	Se
	P/H	0.153	0.300	
		Se-S	As-S	
	Mean	18.75	26.10	As
	SD	01.34	00.04	
	RSD	07.16	00.13	
22:17		Se-S	As-S	
22:17	SN= 000099			
3rd 23:14:17	Conc 1	00.32	-00.51	CCB 4
	Mean	00.32	-00.81	
	P/H	0.001	-0.003	
	Conc 2	00.45	-01.47	
	Mean	00.38	-01.14	
	P/H	-0.002	-0.005	
		Se-S	As-S	
	Mean	00.38	-01.14	
	SD	00.09	00.47	
	RSD	24.21	-40.87	
		Se-S	As-S	
22:43	SN= 302174			738 Ø Ø1 - 13 115
	Conc 1	-00.18	00.00	
	Mean	-00.18	00.00	
	P/H	0.009	0.003	
	Conc 2	01.42	-00.80	
	Mean	00.62	-00.40	
	P/H	0.004	-0.005	
		Se-S	As-S	
	Mean	00.62	-00.40	
	SD	01.13	00.57	
	RSD	DIG HI	DIG HI	
		Se-S	As-S	
22:48	SN= 302174			738 Ø Ø1 -13 115 +/0
	Conc 1	06.78	19.61	
	Mean	06.78	19.61	
	P/H	0.026	0.207	
	Conc 2	05.19	20.33	
	Mean	05.98	19.97	
	P/H	0.020	0.216	Se 60%
		Se-S	As-S	
	Mean	05.98	19.97	
	SD	01.12	00.51	
	RSD	18.79	02.54	
		Se-S	As-S	
22:52	SN= 302175			738 Ø Ø1 -14
	Conc 1	-01.54	02.99	
	Mean	-01.54	02.99	
	P/H	-0.001	0.041	
	Conc 2	01.87	03.01	
	Mean	00.16	03.00	
	P/H	0.014	0.036	
		Se-S	As-S	
	Mean	00.16	03.00	
	SD	02.41	00.01	
	RSD	DIG HI	00.46	

TIME

		Se-S	As-S	
22:57	SN= 302175			738661-14 +10/20
	Conc 1	02.09	23.08	
	Mean	02.09	23.08	
	P/H	0.010	0.249	
	Conc 2	01.20	24.86	Se 16%
	Mean	01.64	23.97	
	P/H	0.008	0.251	
		Se-S	As-S	
	Mean	01.64	23.97	As 105%
	SD	00.63	01.26	
	RSD	38.35	05.24	
		Se-S	As-S	
23:07	SN= 302175			738Ø61-14 1:5
	Conc 1	00.46	00.05	
	Mean	00.46	00.05	
	P/H	0.004	0.000	
	Conc 2	01.39	-00.69	
	Mean	00.92	-00.32	
	P/H	0.004	-0.004	
		Se-S	As-S	
	Mean	00.92	-00.32	
	SD	00.66	0D.52	
	RSD	71.41	0I0 HI	
		Se-S	As-S	
23:12	SN= 302175			738Ø61-14 1:5 +10
	Conc 1	06.14	19.54	
	Mean	06.14	19.54	
	P/H	0.030	0.216	
	Conc 2	05.89	19.97	Se 60%
	Mean	06.01	19.75	
	P/H	0.031	0.207	
		Se-S	As-S	
	Mean	06.01	19.75	
	SD	00.18	00.30	
	RSD	02.92	01.53	
		Se-S	As-S	
23:19	SN= 302176			738Ø61-24
	Conc 1	00.45	01.74	
	Mean	00.45	01.74	
	P/H	0.003	0.025	
	Conc 2	00.92	01.66	
	Mean	D0.68	01.70	
	P/H	0.006	0.023	
		Se-S	As-S	
	Mean	00.68	01.70	
	SD	00.33	00.06	
	RSD	48.82	03.29	
		Se-S	As-S	
23:24	SN= 302176			738Ø61-24 +10/20
	Conc 1	00.49	20.87	
	Mean	00.49	20.87	
	P/H	0.015	0.174	
	Conc 2	01.81	20.83	Se 12%
	Mean	01.15	20.85	
	P/H	0.024	0.197	
		Se-S	As-S	
	Mean	01.15	20.85	As 104%
	SD	00.93	00.03	
	RSD	81.13	00.13	
		Se-S	As-S	
23:31	SN= 302176			738Ø61-24 1:5

20:31	Conc	1	-00.76	-01.29	738001-24 1:5 ~~+10~~ (cont)
	Mean		-00.76	-01.29	
	P/H		-0.003	-0.004	
	Conc	2	-00.61	00.06	
	Mean		-00.69	-00.62	
	P/H		-0.002	-0.002	
			Se-S	As-S	
	Mean		-00.69	-00.62	
	SD		00.11	00.95	
	RSD		-15.36	DIG HI	
			Se-S	As-S	
23:35	SN= 302176				738001-24 1:5 +10
	Conc	1	03.47	19.42	
	Mean		03.47	19.42	
	P/H		0.015	0.215	
	Conc	2	01.41	19.24	
	Mean		02.44	19.33	Se 24%
	P/H		0.007	0.225	
			Se-S	As-S	
	Mean		02.44	19.33	
	SD		01.46	00.13	
	RSD		59.67	00.65	
			Se-S	As-S	
23:40	SN= 000002				CCV5
	Conc	1	18.99	24.41	
	Mean		18.99	24.41	
	P/H		0.180	0.299	
	Conc	2	21.49	24.13	Se 101%
	Mean		20.24	24.27	
	P/H		0.155	0.312	
			Se-S	As-S	As 97%
	Mean		20.24	24.27	
	SD		01.77	00.20	
	RSD		08.73	00.81	
			Se-S	As-S	
23:45	SN= 000099				CCB5
	Conc	1	-00.52	-01.20	
	Mean		-00.52	-01.20	
	P/H		-0.004	-0.008	
	Conc	2	-00.34	-01.28	
	Mean		-00.43	-01.24	
	P/H		-0.002	-0.006	
			Se-S	As-S	
	Mean		-00.43	-01.24	
	SD		00.13	00.06	
	RSD		-29.53	-04.51	
			Se-S	As-S	
23:49	SN= 302182				738001-23
	Conc	1	-00.28	11.16	
	Mean		-00.28	11.16	
	P/H		-0.003	0.105	
	Conc	2	-00.21	11.62	
	Mean		-00.25	11.39	
	P/H		0.007	0.095	
			Se-S	As-S	
	Mean		-00.25	11.39	
	SD		00.05	00.33	
	RSD		-20.00	02.85	

TIME			Se-S	As-S	
23:54	SN= 302182				73800 1 -23 +10/20
	Conc	1	01.06	33.43	
	Mean		01.06	33.43	
	P/H		0.005	0.269	
	Conc	2	02.42	33.66	Se 17%
	Mean		01.74	33.54	
	P/H		0.015	0.263	
			Se-S	As-S	
	Mean		01.74	33.54	As 111%
	SD		00.96	00.16	
	RSD		55.22	00.48	
			Se-S	As-S	
23:59	SN= 302182				73800 1 -23 1:5
	Conc	1	00.50	01.74	
	Mean		00.50	01.74	
	P/H		0.002	0.021	
	Conc	2	00.89	01.41	
	Mean		00.69	01.57	
	P/H		0.003	0.022	
			Se-S	As-S	
	Mean		00.69	01.57	
	SD		00.28	00.23	
	RSD		39.85	14.84	
			Se-S	As-S	
00:05	SN= 302182				73800 1 -23 1:5 +10
	Conc	1	02.76	22.55	
	Mean		02.76	22.55	
	P/H		0.028	0.235	
	Conc	2	02.54	21.93	
	Mean		02.65	22.24	
	P/H		0.010	0.244	Se 27%
			Se-S	As-S	
	Mean		02.65	22.24	
	SD		00.16	00.44	
	RSD		05.84	01.96	
			Se-S	As-S	
00:10	SN= 304443				PBW
	Conc	1	-01.32	-00.59	
	Mean		-01.32	-00.59	
	P/H		-0.007	-0.004	
	Conc	2	00.00	-01.12	
	Mean		-00.66	-00.86	
	P/H		0.002	-0.005	
			Se-S	As-S	
	Mean		-00.66	-00.86	
	SD		00.93	DD.37	
	RSD		DIG HI	-43.48	
			Se-S	As-S	
00:15	SN= 304443				
	Conc	1	10.07	19.16	PBW
	Mean		10.07	19.16	
	P/H		0.095	0.225	
	Conc	2	09.89	19.84	Se 100%
	Mean		09.98	19.50	
	P/H		0.095	0.224	
			Se-S	As-S	
	Mean		09.98	19.50	As 98%
	SD		00.13	00.48	
	RSD		01.27	02.46	

TIME			Se-S	As-S	
	SN= 304444				LCS w (1:5)
00:20	Conc	1	18.83	18.35	
	Mean		18.83	18.35	
	P/H		0.155	0.209	
	Conc	2	20.94	18.76	
	Mean		19.88	18.55	
	P/H		0.156	0.222	
			Se-S	As-S	
	Mean		19.88	18.55	
	SD		01.49	00.29	
	RSD		07.50	01.56	
			Se-S	As-S	
00:25	SN= 304445				LCS w (1:5) +10/20
	Conc	1	30.33	37.62	
	Mean		30.33	37.62	
	P/H		0.203	0.411	
	Conc	2	28.98	39.05	Se 98%
	Mean		29.65	38.33	
	P/H		0.207	0.398	
			Se-S	As-S	
	Mean		29.65	38.33	As 99%
	SD		00.95	01.01	
	RSD		03.21	02.63	
			Se-S	As-S	
00:30	SN= 000002				CCV1
	Conc	1	21.53	24.57	
	Mean		21.53	24.57	
	P/H		0.176	0.287	
	Conc	2	19.93	24.41	Se 104%
	Mean		20.73	24.49	
	P/H		0.177	0.302	
			Se-S	As-S	
	Mean		20.73	24.49	As 98%
	SD		01.13	00.11	
	RSD		05.45	00.46	
			Se-S	As-S	
00:35	SN= 000099				ICCB1
	Conc	1	01.09	-00.98	
	Mean		01.09	-00.98	
	P/H		0.002	-0.005	
	Conc	2	-00.57	-01.71	
	Mean		00.26	-01.35	
	P/H		0.002	-0.005	
			Se-S	As-S	
	Mean		00.26	-01.35	
	SD		01.17	00.52	
	RSD		DIG HI	-38.22	

