Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

START

0012192

1 of 5

222-S/RCRA ANALYTICAL LABORATORIES

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PROJECT: SINGLE-SHELL TANK WASTE CHARACTERIZATION

TANK: 241-U-110

CORE: 5

CUSTOMER ID. NUMBER: CORE 5 COMPOSITE

REPORT REVISION: 1

DATE PRINTED: SEPTEMBER 11, 1990

BEST AVAILABLE COPY

SEP 1990
RECEIVED
J.H. KESSNER

Hanford Operations and Engineering Contractor for the US Department of Energy

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Appendix A
Analytical Cards

This report consists of pages 1-486, plus pages 41.1, 201.1, 253.1, 253.2, 253.3, 253.4, 253.5, 253.6, and 435.1.

The Appendix consists of pages 1-109, plus pages 44.1, 56.1, 71.1, 71.2, 99.1, 99.2, and 99.3

I have reviewed this report and certify that the package is in compliance with "Quality Assurance Project Plan for the Chemical Analysis of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site", WHC-SD-CP-QAPP-002. I found it to be a true and accurate accounting both technically and for completeness of the laboratory analyses performed on this sample.

Shirley A. Cervantes — Date 9-12-90
Shirley A. Cervantes
Data Coordinator

Cary M. Seidel — Date 9-12-90
Cary M. Seidel
Unit Manager

L. H. Taylor — Date 9-19-90
Larry H. Taylor
Laboratory Q.A. Officer

9112150004

INTRODUCTION

INTRODUCTION

Westinghouse Hanford Company Analytical Laboratories are supporting the characterization efforts of the single shell tanks. The characterization of tank 241-U-110 was performed under Phase 1A and 1B of the "Waste Characterization Plan for the Hanford Site Single-Shelled Tanks" (WHC-EP-0210).

Tank 241-U-110 has a 500,000 gallon capacity. Construction was completed in 1944. The tank received first cycle waste, REDOX high-level waste, coating waste, and laboratory waste until 1975. Between July 7, 1975, and February 2, 1976, P-10 pumps were installed, and 41,700 gallons of liquid waste were pumped from the tank. Tank 241-U-110 still contains an estimated 195,000 gallons of waste.

Analytical Laboratories performs all analytical analysis to the specifications of the "Quality Assurance Project Plan for the Chemical Analysis of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site," WHC-SD-CP-QAPP-002. In accordance with WHC-SD-CP-QAPP-002, the following laboratory policies are being followed. Spikes are performed on either the undissolved sample, or the sample after dissolution, as directed by the scientist. If the spike addition is found to be less than 20% of an analyte concentration, the spike recovery is not reported due to errors introduced by the precision of the sample analysis. The concentration of spike additions will be re-evaluated before the start of phase 1C. Two spiking routines are being used during phase 1A and 1B. For the following analyses, Ion Chromatography (IC), Inductively Coupled Plasma (ICP), Mercury Hydride, Total Organic Carbon (TOC), and Carbonate analyses the solid sample is spiked independently from the sample digestion. Any non-homogeneity of the sample could adversely affect the spike recoveries. For the radioisotopic analysis and other analyses not specified above, the spikes were performed by spiking an aliquot of sample after digestion.

The laboratory does not report sample results from batch analyses that are questionable. The results from questionable batches are discarded, and the analysis is repeated. Sample cards (laboratory travelers) for the repeated analysis are reissued for analysis after they have been stamped "rerun." Laboratory travelers are issued using a computerized routine according to a "sample point." This sample point label (segment-n) on the laboratory travelers and on the GEA analysis reports has no relationship to the sampling activities or the sample identification. All results in this data package relate only to the composite of Sample 89-040 and Sample 89-041 (Segment 3 and Segment 4 from Core 5) taken from Riser 19 of Tank 241-U-110. The Core 5 Composite Sample was prepared by compositing 45 grams of Segment 3 (89-040) with 75 grams of Segment 4 (89-041). Segments 1 (89-038) and 2 (89-039) were not recovered from the tank by the sampling efforts.

The organic analysis of this sample will be performed by Pacific Northwest Laboratories (PNL). Due to instrument and procedure problems, PNL has been unable to separate organics from the normal paraffin hydrocarbon present in the samples. The results from the organic analysis will be provided when available.

Carbon-14 analysis on the undigested sample was not performed as the 222-S laboratory does not have analytical procedures that will analyze low levels of carbon 14 in solids. The chrome-VI analysis on the water digestion was not performed because sufficient sample to complete this analysis was not available. Sample for additional digestions was not available as this sample was completely consumed performing other analyses.

All sample results reported here by weight are reported as the "wet weight" of the sample. Some samples noticeably lost moisture during the process of aliquoting and weighing for digestion. In order to minimize errors due to loss of moisture, the percent moisture was determined at the earliest opportunity. Attempts to dry the sample before analysis resulted in approximately a tenfold increase in radiation levels. In order to reduce and control radiation exposure to laboratory personnel, the samples were not dried before aliquoting and digestion. This may result in some laboratory results being biased high.

This report is formatted into sections corresponding to the type of dissolutions performed prior to analysis. A brief summary of analytical results is reported, followed by calibration data and an analysis batch report. Any notable observations regarding an analysis are noted on the batch report for that analysis. Copies of laboratory travelers can be found in Appendix A.

SAMPLING DATA

9 1 1 2 1 5 0 0 0 9 3

Single Shell Tank Waste Characterization
Summary of Core Sample

Phase I-A

Tank ID:	241-U-110
Riser ID:	19
Core ID:	005

Date Sampling Initiated:	09/19/89
Date Sampling Completed:	11/03/89

Segment 1	Lab Serial No.	*F003
	Customer ID. No.	89-038
	Last Segment?	No
Segment 2	Lab Serial No.	*F027
	Customer ID. No.	89-039
	Last Segment?	No
Segment 3	Lab Serial No.	F5001
	Customer ID. No.	89-040
	Last Segment?	No
Segment 4	Lab Serial No.	F5033
	Customer ID. No.	89-041
	Last Segment?	Yes
Segment 5	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 6	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 7	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	

Segment 8	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 9	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 10	Lab Serial No.	
	Customer ID. No..	
	Last Segment?	
Segment 11	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 12	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 13	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	
Segment 14	Lab Serial No.	
	Customer ID. No.	
	Last Segment?	

(*) NO SAMPLE WAS RECOVERED FROM SEGMENT 1 AND SEGMENT 2 OF CORE 5.

Prepared by: Shirley Cervantes (Signature) S.A. CERVANTES (Printed Name) Date: 06/13/90

Verified by: Carry M Seidel (Signature) C. M SEIDEL (Printed Name) Date: 06/13/90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9/17/90

Interim

SST-1 Rev. B 3/27/90

SAMPLE DATA SUMMARY

Analytical Laboratory Data Summary

SINGLE SHELL TANK PROJECT

The next four pages of this report (including this page) summarizes the results for the analysis of the

Core 5 Composite Sample
Tank 241-U-110

UNTREATED SAMPLE RESULTS

	Sample	Duplicate
pH	12.89	12.92
% H20	33.40%	33.60%
Mercury	0.10 ppm	0.12 ppm
Cyanide	<1.65 ug/g	<2.50 ug/g
Carbon 14	Analysis was not performed.	

Core 5 Composite
Fusion Dissolution

Data Summary
Results are Wet Weight

Radiological Analysis
Fusion Dissolution

Total Alpha	<0.78 uci/g	<0.63 uci/g
Total Beta	1330 uci/g	1360 uci/g
GEA		
Cs-137	39.20 uci/g	37.40 uci/g
Uranium	5450 ug/g	5150 ug/g
Plutonium	0.35 uci/g	0.34 uci/g
Americium 241	0.13 uci/g	0.01 uci/g
Neptunium 237	<0.42 uci/g	<0.45 uci/g
Technetium 99	<0.020 uci/g	<0.023 uci/g
Iodine 129	<0.13 uci/g	<0.18 uci/g
Strontium 90	0.04 uci/g	0.04 uci/g

ICP Results
Fusion Dissolution
CLP Elements

	Sample	Duplicate
Aluminum	114001 ug/g	110726 ug/g
Antimony	LT	1296 ug/g
Arsenic	NC	NC
Barium	LT	LT
Beryllium	LT	LT
Bismuth	37270 ug/g	42211 ug/g
Cadmium	LT	LT
Calcium	4383 ug/g	2660 ug/g
Chromium	581 ug/g	668 ug/g
Cobalt	LT	394 ug/g
Copper	LT	LT
Iron	17334 ug/g	17280 ug/g
Lead	469 ug/g	1810 ug/g
Lithium	LT	LT
Magnesium	8244 ug/g	6735 ug/g
Manganese	5067 ug/g	4794 ug/g
Molybdenum	LT	LT
Nickel	7346 ug/g	7174 ug/g
Phosphorous	NC	NC
Potassium	NC	NC
Samarium	LT	LT
Selenium	LT	948 ug/g
Silicon	30708 ug/g	9346 ug/g
Silver	LT	LT
Sodium	144203 ug/g	142135 ug/g
Strontium	637 ug/g	687 ug/g
Thallium	LT	LT
Vanadium	LT	LT
Zinc	7124 ug/g	4492 ug/g

Other ICP Elements

LT: Less Than
NC: Not Calibrated

Boron	LT	110 ug/g
Cerium	NC	NC
Europium	LT	LT
Lanthanum	LT	LT
Mercury	LT	LT
Neodymium	NC	NC
Sulfur	1327 ug/g	1846 ug/g
Tantalum	LT	LT
Thorium	LT	LT
Tin	LT	LT
Titanium	LT	LT
Uranium	LT	LT
Zirconium	LT	LT

Core 5 Composite
Water Digestion

Data Summary

Results are Wet Weight

pH of Water Digested Solution

	Sample	Duplicate
pH	11.46	11.85

Anion Analysis

Water Digestion

	Sample	Duplicate
Fluoride	4380 ug/g	14200 ug/g
Chloride	<1090 ug/g	<927 ug/g
Nitrate	33800 ug/g	62700 ug/g
Phosphate	10900 ug/g	28400 ug/g
Sulphate	10900 ug/g	4340 ug/g
Ammonia	<12800 ug/g	<10900 ug/g
Carbonate	2850 ug/g	2610 ug/g
Chrome VI	Analysis not performed	
Nitrite	7270 ug/g	13600 ug/g

Radiological Analysis

Water Digestion

	Sample	Duplicate
Total Alpha	<0.0037 uci/g	<0.0037 uci/g
Total Beta	10.2 uci/g	14.9 uci/g
GEA		
Cs-137	14 uci/g	13.6 uci/g
Putonium	0.00086 uci/g	<0.00056 uci/g
Americium 241	<0.0012 uci/g	<0.0010 uci/g
Carbon 14	0.00052 uci/g	0.00043 uci/g
Iodine 129	<0.0068 uci/g	<0.0098 uci/g
Neptunium 237	<0.116 uci/g	<0.099 uci/g
Strontium 90	0.076 uci/g	0.057 uci/g
Technetium 99	0.0031 uci/g	0.0066 uci/g
Tritium	0.0022 uci/g	0.0027 uci/g

Atomic Absorption Spectroscopy

Hydride Analysis
Water Digestion

	Sample	Duplicate
Arsenic	<0.54 ug/g	<0.46 ug/g
Mercury	<0.16 ug/g	<0.13 ug/g
Selenium	<1.08 ug/g	<0.92 ug/g

ICP Results

Water Digestion

CLP Elements

	Sample	Duplicate
Aluminum	4332 ug/g	6274 ug/g
Antimony	LT	LT
Arsenic	LT	LT
Barium	LT	LT
Beryllium	LT	LT
Bismuth	NC	NC
Cadmium	LT	LT
Calcium	63 ug/g	1946 ug/g
Chromium	807 ug/g	2405 ug/g
Cobalt	LT	LT
Copper	LT	LT
Iron	29 ug/g	LT
Lead	NC	NC
Lithium	LT	LT
Magnesium	92 ug/g	2367 ug/g
Manganese	LT	LT
Molybdenum	LT	LT
Nickel	LT	LT
Phosphorous	NC	NC
Potassium	LT	LT
Samarium	NC	NC
Selenium	255 ug/g	4289 ug/g
Silicon	NC	NC
Silver	LT	LT
Sodium	127953 ug/g	111278 ug/g
Strontium	LT	LT
Thallium	LT	LT
Vanadium	LT	LT
Zinc	19 ug/g	1909 ug/g

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated

Other ICP Elements

Boron	667 ug/g	2498 ug/g
Cerium	LT	LT
Europium	LT	LT
Lanthanum	LT	LT
Mercury	66 ug/g	1903 ug/g
Neodymium	LT	LT
Sulfur	1802 ug/g	5103 ug/g
Tantalum	LT	LT
Thorium	NC	NC
Tin	LT	LT
Titanium	LT	LT
Uranium	NC	NC
Zirconium	LT	LT

Core 5 Composite
Acid Digestion

Data Summary
Results are Wet Weight

Atomic Absorption Spectroscopy
Hydride Analysis
Acid Digestion

	Sample		Duplicate	
Arsenic	0.48	ug/g	0.37	ug/g
Mercury	0.057	ug/g	0.030	ug/g
Selenium	1.03	ug/g	0.76	ug/g

ICP Results
Acid Digestion
CLP Elements

	Sample	Duplicate
Aluminum	105142 ug/g	105902 ug/g
Antimony	NC	NC
Arsenic	196 ug/g	145 ug/g
Barium	73 ug/g	62 ug/g
Beryllium	4 ug/g	3 ug/g
Bismuth	44549 ug/g	46161 ug/g
Cadmium	25 ug/g	17 ug/g
Calcium	559 ug/g	559 ug/g
Chromium	1371 ug/g	1200 ug/g
Cobalt	NC	NC
Copper	104 ug/g	78 ug/g
Iron	16978 ug/g	17952 ug/g
Lead	2962 ug/g	703 ug/g
Lithium	29 ug/g	15 ug/g
Magnesium	716 ug/g	594 ug/g
Manganese	5421 ug/g	5272 ug/g
Molybdenum	68 ug/g	54 ug/g
Nickel	623 ug/g	166 ug/g
Phosphorous	23475 ug/g	18115 ug/g
Potassium	20967 ug/g	705 ug/g
Samarium	1206 ug/g	575 ug/g
Selenium	1007 ug/g	1165 ug/g
Silicon	NC	NC
Silver	82 ug/g	51 ug/g
Sodium	149969 ug/g	154636 ug/g
Strontium	736 ug/g	698 ug/g
Thallium	8358 ug/g	1351 ug/g
Vanadium	88 ug/g	72 ug/g
Zinc	248 ug/g	141 ug/g

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated

Other ICP Elements

Boron	71 ug/g	43 ug/g
Cerium	1157 ug/g	718 ug/g
Europium	17 ug/g	10 ug/g
Lanthanum	100 ug/g	50 ug/g
Mercury	624 ug/g	293 ug/g
Neodymium	LT	LT
Sulfur	2312 ug/g	1839 ug/g
Tantalum	236 ug/g	161 ug/g
Thorium	4566 ug/g	449 ug/g
Tin	165 ug/g	126 ug/g
Titanium	79 ug/g	55 ug/g
Uranium	13060 ug/g	9775 ug/g
Zirconium	280 ug/g	207 ug/g

PHYSICAL TEST RESULTS

Single Shell Tank
Extrusion of Segment -- Physical Tests

Phase I-A

Lab Segment Serial No.: F0893 | Customer ID: Core 5 Composite

Analyst: K. J. Patterson | Date Extruded:

Drainable Liquid Liquid Submitted for Segment Analysis? -- No

Gross	Tare	Net
Serial	Date/Time_____/_____	Estimated
Specific	Calculated	

Appearance of Liquid:

Dimensions of Segment

Complete Segment Obtained?	Length:	Calculated Volume:
Remarks		

Appearance of Solid:

Samples were consolidated from two jars. Jar #001 was darker in color, and somewhat drier than the other jar.

Penetrometer N/A lbs/sq in | Remarks:

Homogenization

Procedure: T038A-00712 Revision: F		Quantity of Material	75 grams
Date Homogenized:	01-22-90	Time Homogenized:	10 Minutes
Operator: K. J. Patterson			

Laboratory Notebook Reference WHC-N-313-4 (Notebook No.) | 20 (Page No.)