RENTS

PB/TL

AG
SB

Case Name: IR4108
File Name:

NO.	SAMPLE ID	COMMENTS	TIME	NO.	SAMPLE NO.	COMMENTS	TIME	
	ICV	ICV-2 (0887)	17:38		CCB2		20:07	
	ICB		17:41	1	302157		20:12	ME
1	CRA		17:44	2	302157	+10/20	20:17	LS
2	CRA	+10/20	17:51	3	302166		20:22	Z
3	301939		17:57	4	302166	+10/20	20:27	--
4	301939	+10/20	18:04	5	302166	1:5	20:32	--
5	301939	1:5	18:07	6	302166	1:5 +10	20:37	--
6	301939	1:5 +10	18:17	7	302168		20:42	--
7	302150		18:22	8	302168	+10/20	20:47	--
8	302150	+10/20	18:27	9	302168	1:5	20:52	--
9	302150	1:5	18:32	10	302168	1:5 +10	20:57	--
10	302150	1:5 +10 RED >>>	18:37		CCV3		21:02	--
	CCV1		18:45		CCB3		21:07	--
	CCB1		18:50	1	302172		21:12	--
1	302150	1:5 +10	19:07	2	302172	+10/20	21:17	--
2	302154		19:22	3	302172	1:5	21:22	--
3	302154	+10/20	19:27	4	302172	1:5 +10	21:27	--
4	302154	1:5	19:32	5	302173		21:42	--
5	302154	1:5 +10	19:37	6	302173	+10/20	21:47	--
6	302155		19:42	7	302173	1:5	21:52	--
7	302155	+10/20	19:47	8	302173	1:5 +10	21:57	--
8	302155	1:5	19:52	9	302174		22:02	--
9	302155	1:5 +10	19:57	10	302174	+10/20	22:07	--
10	—	—			CCV4		22:12	--
	CCV2		20:02		CCB4		22:17	--

# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS

SEE NEXT PAGE (P. 48)

CompuChem Laboratories Inc.

DATE: 12/13/1989

ELEMENTS 45/88 (Con't) CD AG SB
PB/TL

Operator: AWK

Case Name: 18404 / 18410C
File Name:

NO.	SAMPLE ID	COMMENTS	TIME	NO.	SAMPLE NO.	COMMENTS	TIME
	ICV 1/10				CCB		00:35
	ICB 1/10			1			
1	302174	1:5	22:43	2			
2	302174	1:5 +10	22:48	3			
3	302175		22:52	4			
4	302175	+10/20	22:57	5			
5	302175	1:5	23:02	6			
6	302175	1:5 +10	23:08	7			
7	302176		23:13	8			
8	302176	+10/20	23:24	9			
9	302176	1:5	23:31	10			
10	302176	1:5 +10	23:35		CCV		
	CCV5		23:40		CCB		
	CCB5		23:45	1			
1	302182		23:49	2			
2	302182	+10/20	23:54	3			
3	302182	1:5	23:59	4			
4	302182	1:5 +10	00:05	5			
5	304443	PBW	00:10	6			
6	304443	PBW +10/20	00:15	7			
7	302559	LCSW 1:5	00:20	8			
8	302559	LCSW 1:5 +10/20	00:25	9			
9				10			
10					CCV		
	CCV6		00:30		CCB		

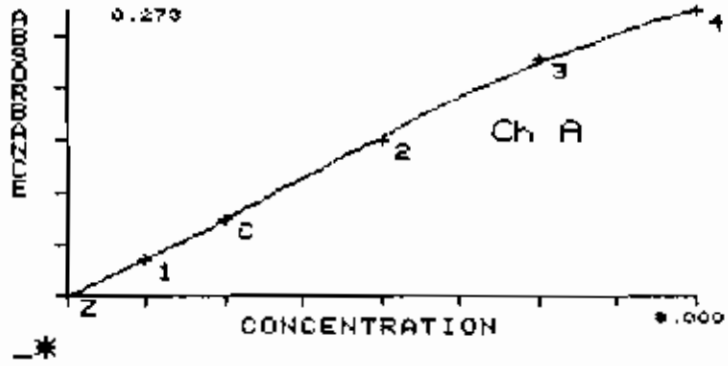
# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS
154	14	12	13	14	2	7

48

(1)

```
        Hg-D
Standard Z
Abs      -0.001
AUTO ZERO
17:50:05
OPERATOR 86
Sun  19 NOV 1984
        Hg-D
Standard C
Abs       0.037
Standard C
Abs       0.074
Standard 1
Abs       0.036
Standard 2
Abs       0.148
Standard 3
Abs       0.177
Standard 4
Abs       0.273
Standard 3
Abs       0.174
Standard 3
Abs       0.226
```

Hg-D




```
CALIBRATE A
  STD   CONC      MEAN
   Z    0.000     0.000
   C    2.000     0.074
   1    1.000     0.036
   2    4.000     0.148
   3    6.000     0.226
   4    8.000     0.273
APP CONC
STD Z    0.000
STD C    2.031
STD 1    1.032
STD 2    3.907
STD 3    6.094
STD 4    7.960
```

Hg Analysis
11/21/89
Q.C. ICV-5 (0788)
T = 4.9 (df. 1:2 T = 2.45)
CCV : T = 3
Units : µg/l
Pages : 1-3
O.R.A.
[1341 0B]

(2)

Hg-D

SN= 000788 ICV 101%
Conc 2.466
SN= 000000 ICB
Conc -0.062

SN= 301909
Conc -0.041
SN= 301910
Conc -0.082
SN= 301917
Conc -0.072
SN= 301918
Conc -0.041
SN= 301922
Conc -0.092
SN= 301937
Conc -0.031
SN= 301938
Conc -0.041
SN= 301939
Conc 0.000
SN= 302150
Conc -0.082
SN= 302154
Conc -0.072

SN= 000003 CCV 100%
Conc 2.989
SN= 000000 CCB
Conc 0.000

SN= 302155
Conc -0.082
SN= 302157
Conc -0.062
SN= 302166
Conc -0.062
SN= 302168
Conc -0.041
SN= 302172
Conc -0.052
SN= 302173
Conc -0.082
SN= 302174
Conc -0.072
SN= 302175
Conc -0.062
SN= 302176
Conc -0.031
SN= 302182
Conc -0.072

SN= 000003 CCV 98%
Conc 2.938
SN= 000000 CCB
Conc 0.040

SN= 301922 SS(301909)
Conc 1.015
SN= 301900 D(301909)
Conc -0.052
SN= 301901 PS
Conc 2.989
SN= 303474 Prep Blk
Conc -0.052
SN= 303472 Prep Blk
Conc -0.052
SN= 009999 Generic LCS
Conc 2.388
SN= 000010 Generic D(299489)
Conc -0.052
SN= 299489
Conc -0.110
SN= 303470 Prep Blk
Conc -0.041
SN= 299677 PS
Conc 2.500

SN= 000003 CCV 99%
Conc 2.964 CCB
SN= 000000
Conc -0.052

SN= 299673
Conc -0.041
SN= 299674 SS(299673)
Conc 0.884
SN= 299676 D(299673)
Conc -0.062
SN= 299675
Conc -0.031
SN= 299904
Conc -0.052
SN= 299912
Conc -0.092
SN= 299914
Conc -0.021
SN= 300185
Conc -0.082
SN= 300186
Conc -0.072

SN= 000003 CCV 100%
Conc 3.015
SN= 000000 CCB
Conc 0.122

CompuChem Laboratories Inc.

FURNACE AAS RUN LOG

PAGE 1 of 1

DATE: 11-27-89

ELEMENTS AS/SE (Hg) CD AG PB/TL SB

Operator: ESV/DBA

Case Name:

File Name:

NO.	SAMPLE ID	COMMENTS		NO.	SAMPLE NO.	COMMENTS	
	ICV	1748			CCB		1903
	ICB	1751		1	301925	SS (321909)	1906
1	301909	1754		2	301930	D (301909)	1909
2	301910	1757		3	30193/	BS	1912
3	301917	1800		4	303474	Prep Blank	1915
4	301918	1803		5	303472	Prep Blk	1918
5	301922	1806		6	30	Generic LCS	1921
6	301937	1809		7	10	Generic D(299489)	1924
7	301938	1812		8	299489		1927
8	301939	1815		9	303470	Prep Blk	1930
9	302150	1818		10	299677	BS	1933
10	302154	1821			CCV		1936
	CCV	1824			CCB		1939
	CCB	1827		1	299673		1942
1	302155	1830		2	299674	SS(299673)	1945
2	302157	1833		3	299676	D(299673	1948
3	302166	1836		4	299675		1951
4	302168	1839		5	299904		1954
5	302172	1842		6	299912		1957
6	302173	1845		7	299914		2000
7	302174	1848		8	300185		2003
8	302175	1851		9	300186		2006
9	302176	1854		10			2009
10	302182	1857			CCV		2009
	CCV	1900			CCB		2012

# INJECTS	# SAMPLES	DILUTIONS	PST DIG SPK	CALIB QC	QC SAMPLES	INST HRS
	29	0		10	11	2:24

18410B

COMPUCHEM CORP MERCURY PREPARATION LOG

CASE TYPE: Platinum

SDG ID : 255501-18410 5 (754/254)

POSTED EV

PREPARED BY: Eric S. Monsonion

DATE: 11-20-89

PREPARATION ANALYSIS CODE : - 74

#	CCN (LAB ID)	DATE REC'D	CUSTOMER ID	INITIAL (WT / VOL)	FINAL VOL	DESCRIPTION BEFORE	DESCRIPTION AFTER	pH
1	301909	11-14-89	738001-12	100 mL	100 mL			
2	301910	"	738001-02	"	"			
3	301917	"	738001-01	"	"			
4	301918	"	738001-03	"	"			
5	301922	"	738001-08	"	"			
6	301934	"	738001-05	"	"			
7	301938	"	738001-10	"	"			
8	301939	11-14-89	738001-06	"	"			
9	302150	11-15-89	738001-15	"	"			
10	302154	"	738001-16	"	"			
11	302155	"	738001-22	"	"			
12	302158	"	738001-25	"	"			
13	302164	"	738001-26	"	"			
14	302168	"	738001-21	"	"			
15	302172	"	738001-17	"	"			
16	302173	"	738001-18	"	"			
17	302174	"	738001-13	"	"			
18	302175	"	738001-14	"	"			
19	302176	"	738001-24	"	"			
20	302184	11-15-89	738001-[illegible]	100 mL	100 mL			
21	301929	—	SAMPLE SPIKE	100 mL	100 mL	REF CCN:(301909)		
22	301930	—	DUPLICATE SAMPLE			REF CCN:(301910)		
23	301931	—	LAB CTRL SAMPLE			85	D.I. Water	
24	303474	—	PREP BLANK 81	100 mL	100 mL	DIH2O		
	303475	—	Prep Blank 82					

QC PREPARATION INFORMATION

SAMPLE SPIKE:

1.0 mL 100ppb Hg → 100 mL

LABORATORY CONTROL SAMPLE:

3.0 mL 100ppb Hg → 100 mL

Page no. 00001
11/17/89

T E C H N I C O N   TRAACS 800 SYSTEM   1-ANALYSIS REPORT FORM

DESCRIPTION	RUN INFORMATION	SAMPLEID	TEST #1
Date of Run	11-17-89		1.00
Time of Run	19:17		1.00
Operator	johnson		1.00
Comment	cyanide cn1118		1.00
	DBA		1.00
	* = 2:1 Prep Lab Dilution		1.00
			1.00
AN1 ChemName	cyanide		1.00
AN1 Units	ug/l		1.00
Peak1	Cup:1 -> PRIM	300PPB	296.65
Peak2	Cup:1 -> CALB	300PPB	297.18
Peak3	Cup:2 -> CALB	200PPB	203.91
Peak4	Cup:3 -> CALB	100PPB	100.23
Peak5	Cup:4 -> CALB	50PPB	50.34
Peak6	Cup:5 -> CALB	10PPB	9.78
Peak7	Cup:6 -> CALB	0PPB	0.26
Peak8	Cup:1 -> HIGH	300PPB	295.24
Peak9	Cup:6 -> LOW	0PPB	-.03
Peak10	Cup:6 -> LOW	0PPB	-.17
Peak11	Cup:3 -> ISMP	100PPB	99.73
Peak12	Cup:3 -> ISMP	100PPB	100.07
Peak13	Cup:3 -> ISMP	100PPB	98.12
Peak14	Cup:7 -> SAMP	ICV(300775)N	77.91 Below TC Spec T=100
Peak15	Cup:8 -> SAMP	ICB	-.73
Peak16	Cup:11 -> SAMP	302855PB * 2:1 dilution Prep Blk	-1.20

QC-ICV-6 (0789)
T=94

T E C H N I C O N TRAACS 800 SYSTEM ANALYSIS REPORT FORM

DESCRIPTION	RUN INFORMATION	SAMPLEID	TEST #1	
Peak17	Cup:12 -> SAMP	300769	15.68	
Peak18	Cup:13 -> SAMP	300773SS(300769)	101.24	
Peak19	Cup:14 -> SAMP	300769A	51.40	
Peak20	Cup:9 -> SAMP	CCV	96.10	
Peak21	Cup:10 -> SAMP	CCB	-.23	
Peak22	Cup:21 -> SAMP	ICV(301916)N	77.91 Tr=100	below spec.
Peak23	Cup:22 -> SAMP	ICB	0.00	
Peak24	Cup:23 -> SAMP	302854PB*	1.07	
Peak25	Cup:24 -> SAMP	301908*	1.92	
Peak26	Cup:25 -> SAMP	301908A	37.84	
Peak27	Cup:9 -> SAMP	CCV	95.13 Tr=14	101%
Peak28	Cup:10 -> SAMP	CCB	-.09	
Peak29	Cup:31 -> SAMP	ICV(301934)N	89.57 Tr=100	90%
Peak30	Cup:32 -> SAMP	ICB	-.16	
Peak31	Cup:33 -> SAMP	303244PB*	0.47	
Peak32	Cup:34 -> SAMP	301910	1.64	
Peak33	Cup:35 -> SAMP	301932SB(301910)	92.33	
Peak34	Cup:36 -> SAMP	301933D (301910)	4.10	
Peak35	Cup:37 -> SAMP	301909*	12.16	
Peak36	Cup:38 -> SAMP	301917*	-1.55	
Peak37	Cup:39 -> SAMP	301922*	0.90	
Peak38	Cup:40 -> SAMP	301918*	-1.68	
Peak39	Cup:9 -> SAMP	CCV	96.43 Tr=14	97%
Peak40	Cup:10 -> SAMP	CCB	-2.41	

I E C H N I C O N TRAACS 800 SYSTEM I-ANALYSIS REPORT FORM

DESCRIPTION	RUN INFORMATION	SAMPLEID	TEST #1	
Peak41	Cup:41 -> SAMP	301937 *	-1.66	
Peak42	Cup:42 -> SAMP	301938 *	0.89	
Peak43	Cup:43 -> SAMP	301939 *	0.09	
Peak44	Cup:44 -> SAMP	302150 *	0.70	
Peak45	Cup:45 -> SAMP	302155 *	14.18	
Peak46	Cup:46 -> SAMP	302157 *	4.36	
Peak47	Cup:47 -> SAMP	302166 *	1.42	
Peak48	Cup:48 -> SAMP	302168 *	3.34	
Peak49	Cup:49 -> SAMP	302172 *	-1.60	
Peak50	Cup:50 -> SAMP	H2OBLANK	-2.04	
Peak51	Cup:9 -> SAMP	CCV	93.24 T=90	90%
Peak52	Cup:10 -> SAMP	CCB	-2.29	
Peak53	Cup:51 -> SAMP	302173 *	-.07	
Peak54	Cup:52 -> SAMP	302174 *	-1.11	
Peak55	Cup:53 -> SAMP	302175 *	-1.31	
Peak56	Cup:54 -> SAMP	302176 *	0.58	
Peak57	Cup:55 -> SAMP	302182 *	2.64	
Peak58	Cup:56 -> SAMP	302154 *	4.28	
Peak59	Cup:57 -> SAMP	H2OBLANK	-1.55	
Peak60	Cup:9 -> SAMP	CCV	93.63 T=90	100%
Peak61	Cup:10 -> SAMP	CCB	-1.93	
Peak62	Cup:61 -> SAMP	ICV(301857)N	90.25 T=100	90%
Peak63	Cup:62 -> SAMP	ICB	-1.93	
Peak64	Cup:63 -> SAMP	303237PB *	-.06	
Peak65	Cup:64 -> SAMP	301851	0.11	

I E C H N I C O N TRACS 800 SYSTEM I-ANALYSIS REPORT FORM

DESCRIPTION	RUN INFORMATION	SAMPLEID	TEST #1	
Peak66	Cup:65 -> SAMP	30185585 (3x100)	87.79	
Peak67	Cup:66 -> SAMP	301856D (3x100)	0.06	
Peak68	Cup:67 -> SAMP	301858 *	0.85	
Peak69	Cup:68 -> SAMP	301859 *	0.72	
Peak70	Cup:69 -> SAMP	301860 *	0.75	
Peak71	Cup:70 -> SAMP	H2OBLANK	-2.22	
Peak72	Cup:9 -> SAMP	CCV	92.87 T=94	92%
Peak73	Cup:10 -> SAMP	CCB	-2.05	
Peak74	Cup:71 -> SAMP	301861 *	0.89	
Peak75	Cup:72 -> SAMP	301862 *	-.88	
Peak76	Cup:73 -> SAMP	301863 *	-.68	
Peak77	Cup:74 -> SAMP	301864 *	-.32	
Peak78	Cup:75 -> SAMP	301865 *	-.56	
Peak79	Cup:76 -> SAMP	301866 *	-.18	
Peak80	Cup:77 -> SAMP	302068 *	-.40	
Peak81	Cup:78 -> SAMP	302069 *	0.44	
Peak82	Cup:79 -> SAMP	302071 *	0.62	
Peak83	Cup:80 -> SAMP	H2OBLANK	-1.61	
Peak84	Cup:9 -> SAMP	CCV	93.64 T=94	94%
Peak85	Cup:10 -> SAMP	CCB	-1.69	
Peak86	Cup:81 -> SAMP	302074 *	0.35	
Peak87	Cup:82 -> SAMP	302077 *	-.68	
Peak88	Cup:83 -> SAMP	302078 *	-.80	
Peak89	Cup:84 -> SAMP	302079 *	-.20	
Peak90	Cup:85 -> SAMP	302080 *	-.94	