Prepared by: Shirley Cervantes (Signature)	S.A. Cervantes (Printed Name)	Date:	06-13-90
Verified by: Cary M Seidel (Signature)	C. M. Seidel (Printed Name)	Date:	06-13-90
Approved by: L. H. Taylor (Signature)	L. H. Taylor (Printed Name)	Date:	9-17-90

Interim

SST-3 Rev. C 3/27/90

9112150016

Single Shell Tank Core Composite

Phase 1A

Customer ID: Core 5 Composite Lab Segment Serial No. F0893

Semi-Volatile Organic Analysis		
Semi-VOA Sample	Laboratory Serial Number: N/A	Date Sampled:

Particle Size Distribution Analysis		
Particle Size Sample	Laboratory Serial Number:	Date Sampled:

Homogenized Solids

Undigested Solids Analysis	
Laboratory Serial Number for Sample: F0893	Date Sampled: 01-22-90
Laboratory Serial Number of Duplicate Sample: F0894	

Fusion Analysis of Solids	
Laboratory Serial Number for Sample: F0899	Date Sampled: 01-22-90
Laboratory Serial Number of Duplicate Sample:: F0900	
Laboratory Serial Number of Spiked Sample: F0901	

Acid Digestion Analysis of Solids	
Laboratory Serial Number for Sample: F0911	Date Sampled: 01-22-90
Laboratory Serial Number of Duplicate Sample: F0912	
Laboratory Serial Number of Spiked Sample:	

Water Digestion Analysis of Solids	
Laboratory Serial Number for Sample: F0905	Date Sampled 1-22-90
Laboratory Serial Number of Duplicate Sample: F0906	
Laboratory Serial Number of Spiked Sample: F0907	

Laboratory Notebook Reference

WHC-N-313-4	20
Notebook No.	Page No.

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 6-13-90

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Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

SST-17 Rev.A 04/24/90

17

9 1 1 2 5 9 0 0 1 7

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	WA63090/WA58053
Procedure / Rev	L1-000-200
Technologist	D. B. Bechtold
Date	03-12-90
Temperature	N/A
Starting Time	0837
Ending Time	1503
Chemist	D. B. Bechtold

Thermographic/Differential Scanning Calorimeter Analysis

* Reagent Grade Dry Fine; Reference Scan

	Description	Lab. Id.
1	Thermographic Analysis	F0893
2	Diff. Scanning Calorimeter	F0893
3	Al(OH)3 (DSC)	F0941
4	Al(OH)3 (TG)	F0941
5	Al(OH)3 (DSC)	*
6	Al(OH)3 (TG)	*
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

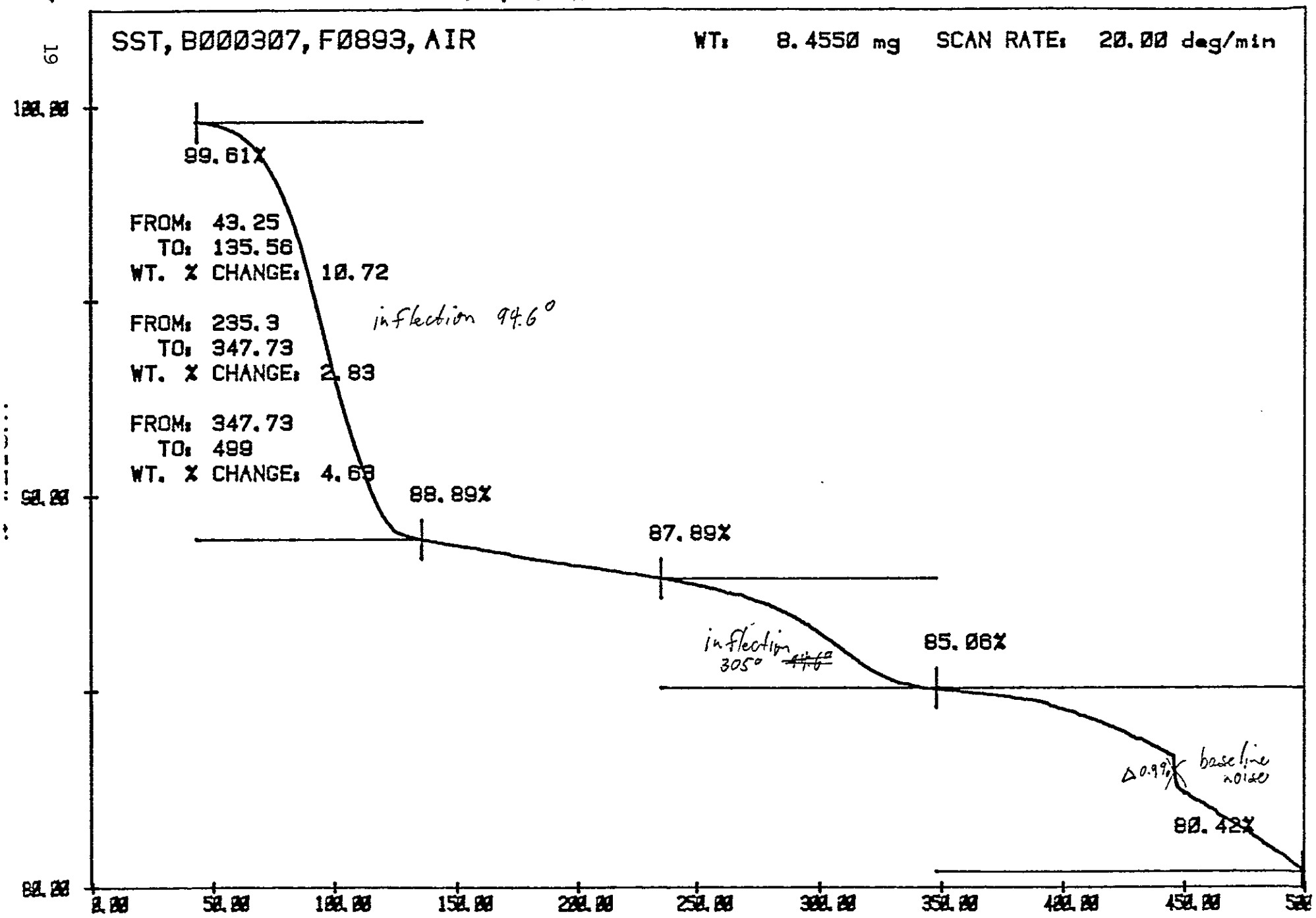
Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
N/A				

Prepared by: Thursley Cervantes (Signature) S.A. Cervantes (Printed Name) Date: 5/3/90

Verified by: Carey M Seidel (Signature) CM Seidel (Printed Name) Date: 5/3/90

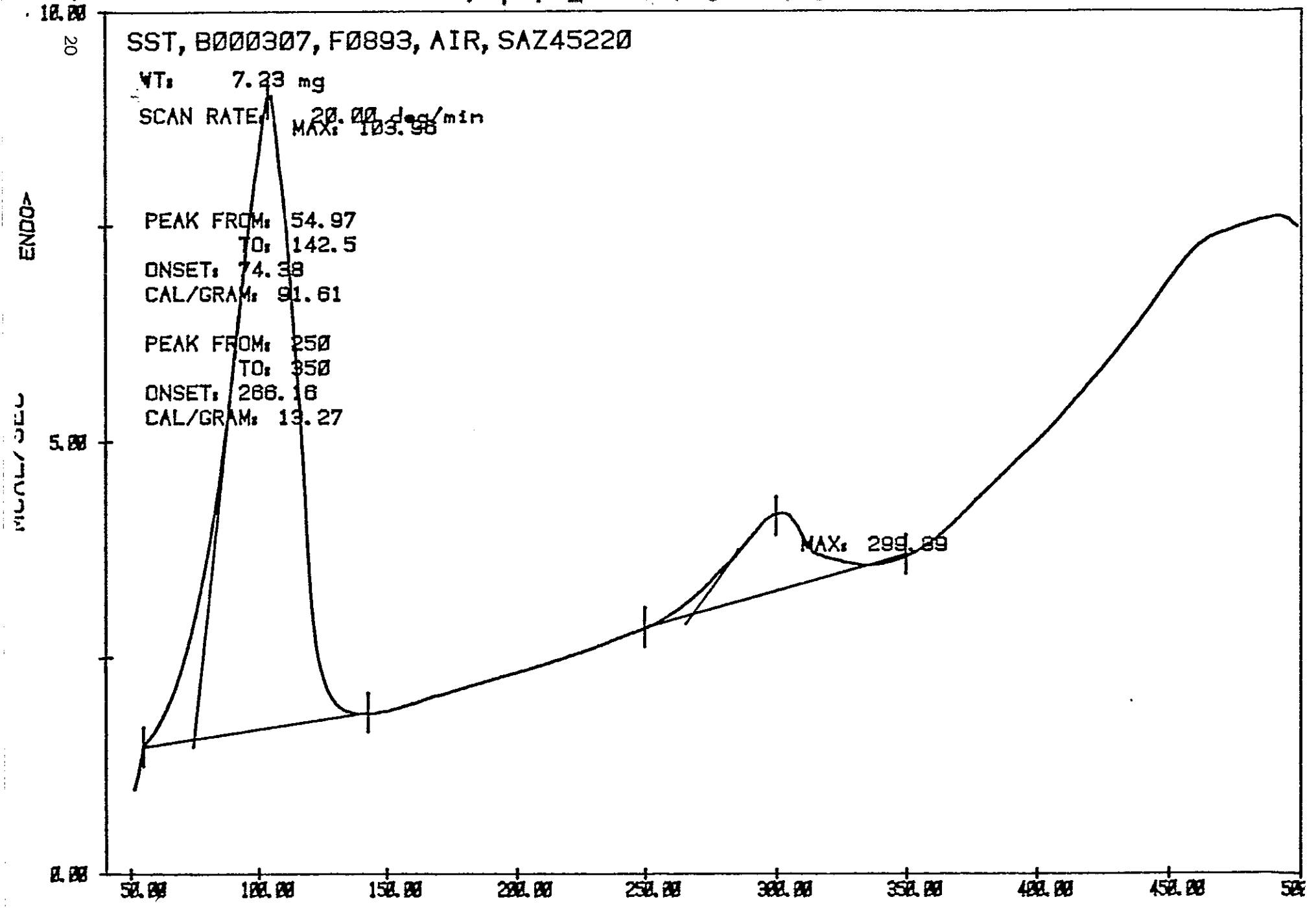
Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev E SST-102



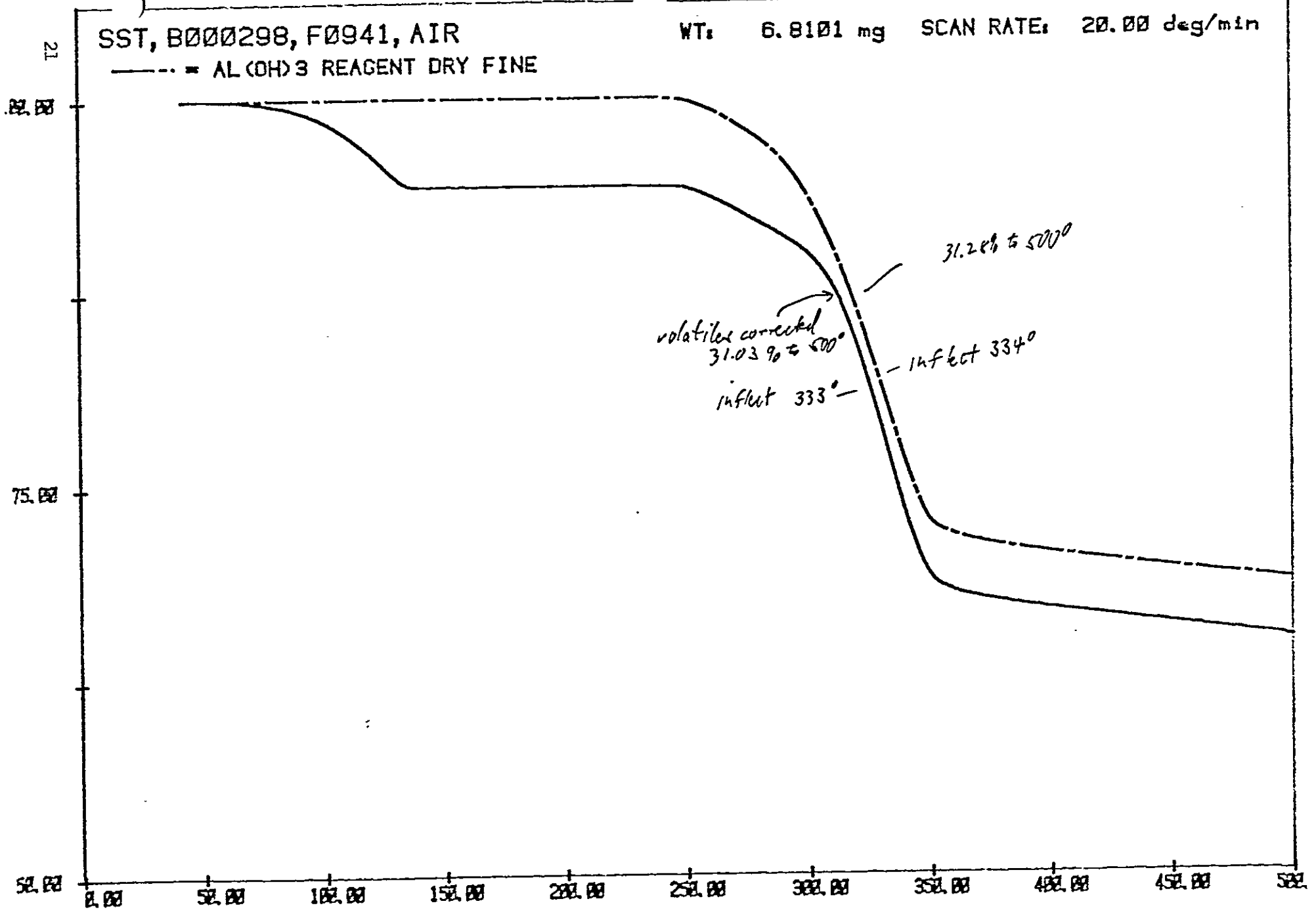
DBB/SBK FILE: F0893.TG

DATE: 90/03/12 TIME: 10:30



DBBSBK FILE: F0893.D4

DATE: 90/03/07 TIME: 11:19



7BB, SBK FILE: F0941. TG

DATE: 90/03/13 TIME: 08:37

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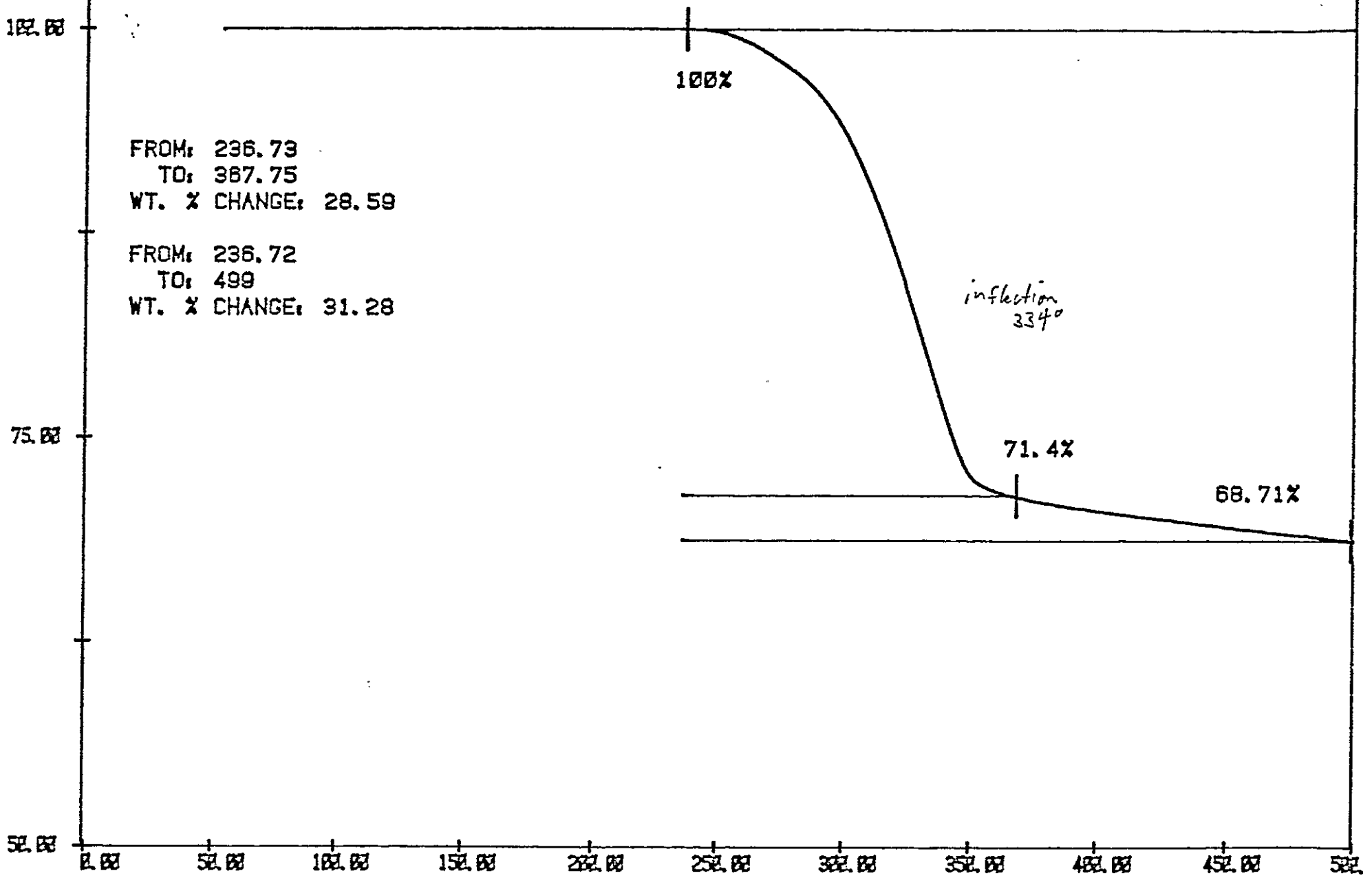
23