T E C H N I C O N IRAACS 800 SYSTEM 1-ANALYSIS REPORT FORM

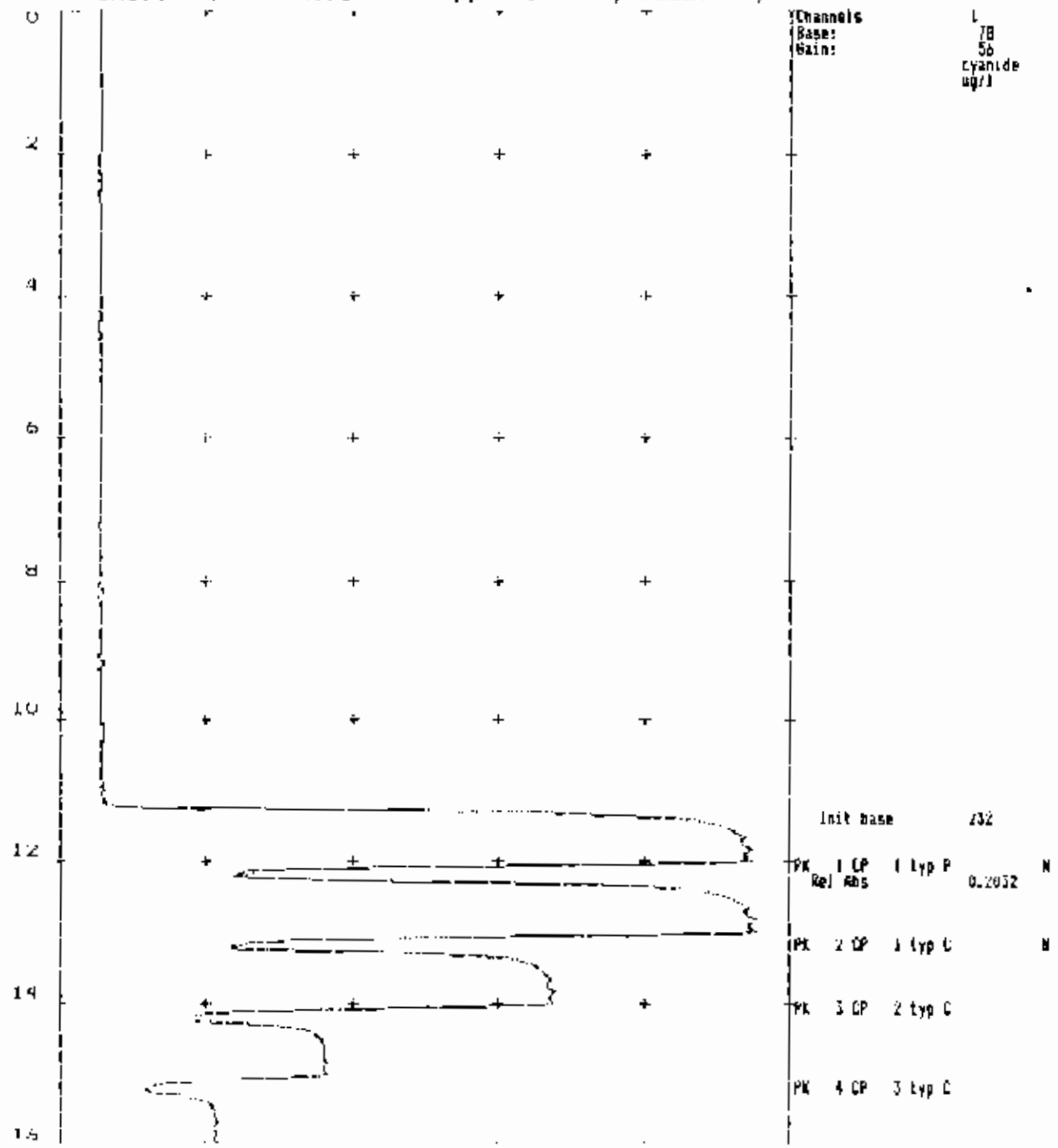
DESCRIPTION	RUN INFORMATION	SAMPLE ID	TEST #1	
Peak91	Cup:86 -> SAMP	302081 *	-.14	
Peak92	Cup:87 -> SAMP	302082 *	-1.01	
Peak93	Cup:88 -> SAMP	301910A	37.82	
Peak94	Cup:89 -> SAMP	301551A	36.52	
Peak95	Cup:90 -> SAMP	H2OBLANK	-1.91	
Peak96	Cup:9 -> SAMP	CCV	92.63 T=94	94%
Peak97	Cup:10 -> SAMP	CCB	-1.56	
Peak98	Cup:3 -> ISMP	100PPB	97.85	
Peak99	Cup:3 -> ISMP	100PPB	98.02	
Peak100	Cup:3 -> ISMP.	100PPB	97.46	
Peak101	Cup:1 -> GAIN	500PPB	295.24	

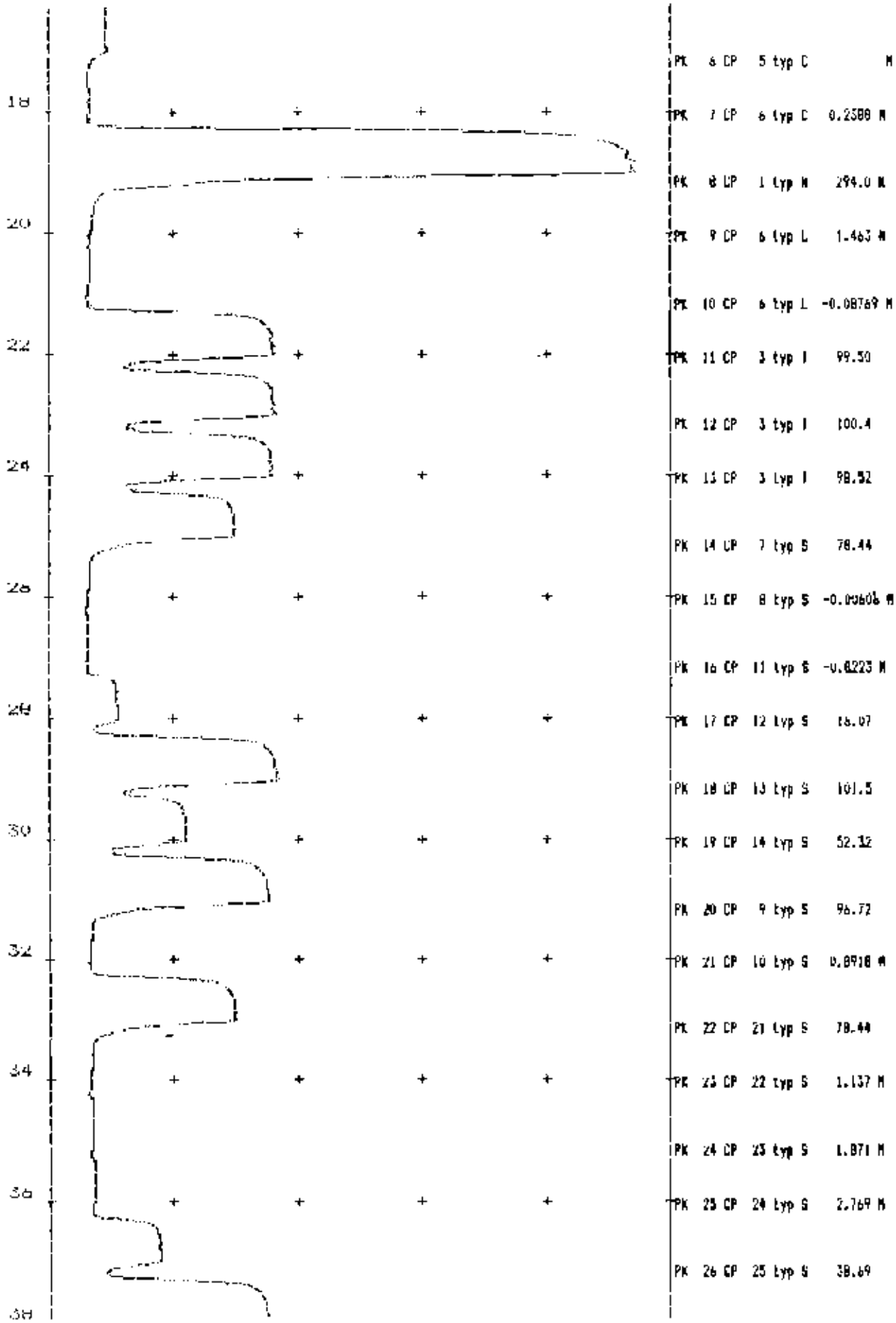
Chart minimum: 0%, maximum 100%
Active channels: 1