AL(OH)3 REAGENT DRY FINE WT: 7.0089 mg SCAN RATE: 20.00 deg/min

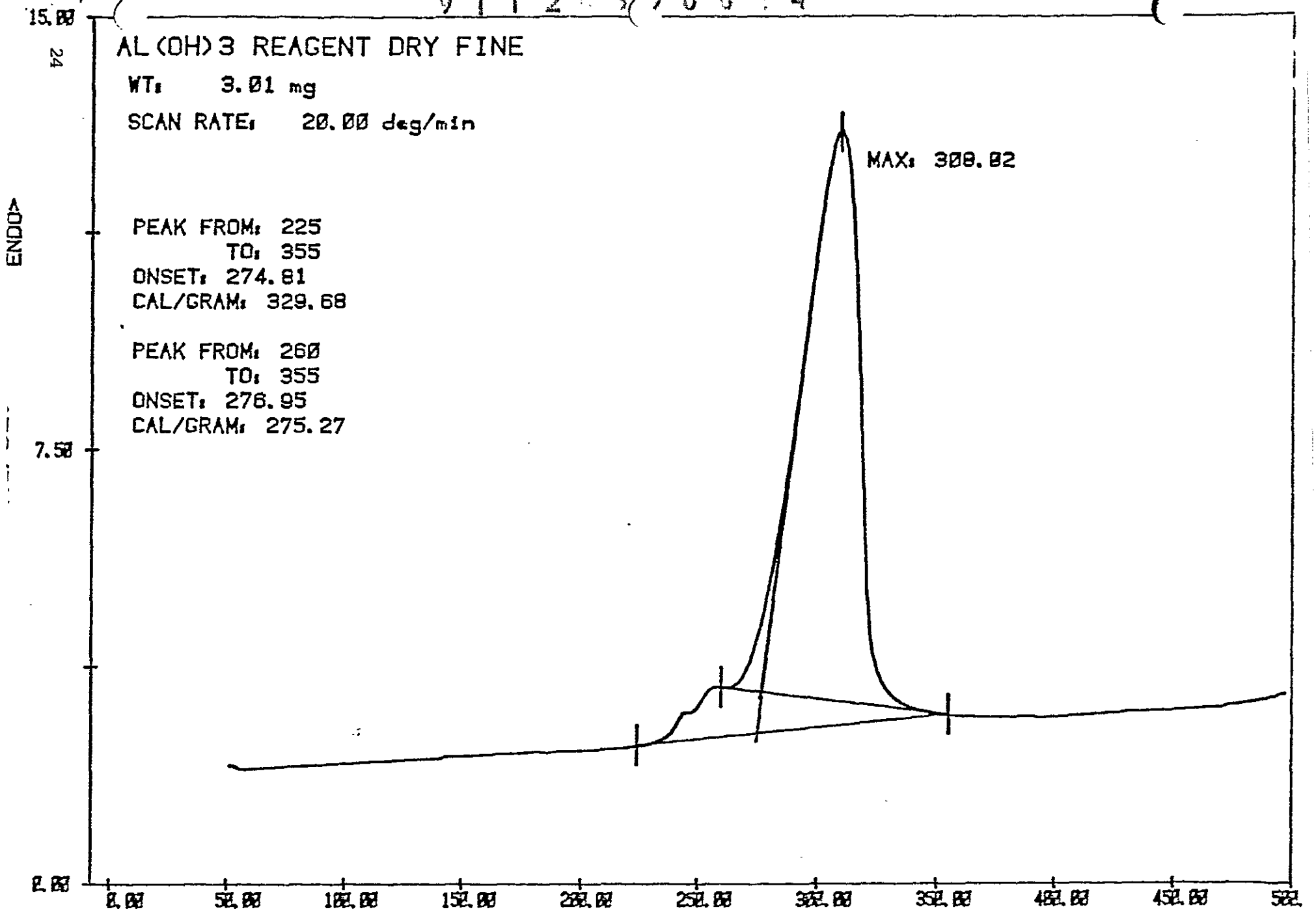


FROM: 236.73
TO: 367.75
WT. % CHANGE: 28.59

FROM: 236.72
TO: 499
WT. % CHANGE: 31.28

DBB, SBK FILE: ALHYD. TG Temperature (C) TG

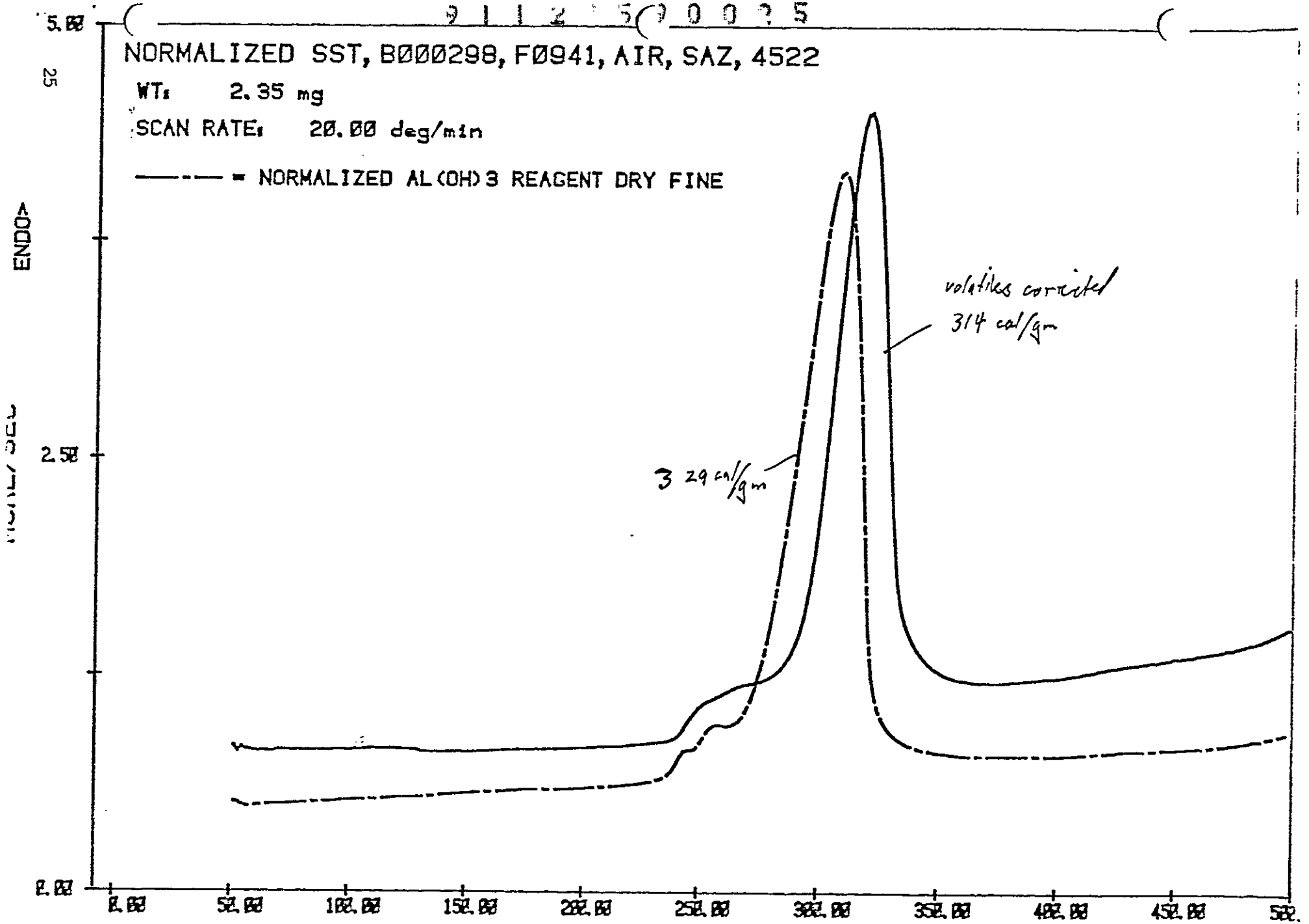
DATE: 90/03/19 TIME: 13:51



24

BB, SBK FILE: ALHYD.D4

DATE: 90/03/19 TIME: 11:15



DEB, SBK FILE: F0941.D4

DATE: 90/03/07 TIME: 15:03

UNDIGESTED SAMPLE ANALYSIS

SINGLE SHELL TANK PROJECT

UNTREATED SAMPLE RESULTS

Tank: 241-U-110
Core: 5
Lab Segment Serial No.: F0893
Customer ID: Composite Core 5

	Check Standard	Blank	Sample	Sample Duplicate	Spike of Sample	Check Standard
Laboratory ID:	F0891	F0892	F0893	F0894	N/A	F0896
pH	100.90%	5.59	12.89	12.92		100.40%
Laboratory ID:	F0891	F0916	F0893	F0894	N/A	F0920
% H2O	95.70%	0.5 mg	33.40%	33.60%	N/A	96.20%
Laboratory ID:	F0903	F0904	F0905	F0906	F0907	F0927
Mercury	90.10%	<6.00E-04 mg	9.86E-02 ppm	1.17E-01 ppm	80.25%	96.07%
Laboratory ID:	F0891	F0892	F0893	F0894	F0895	F0896
Cyanide	95.70%	<.3 ug	<1.65 ug/g	<2.50 ug/g	88.10%	99.80%
Laboratory ID:	*	*	*	*	*	*
Carbon 14						

* Analysis Was Not Run.

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

pH Analysis of Solid Sample.

Instrument	AL10653
Procedure / Rev	LA-212-103 / A-3
Technologist	M. Franz
Date	01-26-90
Temperature	25 C
Starting Time	7:30
Ending Time	11:00
Chemist	R. E. Brandt

	Description	Lab. Id.
1	Initial LMCS Check Std	F0891
2	Blank	F0892
3	Sample Comp 5	F0893
4	Duplicate Comp 5	F0894
5	Final LMCS Check Std	F0896
6		
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	72C11/5.0 mL			5.0 mL

Prepared by: J. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-5-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-5-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev E SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Percent Water in Composite.

Undigested Sample.

Instrument	N/A
Procedure / Rev	LA-564-101 / D-0
Technologist	R. D. Hale
Date	01-26-90
Temperature	120 C
Starting Time	13:00; 01-25-90
Ending Time	11:00;01-26-90
Chemist	R. E. Brandt

	Description	Lab. Id.
1	Intial LMCS Check Std	F0891
2	Reagent Blank	F0916
3	Sample Composite 5	F0893
4	Duplicate Composite 5	F0894
5	Sample Composite 6	F0917
6	Duplicate Composite 6	F0918
7	Final LMCS Check Std	F0920
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	11C11AH /1.0g			1 gram

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 05-24-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 05-24-90

Approved by: R.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim

Rev E 4/04/90

SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Mercury Analysis by Atomic Absorption

Manual Cold Vapor Technique

Undigested Sample.

Instrument	WA77479
Procedure / Rev	LA-325-102 / A-2
Technologist	J. Hopkins
Date	02-08-90
Temperature	70 F
Starting Time	08:00
Ending Time	12:45
Chemist	Keith Fuller

	Description	Lab. Id.
1	Inital LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike Comp 5	F0907
6	LMCS Check Std	F0927
7	Sample Comp 6	F0929
8	Duplicate Comp 6	F0930
9	Spike Comp 6	F0931
10	LMCS Check Std	F0932
11	LMCS Check Std	F0864

	Description	Lab. Id.
12	Sample 89-080 (30)	F0865
13	Duplicate 89-080 (30)	F0866
14	Spike 89-080 (30)	F0867
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11BM/25uL			N/A
Spike	58C11BM/25uL	F0905 / 25uL		N/A

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 08-05-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-05-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev E 4/04/90 SST-102

0 0 0 0 7 0 2 1 1 6

Single Shell Tank Calibration Record

Phase I-A

Analyte: HG

Procedure LA_-325-102 | Revision: A-2

Instrument: Perkin Elmer AA | Property Number: WA77479

Technologist: J.A. Hopkins | Payroll Number: 6A543

Date: 2-8-90

Calibration Standard ID: 102C35

Analyte Concentration: 1.00 ppm; .995 ppm

Type of Calibration: Linear Regression

	Dilution	Concentration	Instrument Reading Units =
1	10 uL	10 ng	46.5 mm
2	20 uL	20 ng	84.5 mm
3	40 uL	40 ng	152.0 mm
4	0 uL	0 ng	4.5 mm
5			
6			
7			
8			
9			
10			