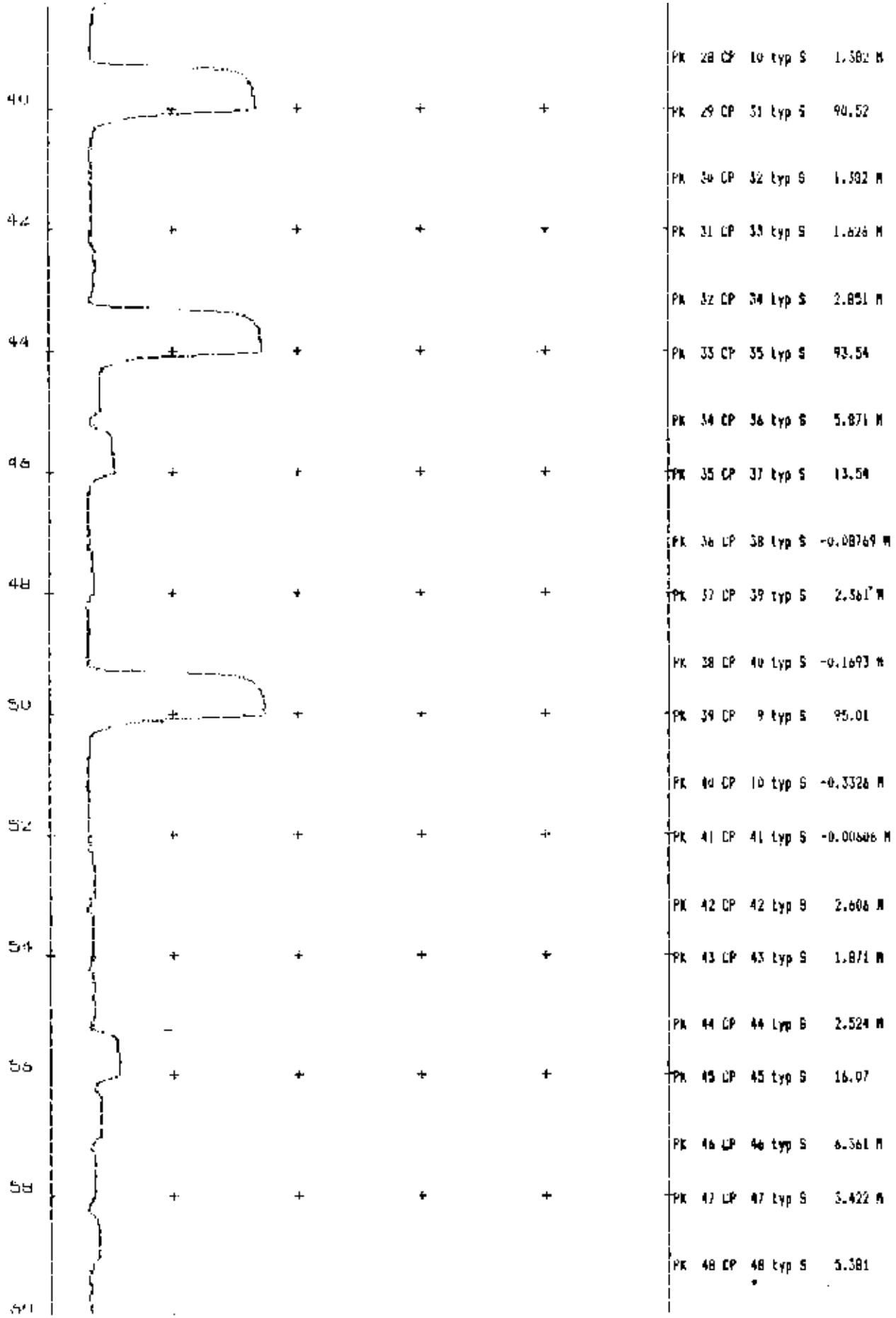
Input Filename: B:cn1118.INP
Time: 19:17; Date: 11-17-89
Operator: johnson

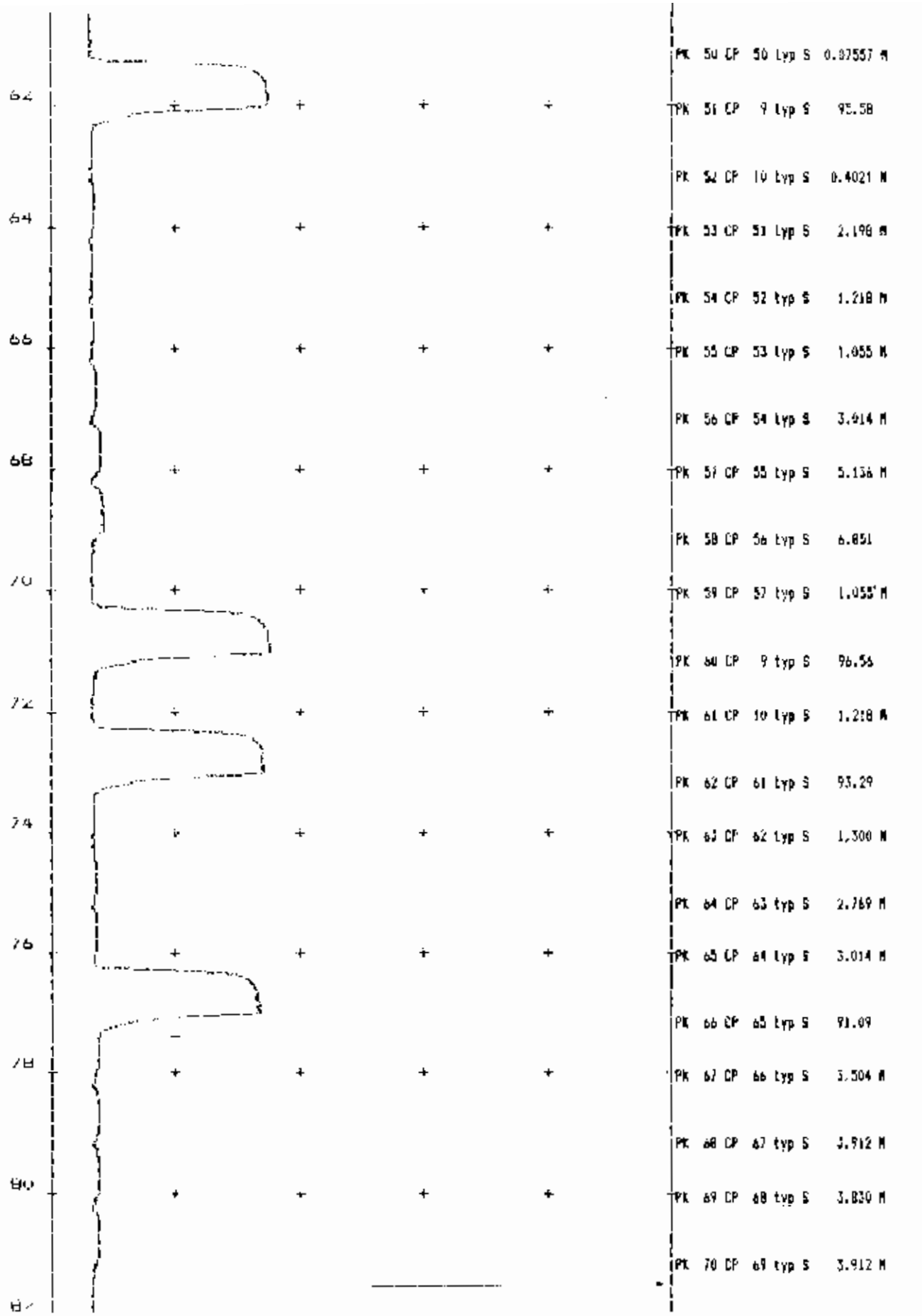
Comment: cyanide cn1118 DBA

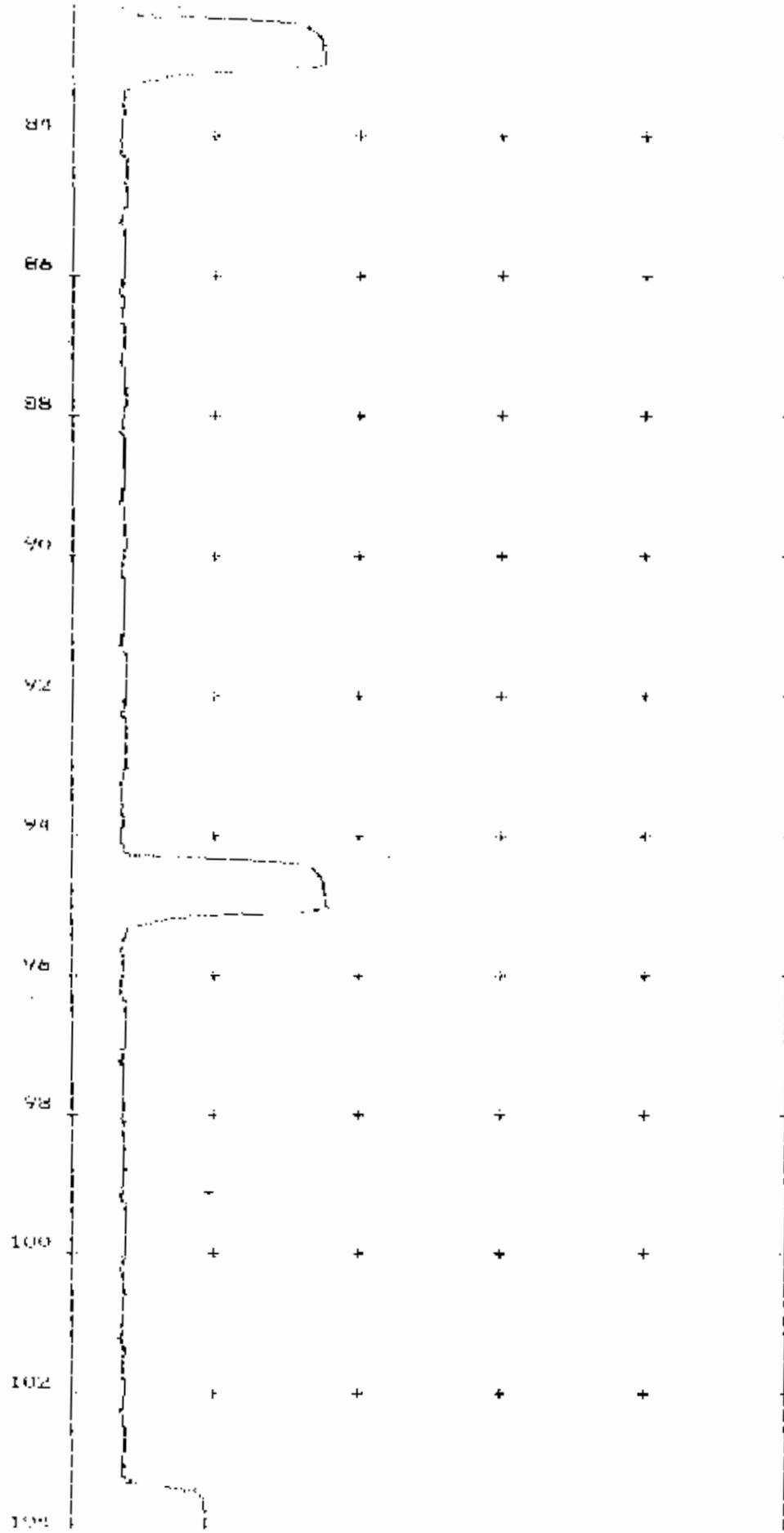
There are 103424 (bytes) free on disk.
File B:cn1118ach.CHR will take approximately 16620 (bytes).



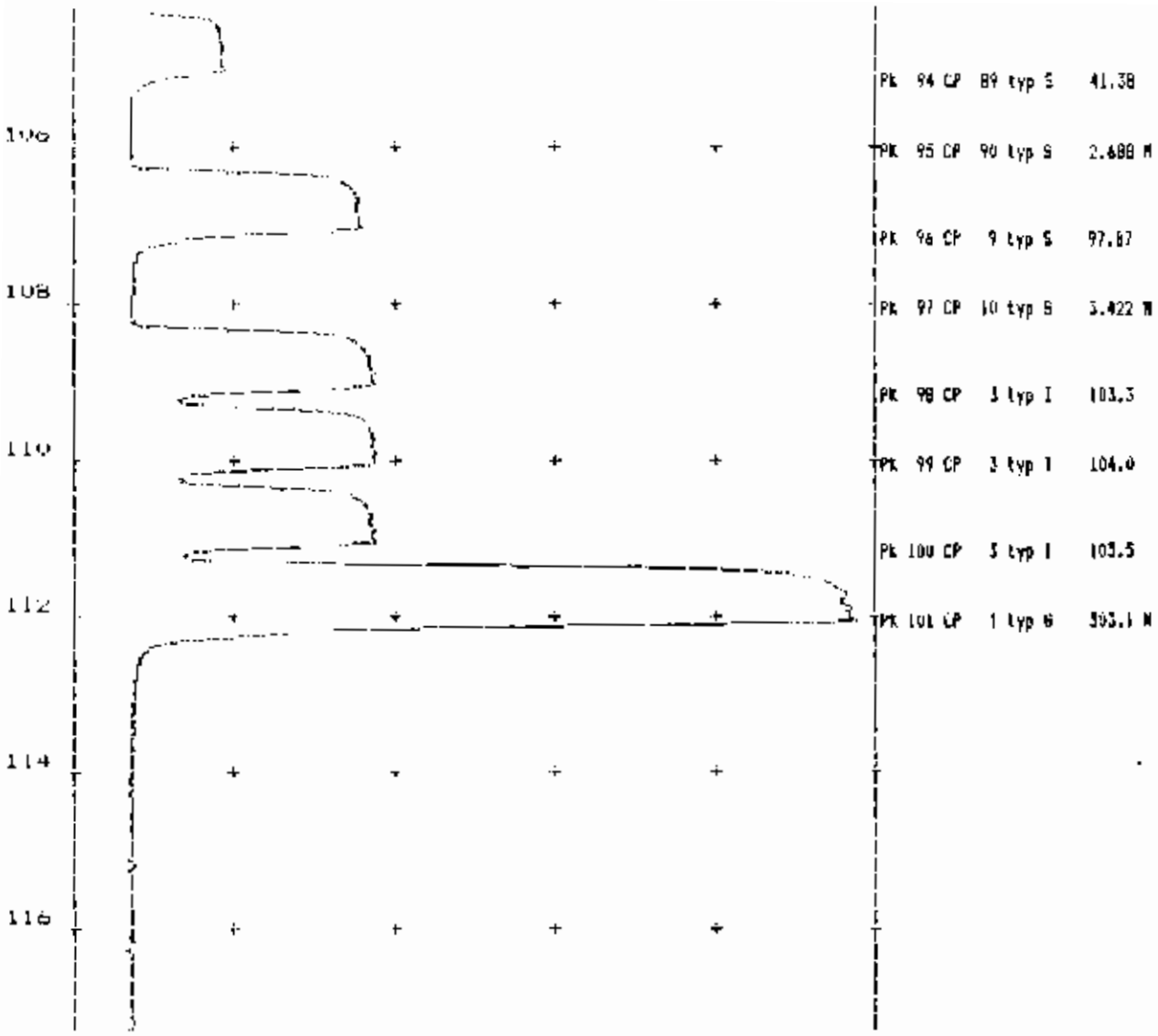

18
20
22
24
26
28
30
32
34
36
38
Pk 6 CP 5 typ C M
Pk 7 CP 6 typ C 0.2388 M
Pk 8 CP 1 typ M 294.0 M
Pk 9 CP 6 typ L 1.463 M
Pk 10 CP 6 typ L -0.08769 M
Pk 11 CP 3 typ I 99.50
Pk 12 CP 3 typ I 100.4
Pk 13 CP 3 typ I 98.52
Pk 14 CP 7 typ S 78.44
Pk 15 CP 8 typ S -0.00606 M
Pk 16 CP 11 typ S -0.8223 M
Pk 17 CP 12 typ S 16.07
Pk 18 CP 13 typ S 101.5
Pk 19 CP 14 typ S 52.12
Pk 20 CP 9 typ S 96.72
Pk 21 CP 10 typ S 0.8918 M
Pk 22 CP 21 typ S 78.44
Pk 23 CP 22 typ S 1.137 M
Pk 24 CP 23 typ S 1.871 M
Pk 25 CP 24 typ S 2.769 M
Pk 26 CP 25 typ S 38.69


40
42
44
46
48
50
52
54
56
58
PK 28 CP 10 typ S 1.382 M
PK 29 CP 31 typ S 90.52
PK 30 CP 32 typ S 1.382 M
PK 31 CP 33 typ S 1.626 M
PK 32 CP 34 typ S 2.851 M
PK 33 CP 35 typ S 93.54
PK 34 CP 36 typ S 5.871 M
PK 35 CP 37 typ S 13.54
PK 36 CP 38 typ S -0.08769 M
PK 37 CP 39 typ S 2.561 M
PK 38 CP 40 typ S -0.1693 M
PK 39 CP 9 typ S 95.01
PK 40 CP 10 typ S -0.3326 M
PK 41 CP 41 typ S -0.00606 M
PK 42 CP 42 typ S 2.606 M
PK 43 CP 43 typ S 1.871 M
PK 44 CP 44 typ S 2.524 M
PK 45 CP 45 typ S 16.07
PK 46 CP 46 typ S 6.361 M
PK 47 CP 47 typ S 3.422 M
PK 48 CP 48 typ S 5.381


62
64
66
68
70
72
74
76
78
80
PK 50 CP 50 typ S 0.87557 M
PK 51 CP 9 typ S 95.58
PK 52 CP 10 typ S 0.4021 M
PK 53 CP 51 typ S 2.198 M
PK 54 CP 52 typ S 1.218 M
PK 55 CP 53 typ S 1.055 M
PK 56 CP 54 typ S 3.914 M
PK 57 CP 55 typ S 5.136 M
PK 58 CP 56 typ S 6.851
PK 59 CP 57 typ S 1.055 M
PK 60 CP 9 typ S 96.56
PK 61 CP 10 typ S 1.218 M
PK 62 CP 61 typ S 93.29
PK 63 CP 62 typ S 1.300 M
PK 64 CP 63 typ S 2.769 M
PK 65 CP 64 typ S 3.014 M
PK 66 CP 65 typ S 93.09
PK 67 CP 66 typ S 3.504 M
PK 68 CP 67 typ S 3.912 M
PK 69 CP 68 typ S 3.830 M
PK 70 CP 69 typ S 3.912 M



Pk 72 CP 9 typ S 96.56
Pk 73 CP 10 typ S 1.708 M
Pk 74 CP 71 typ S 3.749 M
Pk 75 CP 72 typ S 2.524 M
Pk 76 CP 73 typ S 2.769 M
Pk 77 CP 74 typ S 3.177 M
Pk 78 CP 75 typ S 2.688 M
Pk 79 CP 76 typ S 3.422 M
Pk 80 CP 77 typ S 3.259 M
Pk 81 CP 78 typ S 4.157 M
Pk 82 CP 79 typ S 4.402 M
Pk 83 CP 80 typ S 2.196 M
Pk 84 CP 9 typ S 98.11
Pk 85 CP 10 typ S 2.688 M
Pk 86 CP 81 typ S 4.320 M
Pk 87 CP 82 typ S 3.341 M
Pk 88 CP 83 typ S 3.259 M
Pk 89 CP 84 typ S 3.912 M
Pk 90 CP 85 typ S 3.177 M
Pk 91 CP 86 typ S 4.075 M
Pk 92 CP 87 typ S 3.259 M



Last base 297
Conc. 3.177e+00
Anal 1: uncorr linear fit 3.343e+00 -2.107e+01.