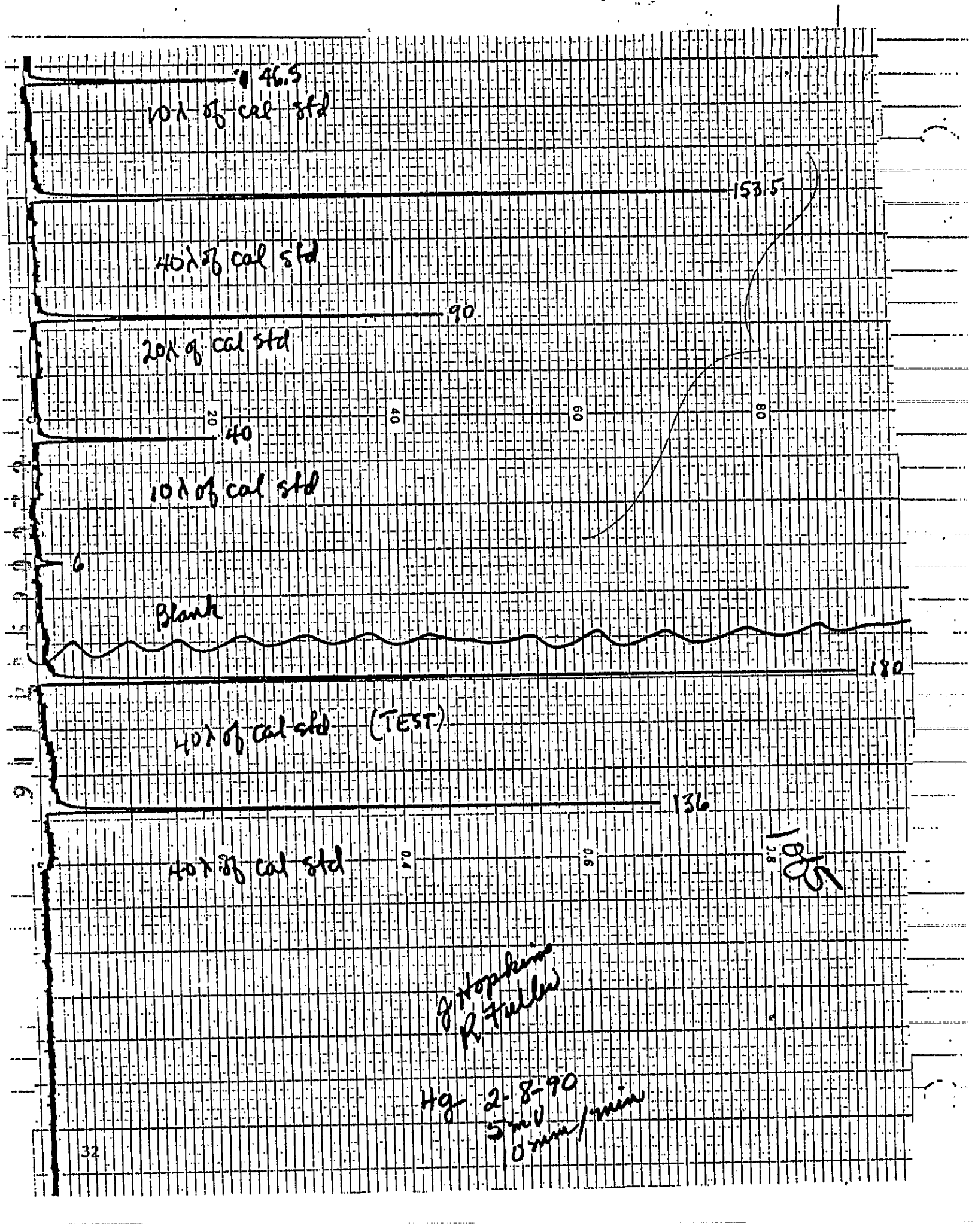
Comments:

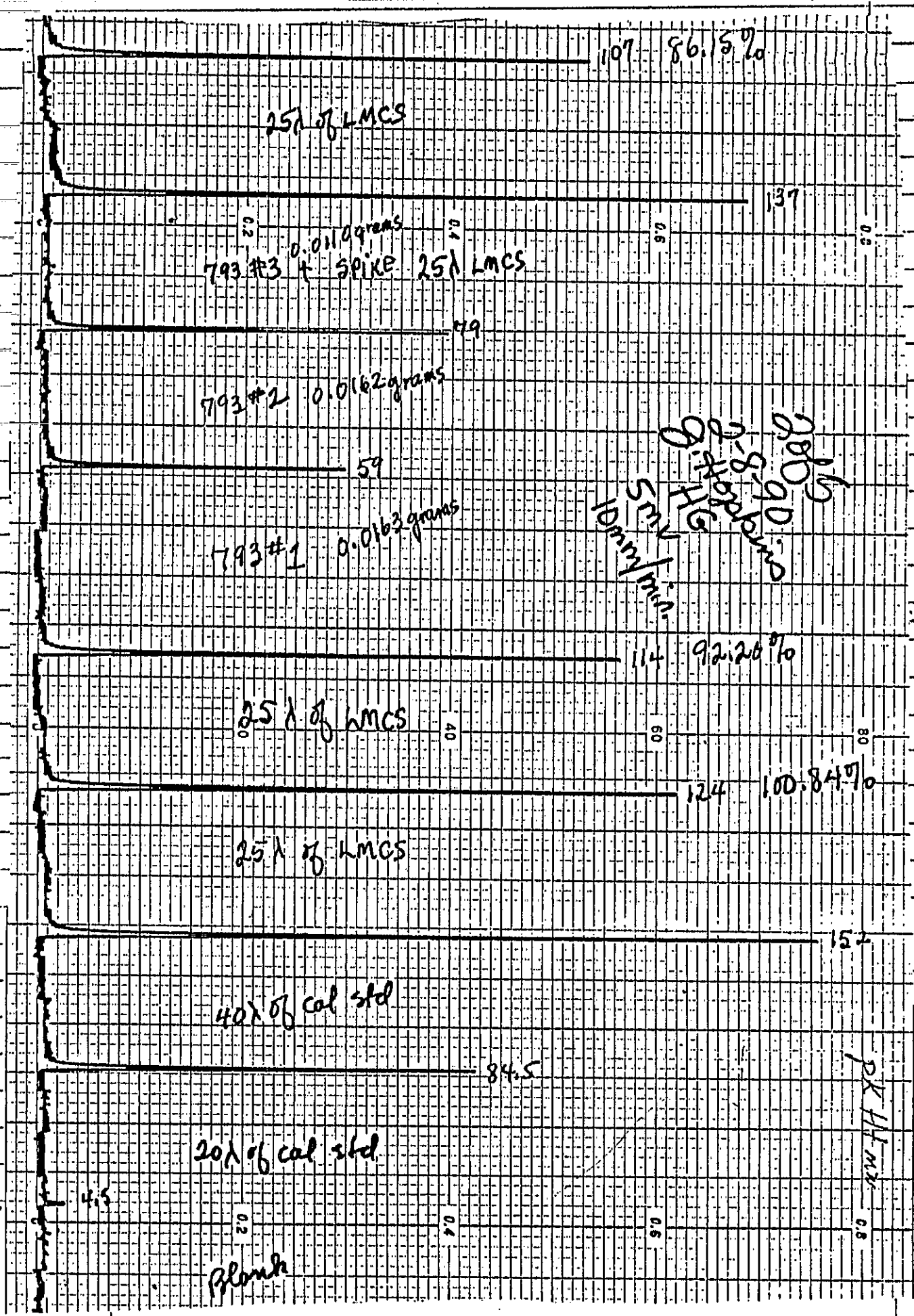
Prepared by: Shirley Cervantes (Signature) S.A. Cervantes (Printed Name) Date: 2-8-90

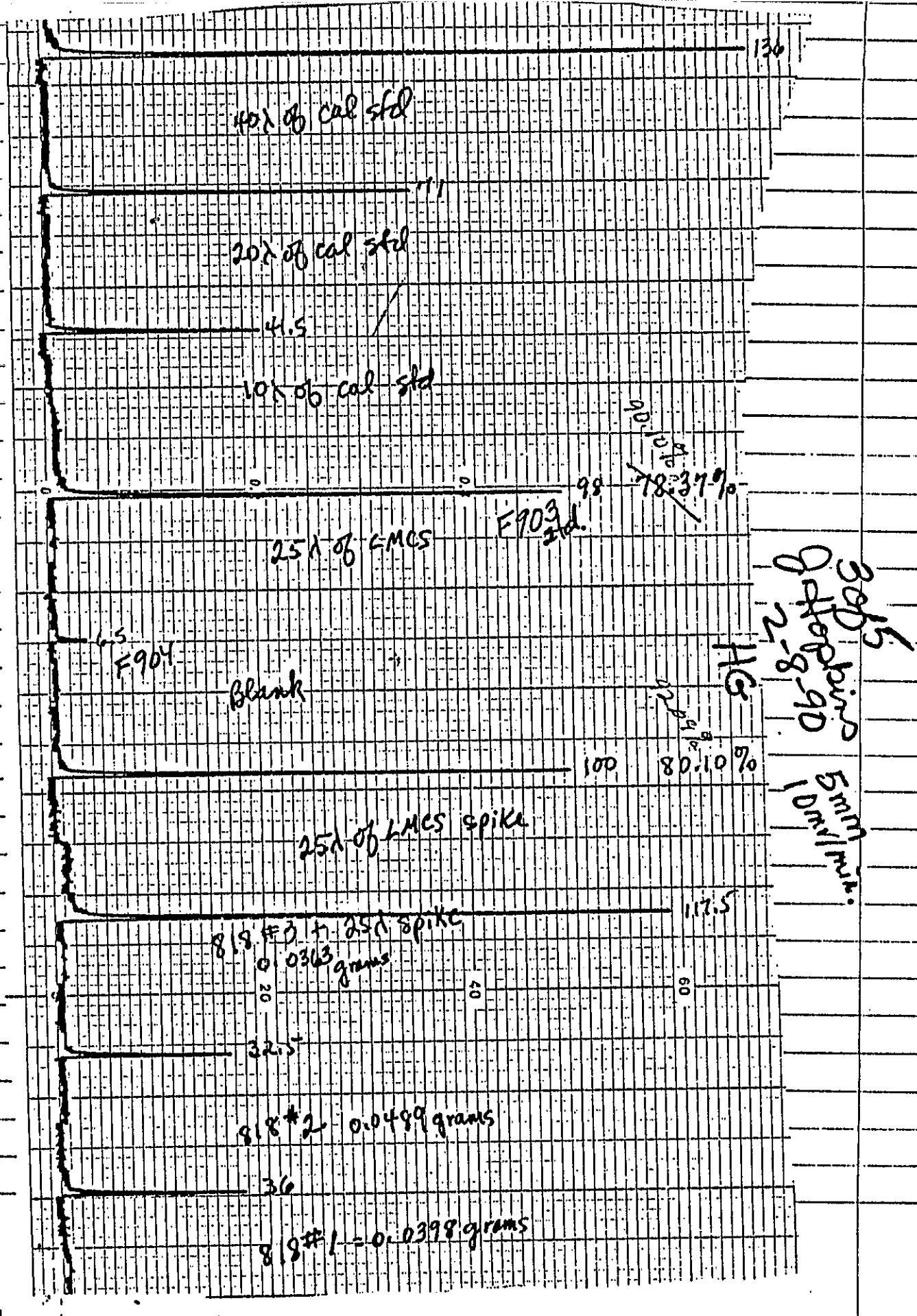
Verified by: Carey M Seidel (Signature) C.M. Seidel (Printed Name) Date: 2-8-90

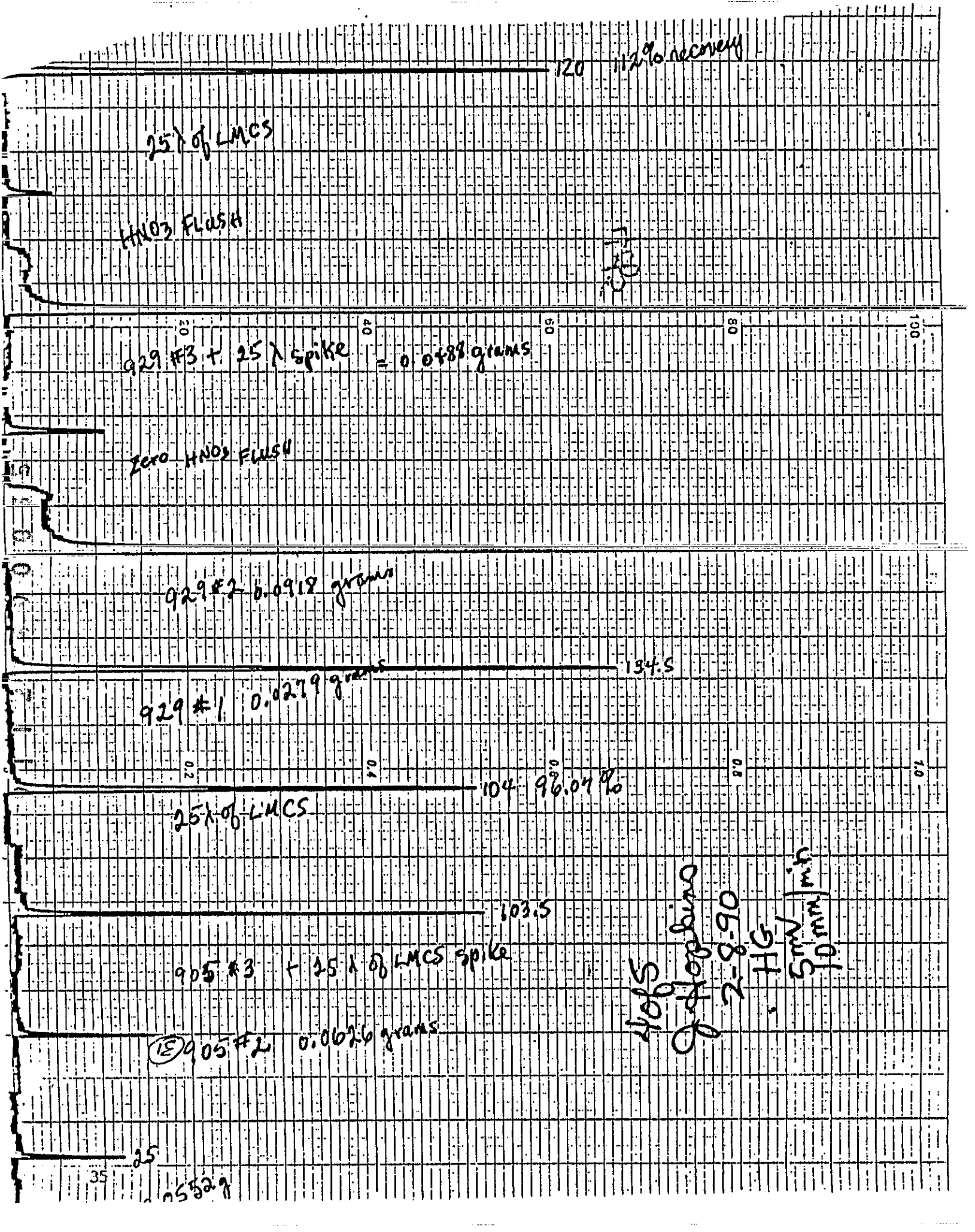
Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103


46.5
10λ of cal std
153.5
40λ of cal std
90
20λ of cal std
20
40
40
60
80
10λ of cal std
6
Blank
180
40λ of cal std (TEST)
136
40λ of cal std
0.4
0.6
0.8
J Hopkins
R Fuller
Hg 2-8-90
5 mV
10 mm/min