Time: 19:17; Date: 11-17-89
Operator: johnson

Comment: cyanide cn111B DBA

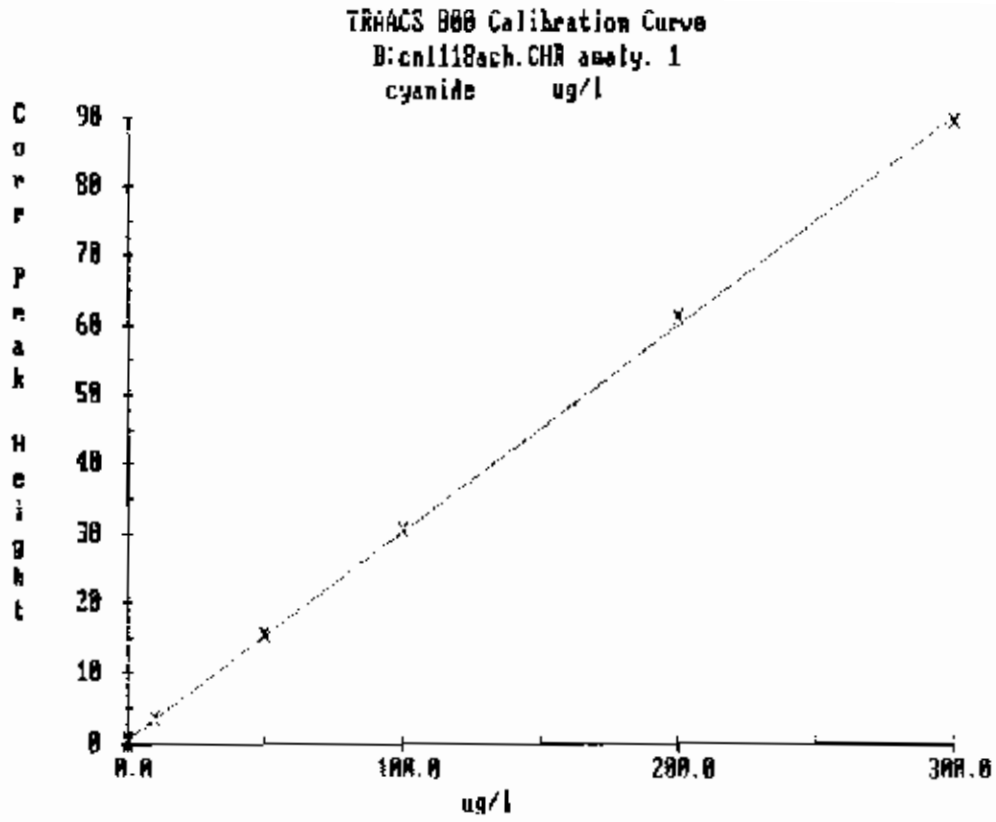
Channels 1
Base: 78
Gain: 56

cyanide
ug/l

Base drift correction made
Carryover correction made
Gain drift correction made
Init base 232
Conc. -1.698e+00
PP 1 CP 1 typ P 296.6 N

PK	2	CP	1	typ	C	297.2 M
PK	3	CP	2	typ	C	203.9
PK	4	CP	3	typ	C	100.2
PK	5	CP	4	typ	C	50.34
PK	6	CP	5	typ	C	9.783 M
PK	7	CP	6	typ	C	0.2616 M
PK	8	CP	1	typ	H	295.2 N
PK	9	CP	6	typ	L	-0.03797 M
PK	10	CP	8	typ	L	-0.1776 M
PK	11	CP	3	typ	I	99.73
PK	12	CP	3	typ	I	100.1
PK	13	CP	3	typ	I	98.12
PK	14	CP	7	typ	S	77.91
PK	15	CP	8	typ	S	-0.7375 M
PK	16	CP	11	typ	S	-1.214 M
PK	17	CP	12	typ	S	15.68
PK	18	CP	13	typ	S	101.2
PK	19	CP	14	typ	S	51.40
PK	20	CP	9	typ	S	96.10
PK	21	CP	10	typ	S	-0.2352 M
PK	22	CP	21	typ	S	77.91
PK	23	CP	22	typ	S	-0.00036 M
PK	24	CP	23	typ	S	1.072 M
PK	25	CP	24	typ	S	1.916 M
PK	26	CP	25	typ	S	37.83
PK	27	CP	9	typ	S	95.15
PK	28	CP	10	typ	S	-0.09915 M
PK	29	CP	31	typ	S	89.57
PK	30	CP	32	typ	S	-0.1730 M
PK	31	CP	33	typ	S	0.4672 M
PK	32	CP	34	typ	S	1.640 M
PK	33	CP	35	typ	S	92.33
PK	34	CP	36	typ	S	4.100 M
PK	35	CP	37	typ	S	12.16
PK	36	CP	38	typ	S	-1.564 M
PK	37	CP	39	typ	S	0.9029 M
PK	38	CP	40	typ	S	-1.691 M
PK	39	CP	9	typ	S	93.43
PK	40	CP	10	typ	S	-2.419 M
PK	41	CP	41	typ	S	-1.666 M
PK	42	CP	42	typ	S	0.8917 M
PK	43	CP	43	typ	S	0.09346 M
PK	44	CP	44	typ	S	0.6986 M
PK	45	CP	45	typ	S	14.18
PK	46	CP	46	typ	S	4.358 M
PK	47	CP	47	typ	S	1.420 M
PK	48	CP	48	typ	S	3.340
PK	49	CP	49	typ	S	-1.611 M
PK	50	CP	50	typ	S	-2.045 M
PK	51	CP	9	typ	S	93.24
PK	52	CP	10	typ	S	-2.295 M
PK	53	CP	51	typ	S	-0.07874 M
PK	54	CP	52	typ	S	-1.116 M
PK	55	CP	53	typ	S	-1.325 M
PK	56	CP	54	typ	S	0.5797 M
PK	57	CP	55	typ	S	2.636 M
PK	58	CP	56	typ	S	4.283
PK	59	CP	57	typ	S	-1.555 M
PK	60	CP	9	typ	S	93.63
PK	61	CP	10	typ	S	-1.941 M
PK	62	CP	61	typ	S	90.25
PK	63	CP	62	typ	S	-1.944 M
PK	64	CP	63	typ	S	-0.07271 M
PK	65	CP	64	typ	S	0.1131 M
PK	66	CP	65	typ	S	87.79

```
PK   68 CP   67 typ S    0.8512 M
PK   69 CP   68 typ S    0.7170 M
PK   70 CP   69 typ S    0.7478 M
PK   71 CP   70 typ S    -2.229 M
PK   72 CP    9 typ S     92.87
PK   73 CP   10 typ S    -2.059 M
PK   74 CP   71 typ S    0.3926 M
PK   75 CP   72 typ S   -0.8865 M
PK   76 CP   73 typ S   -0.6874 M
PK   77 CP   74 typ S   -0.3334 M
PK   78 CP   75 typ S   -0.8731 M
PK   79 CP   76 typ S   -0.1908 M
PK   80 CP   77 typ S   -0.4074 M
PK   81 CP   78 typ B    0.4353 M
PK   82 CP   79 typ S    0.6235 M
PK   83 CP   80 typ S    -1.619 M
PK   84 CP    9 typ S     93.64
PK   85 CP   10 typ S    -1.699 M
PK   86 CP   81 typ S    0.3467 M
PK   87 CP   82 typ S   -0.6850 M
PK   88 CP   83 typ S   -0.6117 M
PK   89 CP   84 typ S   -0.2134 M
PK   90 CP   85 typ S   -0.9966 M
PK   91 CP   86 typ S   -0.1522 M
PK   92 CP   87 typ S    -1.017 M
PK   93 CP   88 typ S     37.82
PK   94 CP   89 typ S     36.52
PK   95 CP   90 typ S    -1.921 M
PK   96 CP    9 typ S     92.63
PK   97 CP   10 typ S    -1.573 M
PK   98 CP    3 typ I     97.85
PK   99 CP    3 typ I     98.02
PK  100 CP    3 typ I     97.46
PK  101 CP    1 typ G     295.2 M
    Last base          297
      Conc.          -1.698e+00

Sample statistics
 Anal level  cups        avg     std dev          cv

    1   all    84    18.6175     35.3499      1.8988

ISS statistics
 Anal level  cups        avg     std dev          cv

    1   all     6    98.5405      1.0819      0.0110

  Anal 1:  linear    fit   3.356e+00  -2.071e+01.
           Carryover factor:     0.50%.


Chart saved to file B:cn1118ach.CHR.
```


TRHACS 800 Calibration Curve
B:cn1118ach.CHR analy. 1
cyanide ug/l
Corr Peak Height
90
80
70
60
50
40
30
20
10
0
0.0
100.0
200.0
300.0
ug/l

CYANIDE RUN LOG

PAGE 1 of 2
Date: 11/13/89

CompuChem Laboratories Inc.

Calibration see footnote #1 on page #1

Operator: DBA

Case Name:
File Name: CN11BCH

NO.	SAMPLE ID	COMMENTS	NO.	SAMPLE ID	COMMENTS
7	ICV 302155	See Footnote (1)	10	CCB	
8	ICB		31	ICV	301934
11	302855	Prep Blk	32	ICB	
12	300769		33	303244	Prep Blk
13	300773	SS(300769)	34	301910	
14	300769	A	35	301932	SS(301910)
5			36	301933	D(301910)
6			37	301909	
7			38	301917	
8			39	301922	
9			4310	301937 Prep Blank	
10			9	CCV	See Footnote (2)
9	CCV	See Footnote (2)	10	CCB	
10	CCB		41	301937	
21	ICV	301916	42	301938	
22	ICB		43	301939	
23	302854	Prep Blk	44	302150	
24	301908		45	302155	
25	301908	A	46	302157	
6			47	302166	
7			48	302168	
8			49	302172	
9			5010	H2O Blank	ICV Test 11/18/89
10			9	CCV	See Footnote (2)
9	CCV	See Footnote (2)	10	CCB	

(1) ICV Soln = ICV

CYANIDE RUN LOG

PAGE 2 of 2

Date: 11/5/89

CompuChem Laboratories Inc.