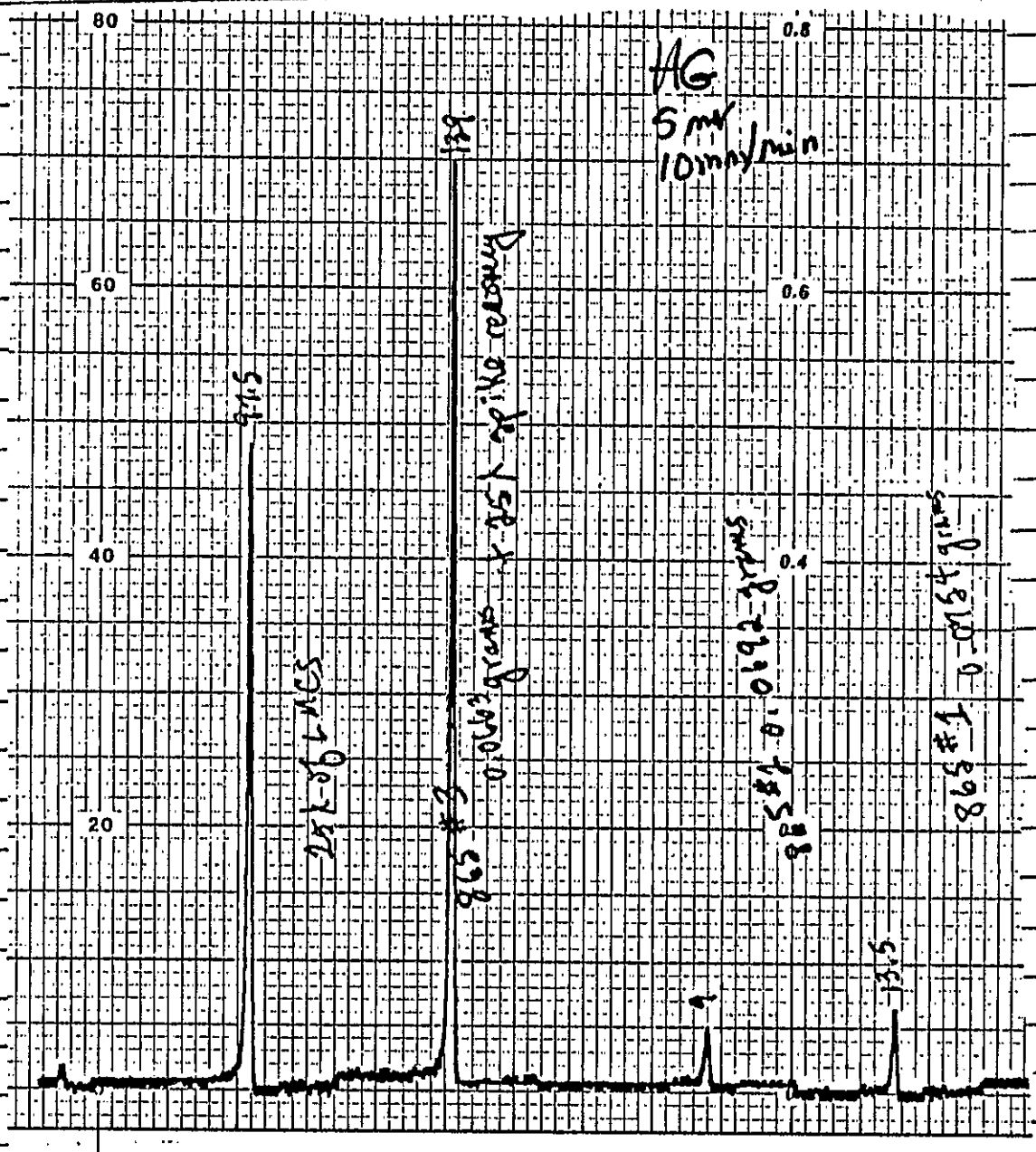

107 86.15%
25λ of LMCS
137
0.0110 grams
793 #3 + SPIKE 25λ LMCS
79
793 #2 0.0162 grams
59
793 #1 0.0163 grams
5mV
10mm/min.
114 92.20%
25λ of LMCS
124 100.84%
25λ of LMCS
152
40λ of cal std
84.5
20λ of cal std
4.5
Blank
0.2
0.4
0.6
0.8
40
60
80


136
40λ of cal std
111
20λ of cal std
41.5
10λ of cal std
90.10%
98
78.37%
F903 std.
25λ of LMCS
6.5
F904
Blank
100
80.10%
25λ of LMCS spike
117.5
818 #3 + 25λ spike
0.0363 grams
20
40
60
32.5
818 #2 0.0489 grams
36
818 #1 = 0.0398 grams
3 of 5
8 Hopkins
2-8-90
HG
5mm
10mV/min.


120 112% recovery
25λ of LMCS
HNO3 FLUSH
929 #3 + 25 λ spike = 0.0488 grams
Zero HNO3 FLUSH
929 #2 0.0918 grams
134.5
929 #1 0.0279 grams
104 96.04%
25λ of LMCS
103.5
905 #3 + 25 λ of LMCS spike
(E) 905 #2 0.0626 grams
25
4 of 5
2-8-90
HG
5mV
10mm/min
35

2-8-90

5065 J. Hopkins



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9 1 1 2 1 5 3 0 0 3 7

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Cyanide Analysis

Undigested Sample

Instrument	WA66684
Procedure / Rev	LA-695-101/A-1
Technologist	E. Colvin
Date	02-02-90
Temperature	N/A
Starting Time	08:00; 01-31-90
Ending Time	14:00; 02-02-90
Chemist	R. E. Brandt

	Description	Lab. Id.
1	Intial LMCS Check Std	F0891
2	Reagent Blank	F0892
3	Sample Composite 5	F0893
4	Duplicate Composite 5	F0894
5	Spike Composite 5	F0895
6	Final LMCS Check	F0896
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	75C11B / 10 uL			50 mL
Spike	75C11B / 10 uL			50 mL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 05-24-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 05-24-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. E 4/04/90 SST-102

Single Shell Tank Calibration Record

Phase I-A

Analyte:	CN-		
Procedure	LA-695-101	Revision:	A-1
Instrument:	Baush & Lomb Spectronic 21	Property Number:	WA66684
Technologist:	R. Brandt	Payroll Number:	69090
Date:	7-20-89		

Calibration Standard ID: 88C15C

Analyte Concentration: 817 ug CN/mL

Type of Calibration: Least Square Linear Regression

	Dilution	Concentration	Instrument Reading Units =
1	Blank	0	.016
2	100 uL	0.82	.091
3	200 uL	1.63	.150
4	500 uL	4.08	.354
5	1000 uL	8.17	.663
6	2000 uL	16.34	1.275
7	3000 uL	24.51	1.720
8			
9			
10			

Comments: Y - intercept - 0.01682

Slope - 0.076317

Correlation Coefficient - 0.999874

Prepared by: Shirley Cervantes (Signature) S.A. Cervantes (Printed Name) Date: 7-20-90

Verified by: Cary M. Seidel (Signature) C.M. Seidel (Printed Name) Date: 7-20-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

KOH FUSION ANALYSIS

SINGLE SHELL TANK PROJECT

FUSION ANALYSIS
SAMPLE RESULTS ON LABORATORY DIGESTION

Tank: 241-U-110
Core: 5
Lab Segment Serial No.: F0893
Customer ID: Core 5 Composite

	Check Standard	Blank		Sample		Sample Duplicate		Spike of Sample	Check Standard
Laboratory ID:	N/A	F0898		F0899		F0900		N/A	N/A
Fusion Digestion	N/A	N/A		2.55	g/L	2.39	g/L	N/A	N/A
Laboratory ID:	F0897	F0922		F0899		F0900		F0925	F0926
Total Alpha	89.60%	<8.52E-01	uci/L	<2.0	uci/L	<1.5	uci/L	*	89.10%
Total Beta	98.20%	<3.25	uci/L	3.40E+03	uci/L	3.25E+03	uci/L	*	93.30%
Laboratory ID:	F0897	F0922		F0899		F0900		F0925	F0926
GEA Cs-137	98.30%	<5.22E-02	uci/L	1.00E+02	uci/L	8.94E+01	uci/L	97.56%	103.70%
Laboratory ID:	F0897	F0922		F0899		F0900		F0925	F0926
Uranium	90.80%	<8.32E-05	g/L	1.39E-02	g/L	1.23E-02	g/L	113.30%	90.10%
Laboratory ID:	F0903	F0946		F0899		F0900		F0949	F0950
Plutonium	109.50%	<7.29E-03	uci/L	8.83E-01	uci/L	8.00E-01	uci/L	*	105.90%
Laboratory ID:	F0897	F0946		F0899		F0900		F0949	F0950
Americium 241	101.30%	<1.50E-02	uci/L	3.34E-01	uci/L	3.17E-02	uci/L	*	105.80%
Laboratory ID:	F0897	F0898		F0899		F0900		F0979	F0980
Neptunium 237	80.50%	<1.08	uci/L	<1.08	uci/L	<1.08	uci/L	71.20%	63.30%
Laboratory ID:	F0897	F0898		F0899		F0900		F0901	F0902
Technetium 99	93.40%	<2.67E-02	uci/L	<5.21E-02	uci/L	<5.45E-02	uci/L	100.00%	101.20%
Laboratory ID:	F0897	F0898		F0899		F0900		F0901	F0902
Iodine 129	116.60%	<2.57E-01	uci/L	<3.32E-01	uci/L	<4.23E-01	uci/L	104.00%	99.90%
Laboratory ID:	F0897	F0898		F0899		F0900		F0901	F0902
Strontium 90	103.30%	3.22E-02	uci/L	9.46E+02	uci/L	8.50E+02	uci/L	*	93.10%

* Ratio Of Spike To Sample Insufficient To Calculate Spike Recovery.

ICP Results Data Summary

Date Analyzed:	April 19, 1990	Acid Digested LMCS Standard	F1083
Procedure:	LA-505-151/A-0	Reagent Blank	F1084
Analyst:	J. A. White	Core 5 Composite	F0899
Digestion	Fusion Dissolution	Duplicate of Core 5 Composite	F0900
Procedure:	LA-505-159/A-0	Acid Digested LMCS Standard	F1088

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	100.37%		0.07 LT	114001	110726	NOT CALC.	100.63%	100.81%
Antimony	105.91%		-0.01 LT	324 LT	1296			102.57%
Barium	104.16%		-0.01 LT	-31 LT	19 LT	103.28%	92.28%	102.53%
Beryllium	98.38%		0.00 LT	0 LT	4 LT			97.50%
Bismuth	108.36%	102.12%	-0.01 LT	37270	42211	NOT CALC.		106.64%
Boron	101.73%	94.43%	0.03	82 LT	110	134.81%		99.43%
Cadmium	100.12%	93.46%	0.00 LT	-45 LT	-18 LT	89.32%		97.72%
Calcium	106.89%	102.58%	0.09	4383	2660	146.72%		105.03%
Chromium	95.51%		-0.03 LT	581	668	235.92%	84.79%	93.30%
Cobalt	97.27%		0.02 LT	134 LT	394	85.08%	86.00%	93.22%
Copper	105.17%	99.09%	-0.01 LT	-96 LT	35 LT	100.71%		103.36%
Europium	98.92%		-0.01 LT	-47 LT	-10 LT			97.72%
Iron	103.46%		0.03	17334	17280	NOT CALC.	94.41%	101.50%
Lanthanum	94.12%	91.05%	-0.02 LT	-128 LT	159 LT	89.51%		92.92%
Lead	106.64%	99.04%	0.01 LT	469	1810	93.18%		104.61%
Lithium	106.08%		-0.01 LT	-106 LT	-24 LT	91.11%	93.39%	103.61%
Magnesium	104.79%	97.56%	0.02	8244	6735	4138.61%		102.45%
Manganese	102.81%		0.01	5067	4794	NOT CALC.	92.70%	100.65%
Mercury	102.27%		-0.05 LT	2352 LT	-148 LT			101.94%
Molybdenum	97.14%	93.73%	0.00 LT	-22 LT	43 LT	85.72%		97.14%
Nickel	101.54%		-0.01 LT	7346	7174	98.98%	92.68%	99.05%
Samarium	99.36%		-0.35 LT	-2959 LT	-572 LT			96.54%
Selenium	105.01%		-0.06 LT	61 LT	948			104.86%
Silicon	90.40%	75.18%	0.63	30708	9346	-114.70%		90.53%
Silver	107.97%		-0.02 LT	-157 LT	-13 LT	53.52%		106.46%
Sodium	102.01%	94.66%	0.06 LT	144203	142135	NOT CALC.		100.05%
Strontium	105.80%	100.02%	0.00 LT	637	687	86.77%		104.01%
Sulfur	106.08%		0.03	1327	1846			107.95%
Tantalum	96.38%		-0.04 LT	-343 LT	-10 LT	27.57%	73.62%	96.12%
Thallium	105.99%		-0.33 LT	-1490 LT	-626 LT			106.22%
Thorium	106.38%		-0.18 LT	-1410 LT	-46 LT			104.74%
Tin	100.85%		0.02 LT	-16 LT	145 LT	102.74%	93.54%	98.35%
Titanium	100.86%		0.13	-80 LT	10 LT	90.61%	92.17%	101.40%
Uranium	106.74%		-2.40 LT	-12925 LT	414 LT			103.29%
Vanadium	99.32%		-0.02 LT	-75 LT	-41 LT			100.05%
Zinc	100.91%	93.05%	0.23	7124	4492	66.80%		98.82%
Zirconium	101.51%		-0.04 LT	-90 LT	111 LT	46.04%	93.47%	100.46%

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated
Instrument Standards Outside Control Limits

Single Shell Tank Project

FUSION ANALYSIS
SAMPLE RESULTS ON SOLID WEIGHT

Tank: 241-U-110
Core: 5
Lab Segment Serial No: F0893
Customer ID: Core 5 Composite Sample

	Check Standard	Blank		Sample		Sample Duplicate		Spike of Sample	Check Standard
Laboratory ID:	N/A	F0898		F0899		F0900		N/A	N/A
Fusion Digestion	N/A	N/A		2.55	g/L	2.39	g/L	N/A	N/A
Laboratory ID:	F0897	F0922		F0899		F0900		F0925	F0926
Total Alpha	89.60%	<8.52E-01	uci/L	<7.84E-01	uci/g	<6.28E-01	uci/g	*	89.10%
Total Beta	98.20%	<3.25	uci/L	1.33E+03	uci/g	1.36E+03	uci/g	*	93.30%
Laboratory ID:	F0897	F0922		F0899		F0900		F0925	F0926
GEA Cs-137	98.30%	<5.22E-02	uci/L	3.92E+01	uci/g	3.74E+01	uci/g	97.56%	103.70%
Laboratory ID:	F0897	F0922		F0899		F0900		F0925	F0926
Uranium	90.80%	<8.32E-05	g/L	5.45E+03	ug/g	5.15E+03	ug/g	113.30%	90.10%
Laboratory ID:	F0903	F0946		F0899		F0900		F0949	F0950
Plutonium	109.50%	<7.29E-03	uci/L	3.46E-01	uci/g	3.35E-01	uci/g	*	105.90%
Laboratory ID:	F0897	F0946		F0899		F0900		F0949	F0950
Americium 241	101.30%	<1.50E-02	uci/L	1.31E-01	uci/g	1.33E-02	uci/g	*	105.80%
Laboratory ID:	F0897	F0898		F0899		F0900		F0979	F0980
Neptunium 237	80.50%	<1.08	uci/L	<4.24E-01	uci/g	<4.52E-01	uci/g	71.20%	63.30%
Laboratory ID:	F0897	F0898		F0899		F0900		F0901	F0902
Technetium 99	93.40%	<2.67E-02	uci/L	<2.04E-02	uci/g	<2.28E-02	uci/g	100.00%	101.20%
Laboratory ID:	F0897	F0898		F0899		F0900		F0901	F0902
Iodine 129	116.60%	2.57E-01	uci/L	<1.30E-01	uci/g	<1.77E-01	uci/g	104.00%	99.90%
Laboratory ID:	F0897	F0898		F0899		F0900		F0901	F0902
Strontium 90	103.30%	3.22E-02	uci/L	3.71E-02	uci/g	3.56E-02	uci/g	*	93.10%

*Ratio of Spike To Sample Insufficient to Calculate Spike Recovery.