Operator: DBA

Calibration See footnote #1 on page #1

Case Name:

File Name: SN1189H

NO.	SAMPLE ID	COMMENTS	NO.	SAMPLE ID	COMMENTS
	ICV	See Footnote (1)	10	CCB	
	ICB 11/6/89		71	301861	
51	302173		72	301862	
52	302174		73	301863	
53	302175		74	301864	
54	302176		75	301865	
55	302182		76	301866	
56	302154		77	302068	
57	H_2O Blank		78	302069	
58			79	302071	
9			8210	H_2O Blank	
10			9	CCV	See Footnote (2)
9	CCV	See Footnote (2)	10	CCB	
10	CCB		81	302074	
61	ICV	301857	82	302077	
62	ICB		83	302078	
63	303237	Prep Blk	84	302079	
64	301851		85	302080	
65	301855	55(301851)	86	302081	
66	301856	D(301851)	87	302082	
67	301858		88	301910	A
68	301859		89	301851	A
69	301860		9210	H_2O Blank	
7610	H_2O Blank		9	CCV	See Footnote (2)
9	CCV	See Footnote (2)	10	CCB	

(1) ICV Soln = ICV

COMPUCHEM CORP METALS PREPARATION LOG

CASE TYPE: Platinum

SDG ID : 255501 18401 5 (754/253)

PREPARED BY: EJ Holt

DATE: 12-5-89

PREPARATION ANALYSIS CODE : -62

#	CON (LAB ID)	DATE REC'D	CUSTOMER ID	INIT PLASMA (WT / VOL)	FINAL P VOL	INIT FURNACE (WT / VOL)	FINAL F VOL	DESCRIPTION BEFORE	DESCRIPTION AFTER	pH
1	301909	11-14-89	738ØØ1-12	100ml	100ml	100ml	100ml	B,CLR		2
2	301910		738ØØ1-Ø2					B,CLR		
3	301917		738ØØ1-Ø1					C,CLOY		
4	301918		738ØØ1-Ø3					C,Vericldy		
5	301922		738ØØ1-Ø8					B,CLR		
6	301937		738ØØ1-Ø5					B,CLOY,opaque		
7	301938	↓	738ØØ1-1Ø					C,C		
8	301939	11-14-89	738ØØ1-Ø6					B,CLOY		
9	302150	11-15-89	738ØØ1-15					C,CLOY		
10	302154		738ØØ1-16					B,CLOY		
11	302155		738ØØ1-22					B,CLOY		
12	302157		738ØØ1-25					C,C		
13	302166		738ØØ1-26					C,CLOY		
14	302168		738ØØ1-21					B,CLOY		
15	302172		738ØØ1-17					C,CLOY		
16	302173		738ØØ1-18					C,C		
17	302174		738ØØ1-13					C,C		
18	302175		738ØØ1-14					C,CLOY		
19	302176	↓	738ØØ1-24					B,CLOY,opaque		↓
20	302182	11-15-89	738ØØ1-23					B,C		2
21	301929		SAMPLE SPIKE					REF CON:(301909)		
22	301930		DUPLICATE SAMPLE					REF CON:(301910)		
23	301931		LAB CTRL SAMPLE							
24	303474	B_1	PREP BLANK	↓	↓	↓	↓			
	303475	B_2		100ml	100ml	100ml	100ml			

QC PREPARATION INFORMATION

SAMPLE SPIKE:

Plasma Preparation 1ml XCL-19 → 100 ml

Furnace Preparation 1ml XCL-16 → 100 ml

LABORATORY CONTROL SAMPLE:

P1 1ml XCL-2, 2A, 11 & ½ml XCL-3A → 100ml

P2 1ml F_2 Soln → 100ml

CASE RA789 317 INORGANICS

4

CASE TYPE: PLATINUM

COMPUCHEM CORP METALS PREPARATION LOG

POSTED

PREPARED BY: TJ Holt

SDG ID : 255501 18401 5 (754/253)

DATE: 12-5-89

PREPARATION ANALYSIS CODE : -62

#	CON (LAB ID)	DATE REC'D	CUSTOMER ID	INIT PLASMA (WT / VOL)	FINAL P VOL	INIT FURNACE (WT / VOL)	FINAL F VOL	DESCRIPTION BEFORE	DESCRIPTION AFTER	pH
1	301909	11-14-89	738ØØ1-12	100ml	100ml	100ml	100ml	B, CLR		2
2	301910		738ØØ1-Ø2					B, CLR		
3	301917		738ØØ1-Ø1					C, CLDY		
4	301918		738ØØ1-Ø3					C, Very Cldy		
5	301922		738ØØ1-Ø8					B CLR		
6	301937		738ØØ1-Ø5					B CLDY, opaque		
7	301938	↓	738ØØ1-1Ø					C, C		
8	301939	11-14-89	738ØØ1-Ø6					B, CLDY		
9	302150	11-15-89	738ØØ1-15					C, CLDY		
10	302154		738ØØ1-16					B, CLDY		
11	302155		738ØØ1-22					B, CLDY		
12	302157		738ØØ1-25					C C		
13	302166		738ØØ1-26					C, CLDY		
14	302168		738ØØ1-21					B, CLDY		
15	302172		738ØØ1-17					C CLDY		
16	302173		738ØØ1-18					C, C		
17	302174		738ØØ1-13					C C		
18	302175		738ØØ1-14					C CLDY		
19	302176	↓	738ØØ1-24					B, CLDY, opaque		↓
20	302182	11-15-89	738ØØ1-23					B C		2
21	301929		SAMPLE SPIKE					REF CON: (301909)		
22	301930		DUPLICATE SAMPLE					REF CON: (301910)		
23	301931		LAB CTRL SAMPLE							
24	303474	B_1	PREP BLANK	↓	↓	↓	↓			
	303475	B_2		100ml	100ml	100ml	100ml			

QC PREPARATION INFORMATION

SAMPLE SPIKE:

Plasma Preparation 1ml XCL-19 → 100 ml

Furnace Preparation 1ml XCL-16 → 100 ml

LABORATORY CONTROL SAMPLE:

P1 1ml XCL-2, 2A, 11 & ½ ml XCL-3A → 100ml

P2 1ml F_2 Soln → 100ml

CASE RA789 317 INORGANICS

CASE RA789 317 INORGANICS

COMPUCHEM CORP MERCURY PREPARATION LOG

CASE TYPE: Platinum

SDG ID : 255501-18410 5 (754/254)

POSTED EV

PREPARED BY: Eric S. Hoffman

DATE: 11-20-89

PREPARATION ANALYSIS CODE : -74

#	CCN (LAB ID)	DATE REC'D	CUSTOMER ID	INITIAL (WT / VOL)	FINAL VOL	DESCRIPTION BEFORE	DESCRIPTION AFTER	pH
1	301909	11-14-89	738001-12	100 mL	100 mL			
2	301910		738001-02					
3	301917		738001-01					
4	301918		738001-03					
5	301922		738001-08					
6	301937		738001-05					
7	301938		738001-10					
8	301939	11-14-89	738001-06					
9	302150	11-15-89	738001-15					
10	302154		738001-16					
11	302155		738001-22					
12	302158		738001-25					
13	302164		738001-26					
14	302168		738001-21					
15	302172		738001-17					
16	302173		738001-18					
17	302174		738001-13					
18	302175		738001-14					
19	302176		738001-24					
20	302182	11-15-89	738001-23 MS	100 mL	100 mL			
21	301929	——	SAMPLE SPIKE	100 mL	100 mL	REF CCN:(293019)		
22	301930	——	DUPLICATE SAMPLE			REF CCN:(3019)		
23	301931	——	LAB CTRL SAMPLE			85		
24	303471	——	PREP BLANK 81	100 mL	100 mL	DI H2O		
	303475	——	Prep Blank 82					

QC PREPARATION INFORMATION

SAMPLE SPIKE:

1.0 mL 100ppb Hg → 100 mL

LABORATORY CONTROL SAMPLE:

3.0 mL 100ppb Hg → 100 mL

COMPUCHEM CORP CYANIDE PREPARATION LOG

CASE TYPE: Platinum CN- Posted EV 11/18/89 PREPARED BY: Eric S. Vickerman

SDG ID : 255501-18410-5 (756/241) DATE: 11-18-89

PREPARATION ANALYSIS CODE : -72

#	CCN (LAB ID)	DATE REC'D	CUSTOMER ID	INITIAL (WT / VOL)	FINAL VOL	DESCRIPTION BEFORE	DESCRIPTION AFTER	pH
1	301909	11-14-89	738601-12	500 mL	250 mL		clear	12
2	301910		738001-02	250 mL				12
3	301917		738001-01	500 mL				12
4	301918		738001-03					12
5	301922		738001-08					12
6	301937		738001-05					12
7	301938	"	738001-10					12
8	301939	11-14-89	738001-06					12
9	302150	11-15-89	738001-15					12
10	302155		738001-22					12
11	302157		738001-25					12
12	302166		738001-26					12
13	302168		738001-21					12
14	302172		738001-17					12
15	302173		738001-18					12
16	302174		738001-13					12
17	302175		738001-14					12
18	302176		738001-24					12
19	302162	"	738001-29	"			"	12
20	302154	11-15-89	738001-16	500 mL			clear	12
21	301932	——	SAMPLE SPIKE	250 mL		REF CCN:(301910)		
22	301933	——	DUPLICATE SAMPLE	250 mL		REF CCN:(301910)		
23	301934	——	INIT CALIB STD	500 mL	"	BS		
24	303244	——	PREP BLANK	500 mL	250 mL	DI H2O		

QC PREPARATION INFORMATION

SAMPLE SPIKE:

10.0 mL 2500 ppb CN⁻ → 250 mL

LABORATORY CONTROL SAMPLE:

10.0 mL 2500 ppb CN⁻ → 250 mL