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

KOH Fusion Dissolution

Instrument	N/A
Procedure / Rev	LA-549-141/A-1
Technologist	R.D. Hale
Date	01-25-90
Temperature	450 C
Starting Time	13:45
Ending Time	15:00
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	N/A
2	Reagent Blank	F0898
3	Sample Composite 5	F0899
4	Duplicate Composite 5	F0900
5		
6		
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
N/A				

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 08-03-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-03-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev E SST-102

9112190014

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Total Alpha and Total Beta

Fusion Dissolution

Detector 12

Instrument	HW45676
Procedure / Rev	LA-508-101 / A-2
Technologist	R. D. Hale
Date	01-26-90
Temperature	24 C
Starting Time	11:59
Ending Time	21:48
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0897
2	Reagent Blank	F0922
3	Sample Comp 5	F0899
4	Duplicate Comp 5	F0900
5	Spike Comp 5	F0925
6	Final LMCS Check Std	F0926
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	102B44/10mL			N/A
Spike	102B44/10mL	F0899/100 uL		N/A

Prepared by: D.K. Sato (Signature) D.K. Sato (Printed Name) Date: 8-15-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-15-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. E 4/04/90 SST-102

9 1 1 2 1 5 9 0 0 1 5

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Am^{241}; Co^{60}		
Procedure	LQ-508-002	Revision:	A-0
Instrument:	Detector #12	Property Number:	WA93415
Technologist:	R. A. Jones	Payroll Number:	65801
Date:	4-19-88; 2-23-87		

Calibration Standard ID: Book number 42B16H; 42B16I; 42B16L; 32B40A4; 32B40B3

Analyte Concentration: N/A 32B40C4

Type of Calibration: Efficiency

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Records.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-12-90

Verified by: Carry M. Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-12-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 12

TIME ZERO DATE (HD): 13367

RADIONUCLIDE: Am-241
HALF LIFE: 157784
COUNT TIME: 5
CPM BKG: 0.2

DATE COUNTED (HD): 15491

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
42B16B	1	02/23/87		86968	86004	85990	86802
42B16C	1	02/23/87		135119	135190	135983	134627
42B16E	1	02/23/87		308917	309658	308906	311795
42B16H	2	02/23/87		60628	60616	60351	61648
42B16I	2	02/23/87		107491	107171	106868	106941
42B16L	2	02/23/87		196800	204719	207336	206678
36B40A6	5						
36B40B6	5						
36B40C5	5						

9112150047

STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
42B16B	1"	58050	17288	1.01	17450	0.3006
42B16C	1"	93640	27046	1.01	27299	0.2915
42B16E	1"	212900	61964	1.01	62544	0.2938
AVERAGE, 1" =		0.2953 +/- @95%		0.0093	3.14 %	ON 02/23/87

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
42B16H	2"	58310	12162	1.01	12276	0.2105
42B16I	2"	100300	21423	1.01	21624	0.2156
42B16L	2"	186700	40776	1.01	41159	0.2205
AVERAGE, 2" =		0.2155 +/- @95%		0.0097	4.51 %	ON 02/23/87

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
36B40A6	5"	59470	-0	1.01	-0	-0.0000
36B40B6	5"	109800	-0	1.01	-0	-0.0000
36B40C5	5"	160100	-0	1.01	-0	-0.0000
AVERAGE, 5" =		-0.0000 +/- @95%		0.0000	-99.92 %	ON 02/23/87

NEW EFFS FOR DET 12 Am-241 1" = 0.2953 2" = 0.2155

5" = -0.0000

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 12

		2",5" STD	TIME ZERO DATE (HD):	15883
RADIONUCLIDE:	Co-60	1" STD	TIME ZERO DATE (HD):	15883
HALF LIFE:	1925		DATE COUNTED (HD):	15911
COUNT TIME:	5		DATE COUNTED 1" (HD)	15912
CPM BKG:	25			
CPM 1" BKG:	25	CALIBRATED BY:	RA JONES	HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
32B40A8	1	04/19/88		127944	127628	127543	127566
32B40B7	1	04/19/88		244043	242862	243562	244673
32B40C7	1	04/19/88		367576	367566	365053	366147
32B40A4	2	04/19/88		110722	110750	110709	110989
32B40B3	2	04/19/88		212054	214257	215505	213619
32B40C4	2	04/19/88		316383	314049	315143	314081
32B40A5	5	02/01/90					
32B40B6	5	02/01/90					
32B40C5	5	02/01/90					

STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
32B40A8	1"	69550	25509	1.01	25777	0.3706
32B40B7	1"	134700	48732	1.01	49244	0.3656
32B40C7	1"	201000	73292	1.01	74061	0.3685

AVERAGE, 1" = 0.3682 +/- @95% 0.0050 1.35 % ON 04/19/88

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
32B40A4	2"	70480	22134	1.01	22358	0.3172
32B40B3	2"	135100	42747	1.01	43180	0.3196
32B40C4	2"	202400	62958	1.01	63596	0.3142

AVERAGE, 2" = 0.3170 +/- @95% 0.0053 1.67 % ON 04/18/88

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
32B40A5	5"	70160	-25	1.01	-25	-0.0004
32B40B6	5"	135700	-25	1.01	-25	-0.0002
32B40C5	5"	201900	-25	1.01	-25	-0.0001

AVERAGE, 5" = -0.0002 +/- @95% 0.0002 -106.77 % ON 04/18/88

NEW EFFS FOR DET 12 Co-60 1" = 0.3682 2" = 0.3170

5" = -0.0002

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	WA77228 / WA401934
Procedure / Rev	LA-548-121 / C-1
Technologist	R. D. Hale
Date	01-26-90
Temperature	24 C
Starting Time	09:00
Ending Time	10:00
Chemist	S. A. Catlow

GEA Analysis

Fusion Dissolution

Samples are prepared in batch, but counted randomly.

	Description	Lab. Id.
1	Inital LMCS Check Std	F0897
2	Reagent Blank	F0922
3	Sample Comp 5	F0899
4	Duplicate Comp 5	F0900
5	Sample Comp 6	F0923
6	Duplicate Comp 6	F0924
7	Spike	F0925
8	Final LMCS Check Std	F0926
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	89B44 / 500 uL			22 mL
Spike	89B44 / 500 uL	F0923 / 50 uL		22 mL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-14-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-14-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. E 4/04/90 SST-102

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Isotope, Mixed Gamma		
Procedure	LQ-508-003	Revision:	A-0
Instrument:	GEA Detector #1	Property Number:	401934
Technologist:	JL Anderson	Payroll Number:	
Date:	2-14-89; 2-16-89		

Calibration Standard ID: Book number	56B40 D1
Analyte Concentration:	N/A
Type of Calibration:	Gamma Energy Analysis (Efficiency)

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-04-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-04-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

9112150072

DETECTOR: 1
GEOMETRY CODE: 42
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 2
CALIBRATION DATE: 14-Feb-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	5.721347E-03
88.032	1.512568E-02
122.0614	2.041958E-02
165.853	1.856472E-02
279.1967	
391.668	1.042777E-02
513.99	7.856059E-03
661.65	6.838966E-03
898.021	5.300244E-03
1173.237	4.218416E-03
1332.501	3.785537E-03
1836.129	2.931033E-03

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.343694E+01
         +     2.034704E+01 *LOG(ENERGY)
         +    -2.088264E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =     8.372735E+00
         +    -7.762489E+00 *LOG(ENERGY)
         +     2.017698E+00 *LOG(ENERGY)^2
         +    -2.447560E-01 *LOG(ENERGY)^3
         +     1.067720E-02 *LOG(ENERGY)^4
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 1
GEOMETRY CODE: 43
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 3
CALIBRATION DATE: 16-Feb-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	1.397695E-03
88.032	3.641448E-03
122.0614	5.035820E-03
165.853	4.620516E-03
279.1967	
391.668	2.619018E-03
513.99	1.890740E-03
661.65	1.782478E-02
898.021	1.392563E-03
1173.237	1.117189E-03
1332.501	1.007670E-03
1836.129	7.782502E-04

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.354869E+01
```

```
                    +    1.975356E+01 *LOG(ENERGY)
                    +   -2.020858E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =          4.001880E+01
                    +   -2.857555E+01 *LOG(ENERGY)
                    +    6.748440E+00 *LOG(ENERGY)^2
                    +    7.173093E-01 *LOG(ENERGY)^3
                    +    2.821780E-02 *LOG(ENERGY)^4
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

9 1 1 2 5 9 0 0 5 4

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Mixed Isotope Standards		
Procedure	LO-508-003	Revision:	A-0
Instrument:	GEA Detector #2	Property Number:	401934
Technologist:	JL Anderson	Payroll Number:	
Date:	9-28-88; 10-21-88		

Calibration Standard ID: Book number	65B40 D1
Analyte Concentration:	N/A
Type of Calibration:	Gamma Energy Analysis (Efficiency)

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-04-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-04-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

9112520055

DETECTOR: 2
GEOMETRY CODE: 42
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 2
CALIBRATION DATE: 21-Oct-88
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	3.417000E-03
88.032	1.090000E-02
122.0614	1.408000E-02
165.853	1.516000E-02
279.1967	9.929000E-03
391.668	7.578000E-03
513.99	5.875000E-03
661.65	4.927000E-03
898.021	3.727000E-03
1173.237	3.085000E-03
1332.501	2.683000E-03
1836.129	2.102000E-03

EQUATION 0-122 KEV

```
LOG(EFF) =    -6.654070E+01
         +     2.583780E+01 *LOG(ENERGY)
         +    -2.677550E+00 *LOG(ENERGY)^2
```

EQUATION 122-1836 KEV

```
LOG(EFF) =    -1.050740E+02
         +     6.428950E+01 *LOG(ENERGY)
         +    -1.503170E+01 *LOG(ENERGY)^2
         +     1.533670E+00 *LOG(ENERGY)^3
         +    -5.838530E-02 *LOG(ENERGY)^4
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 2
GEOMETRY CODE: 43
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 3
CALIBRATION DATE: 28-Sep-88
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	1.476000E-03
88.032	4.721000E-03
122.0614	6.589000E-03
165.853	6.613000E-03
279.1967	4.692000E-03
391.668	3.542000E-03
513.99	2.810000E-03
661.65	2.327000E-03
898.021	1.790000E-03
1173.237	1.437000E-03
1332.501	1.277000E-03
1836.129	9.824000E-04

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.826830E+01
          +    2.165450E+01 *LOG(ENERGY)
          +   -2.198930E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =    -2.233890E+01
          +    1.174520E+01 *LOG(ENERGY)
          +   -2.739550E+00 *LOG(ENERGY)^2
          +    2.655450E-01 *LOG(ENERGY)^3
          +   -9.668420E-03 *LOG(ENERGY)^4
```

9 1 1 2 1 5 9 0 0 7

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM 04-SEP-90 10:07:29

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 2 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 1 / GEOMETRY NUMBER: 42
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1669
ANALYZED BY: LDT

SAMPLE DESCRIPTION: F897
GEOMETRY DESCRIPTION:
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 5.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 26-JAN-90 AT 09:56:43

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3006. SECONDS
DEAD TIME: 0.20 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 23-NOV-89
EFFICIENCY CALIBRATION PERFORMED 2-MAR-89

222-S COUNTING ROOM 04-SEP-90 10:07:29

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1126.66	562.80	1.41	538.	799.	10.4	CS-134, EU-152
2C	1138.88	568.91	1.41	553.	1388.	8.6	CS-134, BI-207
3	1209.64	604.28	1.48	591.	7995.	2.4	CS-134
4	1323.48	661.18	1.52	441.	12111.	1.9	CS-137
4B		661.82			35.	46.4	
5C	1591.80	795.33	1.54	262.	5691.	3.1	CS-134
6C	1604.00	801.43	1.54	251.	592.	9.6	CS-134
7	2346.30	1172.70	1.70	210.	5217.	2.8	CO-60
8	2664.66	1332.01	2.00	42.	4718.	2.9	CO-60
9	2729.93	1364.67	1.67	21.	137.	19.7	CS-134
10	2800.63	1400.06	2.10	13.	56.	33.2	I-132,BI-214
11	2921.20	1460.41	2.37	10.	167.	16.3	K-40
11B		1461.77			182.	11.2	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0011
BACKGROUND DESCRIPTION: BK0011
BACKGROUND COLLECT STARTED ON 10-JAN-85 AT 12:00:00
BACKGROUND LIVE TIME: 6000. SECONDS

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222-S COUNTING ROOM 04-SEP-90 10:07:29

SAMPLE: F897
DATA COLLECTED ON 26-JAN-90 AT 09:56:43
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<8.08E-01		LLD<8.08E-01		911.07	
AG-108M	LLD<2.21E-01		LLD<2.21E-01		433.94	
AG-110M	LLD<1.05E+00		LLD<1.05E+00		657.76	
AM-241	LLD<8.76E-01		LLD<8.76E-01		59.54	
AM-243	LLD<2.45E-01		LLD<2.45E-01		74.67	
AR-41	LLD<1.27E-01		LLD<1.27E-01		1293.64	
AU-198	LLD<1.95E-01		LLD<1.95E-01		411.80	
BA-133	LLD<2.93E-01		LLD<2.93E-01		356.02	
BA-139	LLD<5.93E-01		LLD<5.93E-01		165.85	
BA-140	LLD<7.55E-01		LLD<7.55E-01		537.27	
BA-141	LLD<5.99E-01		LLD<5.99E-01		190.23	
BE-7	LLD<2.01E+00		LLD<2.01E+00		477.59	
BI-207	LLD<1.87E-01		LLD<1.87E-01		569.70	
BI-212	LLD<2.45E+00		LLD<2.45E+00		727.27	
BI-214	LLD<9.51E-01		LLD<9.51E-01		609.32	
CD-109	LLD<3.59E+00		LLD<3.59E+00		88.03	
CE-139	LLD<1.34E-01		LLD<1.34E-01		165.85	
CE-141	LLD<1.97E-01		LLD<1.97E-01		145.44	
CEPR144	LLD<1.68E+00		LLD<1.68E+00		133.51	
CO-56	LLD<1.87E-01		LLD<1.87E-01		846.76	
CO-57	LLD<1.10E-01		LLD<1.10E-01		122.06	
CO-58	LLD<1.76E-01		LLD<1.76E-01		810.75	
CO-60	2.24E+01	+-6.91E-01	2.24E+01	+-6.91E-01	1332.50	-0.49
					1173.24	-0.54
CR-51	LLD<1.54E+00		LLD<1.54E+00		320.09	
CS-134	2.05E+01	+-6.72E-01	2.05E+01	+-6.72E-01	795.84	-0.52
					604.70	-0.42
CS-136	LLD<1.78E-01		LLD<1.78E-01		818.51	
CS-137	3.75E+01	+-8.35E-01	3.75E+01	+-8.35E-01	661.65	-0.47
CS-138	LLD<1.55E-01		LLD<1.55E-01		1435.86	
EU-152	LLD<3.41E-01		LLD<3.41E-01		1408.01	
EU-154	LLD<3.68E-01		LLD<3.68E-01		1274.45	
EU-155	LLD<4.28E-01		LLD<4.28E-01		105.31	
FE-59	LLD<4.31E-01		LLD<4.31E-01		1099.25	
HF-181	LLD<2.24E-01		LLD<2.24E-01		482.20	
HG-203	LLD<1.77E-01		LLD<1.77E-01		279.20	
I-131	LLD<2.32E-01		LLD<2.32E-01		364.48	
I-132	LLD<2.08E-01		LLD<2.08E-01		667.69	
I-133	LLD<2.18E-01		LLD<2.18E-01		529.69	
I-134	LLD<2.66E-01		LLD<2.66E-01		847.03	
I-135	LLD<4.56E-01		LLD<4.56E-01		1260.41	
K-40	LLD<1.83E+00		LLD<1.83E+00		1460.75	
KR-85	LLD<4.45E+01		LLD<4.45E+01		513.99	
KR-85M	LLD<1.28E-01		LLD<1.28E-01		151.17	
KR-87	LLD<4.98E-01		LLD<4.98E-01		402.58	
KR-89	LLD<7.48E+00		LLD<7.48E+00		220.90	
LA-140	LLD<7.82E-02		LLD<7.82E-02		1596.20	

LA-142	LLD<4.14E-01	LLD<4.14E-01	641.83
MN-54	LLD<2.01E-01	LLD<2.01E-01	834.83
MN-56	LLD<2.11E-01	LLD<2.11E-01	846.76
NA-22	LLD<1.17E-01	LLD<1.17E-01	1274.55
NA-24	LLD<2.20E-01	LLD<2.20E-01	1368.60
NB-94	LLD<1.65E-01	LLD<1.65E-01	702.63
NB-95	LLD<1.72E-01	LLD<1.72E-01	765.78
NB-97	LLD<1.28E+00	LLD<1.28E+00	657.92
NP-238	LLD<7.90E-01	LLD<7.90E-01	984.45
NP-239	LLD<1.05E+00	LLD<1.05E+00	277.60
PA-233	LLD<4.65E-01	LLD<4.65E-01	311.98
PA-234M	LLD<4.00E+01	LLD<4.00E+01	1001.03
PB-210	LLD<5.19E+00	LLD<5.19E+00	465.03
PB-212	LLD<3.31E-01	LLD<3.31E-01	239.00
PB-214	LLD<5.02E-01	LLD<5.02E-01	351.92
PO-210	LLD<2.07E+04	LLD<2.07E+04	804.00
PO-214	LLD<8.09E+03	LLD<8.09E+03	799.70
PO-216	LLD<1.70E+04	LLD<1.70E+04	804.90
PU-239	LLD<1.47E+03	LLD<1.47E+03	129.30
PU-241	LLD<5.33E+04	LLD<5.33E+04	148.57
RA-224	LLD<3.57E+00	LLD<3.57E+00	240.99
RA-226	LLD<3.13E+00	LLD<3.13E+00	186.10
RB-88	LLD<7.19E-01	LLD<7.19E-01	1836.00
RB-89	LLD<9.62E-01	LLD<9.62E-01	1031.88
RN-220	LLD<1.74E+02	LLD<1.74E+02	549.73
RU-103	LLD<2.11E-01	LLD<2.11E-01	497.08
RURH106	LLD<3.47E+00	LLD<3.47E+00	621.80
SB-124	LLD<2.74E-01	LLD<2.74E-01	602.72
SB-125	LLD<1.65E+00	LLD<1.65E+00	176.33
SC-46	LLD<2.14E-01	LLD<2.14E-01	1120.45
SE-75	LLD<2.42E-01	LLD<2.42E-01	264.66
SN-113	LLD<2.88E-01	LLD<2.88E-01	391.67
SR-85	LLD<1.95E-01	LLD<1.95E-01	513.99
SR-91	LLD<3.44E-01	LLD<3.44E-01	555.60
SR-92	LLD<8.19E-02	LLD<8.19E-02	1383.94
TA-182	LLD<6.13E-01	LLD<6.13E-01	1121.30
TC-99M	LLD<1.14E-01	LLD<1.14E-01	140.51
TE-123M	LLD<1.24E-01	LLD<1.24E-01	159.00
TE-125M	LLD<3.20E+01	LLD<3.20E+01	109.27
TE-132	LLD<1.55E-01	LLD<1.55E-01	228.16
TH-228	LLD<1.08E+01	LLD<1.08E+01	84.37
TL-208	LLD<2.46E-01	LLD<2.46E-01	583.14
U-235	LLD<2.10E-01	LLD<2.10E-01	185.71
U-237	LLD<6.26E-01	LLD<6.26E-01	208.00
W-187	LLD<5.93E-01	LLD<5.93E-01	685.74
XE-131M	LLD<5.53E+00	LLD<5.53E+00	163.98
XE-133	LLD<3.98E-01	LLD<3.98E-01	81.00
XE-133M	LLD<1.36E+00	LLD<1.36E+00	233.21
XE-135	LLD<1.64E-01	LLD<1.64E-01	249.79
XE-138	LLD<1.23E+00	LLD<1.23E+00	258.41
Y-88	LLD<6.82E-02	LLD<6.82E-02	1836.06
Y-91	LLD<5.03E+01	LLD<5.03E+01	1204.90
Y-91M	LLD<2.60E-01	LLD<2.60E-01	555.60
ZN-65	LLD<5.17E-01	LLD<5.17E-01	1115.55
ZR-95	LLD<3.29E-01	LLD<3.29E-01	756.73
ZR-97	LLD<1.68E-01	LLD<1.68E-01	743.33
TOTAL	8.04E+01 +-1.28E+00	8.04E+01 +-1.28E+00	

STANDARD DEVIATION = 0.04

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.46E-09 UC/LI
TOTAL MEASURED ACTIVITY = 8.04E+01 (+-1.28E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.66	562.80	799.	10.4	3.42E+01
1138.88	568.91	1388.	8.6	5.99E+01
1604.00	801.43	592.	9.6	3.39E+01
2729.93	1364.67	137.	19.7	1.23E+01
2800.63	1400.06	56.	33.2	5.13E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.20	1460.41	167.	16.3	1.59E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM 04-SEP-90 10:26:33

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 2.0
DETECTOR NUMBER: 2 / GEOMETRY NUMBER: 42
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2872
ANALYZED BY: LDT

SAMPLE DESCRIPTION: F922
GEOMETRY DESCRIPTION:
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 26-JAN-90 AT 11:07:24

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3000. SECONDS
DEAD TIME: 00.00 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 21-OCT-88

222-S COUNTING ROOM 04-SEP-90 10:26:33

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1167.33	583.29	1.04	34.	17.	116.9	EU-154,
1B		583.37			15.	31.6	TL-208
2	2921.44	1460.26	2.33	10.	136.	18.6	K-40
2B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM 04-SEP-90 10:26:33

SAMPLE: F922
DATA COLLECTED ON 26-JAN-90 AT 11:07:24
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<1.88E-01		LLD<1.88E-01		911.07	
AG-108M	LLD<3.41E-02		LLD<3.41E-02		433.94	
AG-110M	LLD<6.00E-02		LLD<6.00E-02		657.76	
AM-241	LLD<2.45E-01		LLD<2.45E-01		59.54	
AM-243	LLD<6.72E-02		LLD<6.72E-02		74.67	
AR-41	LLD<6.30E-02		LLD<6.30E-02		1293.64	
AU-198	LLD<3.18E-02		LLD<3.18E-02		411.80	
BA-133	LLD<4.96E-02		LLD<4.96E-02		356.02	
BA-139	LLD<1.32E-01		LLD<1.32E-01		165.85	
BA-140	LLD<1.27E-01		LLD<1.27E-01		537.27	
BA-141	LLD<1.18E-01		LLD<1.18E-01		190.23	
BE-7	LLD<2.95E-01		LLD<2.95E-01		477.59	
BI-207	LLD<3.76E-02		LLD<3.76E-02		569.70	
BI-212	LLD<7.02E-01		LLD<7.02E-01		727.27	
BI-214	LLD<1.03E-01		LLD<1.03E-01		609.32	
CD-109	LLD<8.50E-01		LLD<8.50E-01		88.03	
CE-139	LLD<2.99E-02		LLD<2.99E-02		165.85	
CE-141	LLD<4.64E-02		LLD<4.64E-02		145.44	
CEPR144	LLD<3.85E-01		LLD<3.85E-01		133.51	
CO-56	LLD<3.98E-02		LLD<3.98E-02		846.76	
CO-57	LLD<2.42E-02		LLD<2.42E-02		122.06	
CO-58	LLD<4.18E-02		LLD<4.18E-02		810.75	
CO-60	LLD<5.24E-02		LLD<5.24E-02		1332.50	
CR-51	LLD<2.78E-01		LLD<2.78E-01		320.09	
CS-134	LLD<4.42E-02		LLD<4.42E-02		795.84	
CS-136	LLD<3.31E-02		LLD<3.31E-02		818.51	
CS-137	LLD<5.22E-02		LLD<5.22E-02		661.65	
CS-138	LLD<7.57E-02		LLD<7.57E-02		1435.86	
EU-152	LLD<2.75E-01		LLD<2.75E-01		1408.01	
EU-154	LLD<1.18E-01		LLD<1.18E-01		1274.45	
EU-155	LLD<1.15E-01		LLD<1.15E-01		105.31	
FE-59	LLD<7.50E-02		LLD<7.50E-02		1099.25	
HF-181	LLD<3.92E-02		LLD<3.92E-02		482.20	
HG-203	LLD<3.01E-02		LLD<3.01E-02		279.20	
I-131	LLD<3.47E-02		LLD<3.47E-02		364.48	
I-132	LLD<5.09E-02		LLD<5.09E-02		667.69	
I-133	LLD<3.45E-02		LLD<3.45E-02		529.69	
I-134	LLD<6.23E-02		LLD<6.23E-02		847.03	
I-135	LLD<1.24E-01		LLD<1.24E-01		1260.41	
K-40	LLD<1.05E+00		LLD<1.05E+00		1460.75	
KR-85	LLD<1.15E+01		LLD<1.15E+01		513.99	
KR-85M	LLD<2.88E-02		LLD<2.88E-02		151.17	
KR-87	LLD<7.26E-02		LLD<7.26E-02		402.58	
KR-89	LLD<1.34E+00		LLD<1.34E+00		220.90	
LA-140	LLD<4.24E-02		LLD<4.24E-02		1596.20	
LA-142	LLD<7.24E-02		LLD<7.24E-02		641.83	
MN-54	LLD<4.27E-02		LLD<4.27E-02		834.83	

MN-56	LLD<4.49E-02	LLD<4.49E-02	846.76
NA-22	LLD<4.18E-02	LLD<4.18E-02	1274.55
NA-24	LLD<4.84E-02	LLD<4.84E-02	1368.60
NB-94	LLD<3.15E-02	LLD<3.15E-02	702.63
NB-95	LLD<4.44E-02	LLD<4.44E-02	765.78
NB-97	LLD<6.98E-02	LLD<6.98E-02	657.92
NP-238	LLD<1.67E-01	LLD<1.67E-01	984.45
NP-239	LLD<2.00E-01	LLD<2.00E-01	277.60
PA-233	LLD<8.02E-02	LLD<8.02E-02	311.98
PA-234M	LLD<9.76E+00	LLD<9.76E+00	1001.03
PB-210	LLD<7.93E-01	LLD<7.93E-01	465.03
PB-212	LLD<6.74E-02	LLD<6.74E-02	239.00
PB-214	LLD<7.35E-02	LLD<7.35E-02	351.92
PO-210	LLD<3.32E+03	LLD<3.32E+03	804.00
PO-214	LLD<4.24E+02	LLD<4.24E+02	799.70
PO-216	LLD<2.20E+03	LLD<2.20E+03	804.90
PU-239	LLD<3.39E+02	LLD<3.39E+02	129.30
PU-241	LLD<1.08E+04	LLD<1.08E+04	148.57
RA-224	LLD<5.89E-01	LLD<5.89E-01	240.99
RA-226	LLD<6.37E-01	LLD<6.37E-01	186.10
RB-88	LLD<3.15E-01	LLD<3.15E-01	1836.00
RB-89	LLD<2.57E-01	LLD<2.57E-01	1031.88
RN-220	LLD<3.09E+01	LLD<3.09E+01	549.73
RU-103	LLD<3.62E-02	LLD<3.62E-02	497.08
RURH106	LLD<8.23E-01	LLD<8.23E-01	621.80
SB-124	LLD<3.89E-02	LLD<3.89E-02	602.72
SB-125	LLD<3.46E-01	LLD<3.46E-01	176.33
SC-46	LLD<5.86E-02	LLD<5.86E-02	1120.45
SE-75	LLD<5.24E-02	LLD<5.24E-02	264.66
SN-113	LLD<5.28E-02	LLD<5.28E-02	391.67
SR-85	LLD<5.05E-02	LLD<5.05E-02	513.99
SR-91	LLD<6.89E-02	LLD<6.89E-02	555.60
SR-92	LLD<5.79E-02	LLD<5.79E-02	1383.94
TA-182	LLD<1.89E-01	LLD<1.89E-01	1121.30
TC-99M	LLD<2.49E-02	LLD<2.49E-02	140.51
TE-123M	LLD<2.86E-02	LLD<2.86E-02	159.00
TE-125M	LLD<8.75E+00	LLD<8.75E+00	109.27
TE-132	LLD<2.80E-02	LLD<2.80E-02	228.16
TH-228	LLD<2.83E+00	LLD<2.83E+00	84.37
TL-208	LLD<4.63E-02	LLD<4.63E-02	583.14
U-235	LLD<4.24E-02	LLD<4.24E-02	185.71
U-237	LLD<1.07E-01	LLD<1.07E-01	208.00
W-187	LLD<1.07E-01	LLD<1.07E-01	685.74
XE-131M	LLD<1.23E+00	LLD<1.23E+00	163.98
XE-133	LLD<9.02E-02	LLD<9.02E-02	81.00
XE-133M	LLD<2.14E-01	LLD<2.14E-01	233.21
XE-135	LLD<2.73E-02	LLD<2.73E-02	249.79
XE-138	LLD<2.45E-01	LLD<2.45E-01	258.41
Y-88	LLD<2.99E-02	LLD<2.99E-02	1836.06
Y-91	LLD<1.60E+01	LLD<1.60E+01	1204.90
Y-91M	LLD<5.21E-02	LLD<5.21E-02	555.60
ZN-65	LLD<1.17E-01	LLD<1.17E-01	1115.55
ZR-95	LLD<6.03E-02	LLD<6.03E-02	756.73
ZR-97	LLD<4.35E-02	LLD<4.35E-02	743.33
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TOTAL	0.00E-01 +-0.00E-01	0.00E-01 +-0.00E-01	

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1167.33	583.29	17.	116.9	1.01E+00
2921.44	1460.26	136.	18.6	1.78E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
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CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                 04-SEP-90  10:19:36


                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   1     /     ADC UNIT NUMBER: 2.0
DETECTOR NUMBER:    2    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2871
ANALYZED BY:        LDT

SAMPLE DESCRIPTION: F899
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 5.0000E-02
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 26-JAN-90 AT 09:58:45

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3001. SECONDS
        DEAD TIME:     0.03 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 21-OCT-88
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222-S COUNTING ROOM 04-SEP-90 10:19:36

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1324.02	661.62	1.56	54.	2353.	4.2	CS-137
1B		661.85			36.	13.9	
2	2921.64	1460.36	1.89	10.	160.	16.9	K-40
2B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM 04-SEP-90 10:19:36

SAMPLE: F899
DATA COLLECTED ON 26-JAN-90 AT 09:58:45
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<3.84E+00		LLD<3.84E+00		911.07	
AG-108M	LLD<1.25E+00		LLD<1.25E+00		433.94	
AG-110M	LLD<7.15E+00		LLD<7.15E+00		657.76	
AM-241	LLD<7.65E+00		LLD<7.65E+00		59.54	
AM-243	LLD<1.98E+00		LLD<1.98E+00		74.67	
AR-41	LLD<1.14E+00		LLD<1.14E+00		1293.64	
AU-198	LLD<1.02E+00		LLD<1.02E+00		411.80	
BA-133	LLD<1.47E+00		LLD<1.47E+00		356.02	
BA-139	LLD<3.54E+00		LLD<3.54E+00		165.85	
BA-140	LLD<3.68E+00		LLD<3.68E+00		537.27	
BA-141	LLD<3.44E+00		LLD<3.44E+00		190.23	
BE-7	LLD<1.00E+01		LLD<1.00E+01		477.59	
BI-207	LLD<9.04E-01		LLD<9.04E-01		569.70	
BI-212	LLD<1.77E+01		LLD<1.77E+01		727.27	
BI-214	LLD<2.13E+00		LLD<2.13E+00		609.32	
CD-109	LLD<2.62E+01		LLD<2.62E+01		88.03	
CE-139	LLD<8.00E-01		LLD<8.00E-01		165.85	
CE-141	LLD<1.32E+00		LLD<1.32E+00		145.44	
CEPR144	LLD<1.09E+01		LLD<1.09E+01		133.51	
CO-56	LLD<7.73E-01		LLD<7.73E-01		846.76	
CO-57	LLD<7.77E-01		LLD<7.77E-01		122.06	
CO-58	LLD<8.77E-01		LLD<8.77E-01		810.75	
CO-60	LLD<1.05E+00		LLD<1.05E+00		1332.50	
CR-51	LLD<8.17E+00		LLD<8.17E+00		320.09	
CS-134	LLD<9.59E-01		LLD<9.59E-01		795.84	
CS-136	LLD<8.48E-01		LLD<8.48E-01		818.51	
CS-137	1.00E+02	+-4.40E+00	1.00E+02	+-4.40E+00	661.65	-0.03
CS-138	LLD<2.22E+00		LLD<2.22E+00		1435.86	
EU-152	LLD<5.21E+00		LLD<5.21E+00		1408.01	
EU-154	LLD<2.35E+00		LLD<2.35E+00		1274.45	
EU-155	LLD<3.53E+00		LLD<3.53E+00		105.31	
FE-59	LLD<1.57E+00		LLD<1.57E+00		1099.25	
HF-181	LLD<1.27E+00		LLD<1.27E+00		482.20	
HG-203	LLD<8.91E-01		LLD<8.91E-01		279.20	
I-131	LLD<1.08E+00		LLD<1.08E+00		364.48	
I-132	LLD<3.19E+00		LLD<3.19E+00		667.69	
I-133	LLD<9.52E-01		LLD<9.52E-01		529.69	
I-134	LLD<1.17E+00		LLD<1.17E+00		847.03	
I-135	LLD<2.49E+00		LLD<2.49E+00		1260.41	
K-40	LLD<2.04E+01		LLD<2.04E+01		1460.75	
KR-85	LLD<2.61E+02		LLD<2.61E+02		513.99	
KR-85M	LLD<8.30E-01		LLD<8.30E-01		151.17	
KR-87	LLD<2.35E+00		LLD<2.35E+00		402.58	
KR-89	LLD<4.03E+01		LLD<4.03E+01		220.90	
LA-140	LLD<8.48E-01		LLD<8.48E-01		1596.20	
LA-142	LLD<2.24E+00		LLD<2.24E+00		641.83	
MN-54	LLD<7.65E-01		LLD<7.65E-01		834.83	

MN-56	LLD<8.72E-01	LLD<8.72E-01	846.76
NA-22	LLD<8.36E-01	LLD<8.36E-01	1274.55
NA-24	LLD<1.03E+00	LLD<1.03E+00	1368.60
NB-94	LLD<8.06E-01	LLD<8.06E-01	702.63
NB-95	LLD<8.52E-01	LLD<8.52E-01	765.78
NB-97	LLD<8.10E+00	LLD<8.10E+00	657.92
NP-238	LLD<3.83E+00	LLD<3.83E+00	984.45
NP-239	LLD<5.45E+00	LLD<5.45E+00	277.60
PA-233	LLD<2.02E+00	LLD<2.02E+00	311.98
PA-234M	LLD<1.60E+02	LLD<1.60E+02	1001.03
PB-210	LLD<2.86E+01	LLD<2.86E+01	465.03
PB-212	LLD<1.79E+00	LLD<1.79E+00	239.00
PB-214	LLD<2.29E+00	LLD<2.29E+00	351.92
PO-210	LLD<9.36E+04	LLD<9.36E+04	804.00
PO-214	LLD<7.30E+03	LLD<7.30E+03	799.70
PO-216	LLD<4.63E+04	LLD<4.63E+04	804.90
PU-239	LLD<1.04E+04	LLD<1.04E+04	129.30
PU-241	LLD<3.32E+05	LLD<3.32E+05	148.57
RA-224	LLD<1.87E+01	LLD<1.87E+01	240.99
RA-226	LLD<1.84E+01	LLD<1.84E+01	186.10
RB-88	LLD<8.48E+00	LLD<8.48E+00	1836.00
RB-89	LLD<4.04E+00	LLD<4.04E+00	1031.88
RN-220	LLD<7.54E+02	LLD<7.54E+02	549.73
RU-103	LLD<9.63E-01	LLD<9.63E-01	497.08
RURH106	LLD<1.76E+01	LLD<1.76E+01	621.80
SB-124	LLD<8.79E-01	LLD<8.79E-01	602.72
SB-125	LLD<9.63E+00	LLD<9.63E+00	176.33
SC-46	LLD<1.14E+00	LLD<1.14E+00	1120.45
SE-75	LLD<1.31E+00	LLD<1.31E+00	264.66
SN-113	LLD<1.37E+00	LLD<1.37E+00	391.67
SR-85	LLD<1.14E+00	LLD<1.14E+00	513.99
SR-91	LLD<1.76E+00	LLD<1.76E+00	555.60
SR-92	LLD<1.60E+00	LLD<1.60E+00	1383.94
TA-182	LLD<3.71E+00	LLD<3.71E+00	1121.30
TC-99M	LLD<7.29E-01	LLD<7.29E-01	140.51
TE-123M	LLD<7.85E-01	LLD<7.85E-01	159.00
TE-125M	LLD<2.60E+02	LLD<2.60E+02	109.27
TE-132	LLD<8.16E-01	LLD<8.16E-01	228.16
TH-228	LLD<8.28E+01	LLD<8.28E+01	84.37
TL-208	LLD<1.17E+00	LLD<1.17E+00	583.14
U-235	LLD<1.21E+00	LLD<1.21E+00	185.71
U-237	LLD<3.17E+00	LLD<3.17E+00	208.00
W-187	LLD<3.15E+00	LLD<3.15E+00	685.74
XE-131M	LLD<3.43E+01	LLD<3.43E+01	163.98
XE-133	LLD<2.83E+00	LLD<2.83E+00	81.00
XE-133M	LLD<7.44E+00	LLD<7.44E+00	233.21
XE-135	LLD<8.31E-01	LLD<8.31E-01	249.79
XE-138	LLD<6.20E+00	LLD<6.20E+00	258.41
Y-88	LLD<8.05E-01	LLD<8.05E-01	1836.06
Y-91	LLD<3.98E+02	LLD<3.98E+02	1204.90
Y-91M	LLD<1.33E+00	LLD<1.33E+00	555.60
ZN-65	LLD<2.47E+00	LLD<2.47E+00	1115.55
ZR-95	LLD<1.48E+00	LLD<1.48E+00	756.73
ZR-97	LLD<8.90E-01	LLD<8.90E-01	743.33
	---	---	
TOTAL	1.00E+02 +-4.40E+00	1.00E+02 +-4.40E+00	

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 1.00E+02 (+-4.40E+00) UC/LI

% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.64	1460.36	160.	16.9	2.09E+01

9 1 1 2 1 5 3 0 9 7 3

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
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CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                  04-SEP-90  10:11:22


                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   2     /     ADC UNIT NUMBER: 1.0
DETECTOR NUMBER:    1    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1670
ANALYZED BY:        LDT

SAMPLE DESCRIPTION: F900
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 26-JAN-90 AT 11:08:59

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3002. SECONDS
        DEAD TIME:     0.07 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 23-NOV-89
EFFICIENCY CALIBRATION PERFORMED  2-MAR-89
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222-S COUNTING ROOM 04-SEP-90 10:11:22

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	95.16	47.48	2.80	147.	108.	37.4	
2	1020.78	509.88	2.93	108.	84.	42.3	RN-222,I-133,
2B		510.84			74.	27.6	TL-208,NA-22, ZN-65
3	1323.48	661.18	1.54	40.	2916.	3.7	CS-137
3B		661.82			35.	46.4	
4	2921.41	1460.51	1.86	3.	179.	15.0	K-40
4B		1461.77			182.	11.2	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0011
BACKGROUND DESCRIPTION: BK0011
BACKGROUND COLLECT STARTED ON 10-JAN-85 AT 12:00:00
BACKGROUND LIVE TIME: 6000. SECONDS

222-S COUNTING ROOM 04-SEP-90 10:11:22

SAMPLE: F900
DATA COLLECTED ON 26-JAN-90 AT 11:08:59
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<8.99E-02		LLD<8.99E-02		911.07	
AG-108M	LLD<4.57E-02		LLD<4.57E-02		433.94	
AG-110M	LLD<2.56E-01		LLD<2.56E-01		657.76	
AM-241	LLD<2.35E-01		LLD<2.35E-01		59.54	
AM-243	LLD<6.60E-02		LLD<6.60E-02		74.67	
AR-41	LLD<3.48E-02		LLD<3.48E-02		1293.64	
AU-198	LLD<3.50E-02		LLD<3.50E-02		411.80	
BA-133	LLD<6.15E-02		LLD<6.15E-02		356.02	
BA-139	LLD<1.47E-01		LLD<1.47E-01		165.85	
BA-140	LLD<1.32E-01		LLD<1.32E-01		537.27	
BA-141	LLD<1.41E-01		LLD<1.41E-01		190.23	
BE-7	LLD<3.94E-01		LLD<3.94E-01		477.59	
BI-207	LLD<3.17E-02		LLD<3.17E-02		569.70	
BI-212	LLD<4.48E-01		LLD<4.48E-01		727.27	
BI-214	LLD<9.08E-02		LLD<9.08E-02		609.32	
CD-109	LLD<9.30E-01		LLD<9.30E-01		88.03	
CE-139	LLD<3.33E-02		LLD<3.33E-02		165.85	
CE-141	LLD<5.16E-02		LLD<5.16E-02		145.44	
CEPR144	LLD<4.29E-01		LLD<4.29E-01		133.51	
CO-56	LLD<3.48E-02		LLD<3.48E-02		846.76	
CO-57	LLD<3.01E-02		LLD<3.01E-02		122.06	
CO-58	LLD<3.07E-02		LLD<3.07E-02		810.75	
CO-60	LLD<3.88E-02		LLD<3.88E-02		1332.50	
CR-51	LLD<3.32E-01		LLD<3.32E-01		320.09	
CS-134	LLD<3.21E-02		LLD<3.21E-02		795.84	
CS-136	LLD<2.53E-02		LLD<2.53E-02		818.51	
CS-137	4.47E+00	+-1.77E-01	4.47E+00	+-1.77E-01	661.65	-0.47
CS-138	LLD<6.42E-02		LLD<6.42E-02		1435.86	
EU-152	LLD<1.79E-01		LLD<1.79E-01		1408.01	
EU-154	LLD<1.17E-01		LLD<1.17E-01		1274.45	
EU-155	LLD<1.14E-01		LLD<1.14E-01		105.31	
FE-59	LLD<5.29E-02		LLD<5.29E-02		1099.25	
HF-181	LLD<4.45E-02		LLD<4.45E-02		482.20	
HG-203	LLD<3.84E-02		LLD<3.84E-02		279.20	
I-131	LLD<4.14E-02		LLD<4.14E-02		364.48	
I-132	LLD<4.74E-02		LLD<4.74E-02		667.69	
I-133	LLD<3.66E-02		LLD<3.66E-02		529.69	
I-134	LLD<4.72E-02		LLD<4.72E-02		847.03	
I-135	LLD<1.23E-01		LLD<1.23E-01		1260.41	
K-40	LLD<9.06E-01		LLD<9.06E-01		1460.75	
KR-85	LLD<1.07E+01		LLD<1.07E+01		513.99	
KR-85M	LLD<3.15E-02		LLD<3.15E-02		151.17	
KR-87	LLD<9.31E-02		LLD<9.31E-02		402.58	
KR-89	LLD<1.56E+00		LLD<1.56E+00		220.90	
LA-140	LLD<3.43E-02		LLD<3.43E-02		1596.20	
LA-142	LLD<8.49E-02		LLD<8.49E-02		641.83	
MN-54	LLD<2.72E-02		LLD<2.72E-02		834.83	

MN-56	LLD<3.93E-02	LLD<3.93E-02	846.76
NA-22	LLD<4.03E-02	LLD<4.03E-02	1274.55
NA-24	LLD<2.71E-02	LLD<2.71E-02	1368.60
NB-94	LLD<3.42E-02	LLD<3.42E-02	702.63
NB-95	LLD<2.93E-02	LLD<2.93E-02	765.78
NB-97	LLD<3.10E-01	LLD<3.10E-01	657.92
NP-238	LLD<9.37E-02	LLD<9.37E-02	984.45
NP-239	LLD<2.11E-01	LLD<2.11E-01	277.60
PA-233	LLD<9.31E-02	LLD<9.31E-02	311.98
PA-234M	LLD<6.18E+00	LLD<6.18E+00	1001.03
PB-210	LLD<1.09E+00	LLD<1.09E+00	465.03
PB-212	LLD<7.30E-02	LLD<7.30E-02	239.00
PB-214	LLD<9.76E-02	LLD<9.76E-02	351.92
PO-210	LLD<2.54E+03	LLD<2.54E+03	804.00
PO-214	LLD<3.19E+02	LLD<3.19E+02	799.70
PO-216	LLD<1.63E+03	LLD<1.63E+03	804.90
PU-239	LLD<3.86E+02	LLD<3.86E+02	129.30
PU-241	LLD<1.32E+04	LLD<1.32E+04	148.57
RA-224	LLD<8.37E-01	LLD<8.37E-01	240.99
RA-226	LLD<7.38E-01	LLD<7.38E-01	186.10
RB-88	LLD<3.16E-01	LLD<3.16E-01	1836.00
RB-89	LLD<1.44E-01	LLD<1.44E-01	1031.88
RN-220	LLD<2.87E+01	LLD<2.87E+01	549.73
RU-103	LLD<4.00E-02	LLD<4.00E-02	497.08
RURH106	LLD<6.34E-01	LLD<6.34E-01	621.80
SB-124	LLD<3.13E-02	LLD<3.13E-02	602.72
SB-125	LLD<3.97E-01	LLD<3.97E-01	176.33
SC-46	LLD<3.61E-02	LLD<3.61E-02	1120.45
SE-75	LLD<4.58E-02	LLD<4.58E-02	264.66
SN-113	LLD<5.42E-02	LLD<5.42E-02	391.67
SR-85	LLD<4.72E-02	LLD<4.72E-02	513.99
SR-91	LLD<5.84E-02	LLD<5.84E-02	555.60
SR-92	LLD<4.54E-02	LLD<4.54E-02	1383.94
TA-182	LLD<1.00E-01	LLD<1.00E-01	1121.30
TC-99M	LLD<2.76E-02	LLD<2.76E-02	140.51
TE-123M	LLD<3.01E-02	LLD<3.01E-02	159.00
TE-125M	LLD<8.52E+00	LLD<8.52E+00	109.27
TE-132	LLD<3.41E-02	LLD<3.41E-02	228.16
TH-228	LLD<2.97E+00	LLD<2.97E+00	84.37
TL-208	LLD<3.78E-02	LLD<3.78E-02	583.14
U-235	LLD<4.97E-02	LLD<4.97E-02	185.71
U-237	LLD<1.28E-01	LLD<1.28E-01	208.00
W-187	LLD<1.01E-01	LLD<1.01E-01	685.74
XE-131M	LLD<1.36E+00	LLD<1.36E+00	163.98
XE-133	LLD<1.07E-01	LLD<1.07E-01	81.00
XE-133M	LLD<3.28E-01	LLD<3.28E-01	233.21
XE-135	LLD<3.31E-02	LLD<3.31E-02	249.79
XE-138	LLD<2.50E-01	LLD<2.50E-01	258.41
Y-88	LLD<3.00E-02	LLD<3.00E-02	1836.06
Y-91	LLD<9.81E+00	LLD<9.81E+00	1204.90
Y-91M	LLD<4.42E-02	LLD<4.42E-02	555.60
ZN-65	LLD<1.00E-01	LLD<1.00E-01	1115.55
ZR-95	LLD<4.46E-02	LLD<4.46E-02	756.73
ZR-97	LLD<2.60E-02	LLD<2.60E-02	743.33
TOTAL	4.47E+00 +-1.77E-01	4.47E+00 +-1.77E-01	

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 4.47E+00 (+-1.77E-01) UC/LI

% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
95.16	47.48	108.	37.4	1.46E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1020.78	509.88	84.	42.3	3.30E+00
2921.41	1460.51	179.	15.0	1.70E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
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CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                  04-SEP-90  10:15:22


                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   2     /     ADC UNIT NUMBER: 1.0
DETECTOR NUMBER:    1    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1671
ANALYZED BY:        MAX

SAMPLE DESCRIPTION: F925
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 5.0000E-02
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 26-JAN-90 AT 13:36:26

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3006. SECONDS
        DEAD TIME:     0.20 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 23-NOV-89
EFFICIENCY CALIBRATION PERFORMED  2-MAR-89
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222-S COUNTING ROOM 04-SEP-90 10:15:22

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1126.71	562.83	1.29	570.	713.	10.0	CS-134, EU-152
2C	1138.91	568.92	1.29	547.	1250.	9.1	CS-134, BI-207
3	1209.62	604.26	1.47	603.	8025.	2.4	CS-134
4C	1323.47	661.17	1.44	375.	13922.	1.8	CS-137
4B		661.82			35.	46.4	
5C	1591.77	795.31	1.57	288.	5744.	3.0	CS-134
6C	1603.95	801.40	1.57	303.	589.	7.8	CS-134
7	2346.29	1172.69	1.81	201.	5283.	2.8	CO-60
8	2664.69	1332.02	1.90	26.	4796.	2.9	CO-60
9	2729.71	1364.56	1.59	21.	158.	18.1	CS-134
10	2801.22	1400.36	2.06	8.	66.	27.8	BI-214
11	2921.06	1460.34	2.21	5.	206.	14.1	K-40
11B		1461.77			182.	11.2	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0011
BACKGROUND DESCRIPTION: BK0011
BACKGROUND COLLECT STARTED ON 10-JAN-85 AT 12:00:00
BACKGROUND LIVE TIME: 6000. SECONDS

222-S COUNTING ROOM 04-SEP-90 10:15:22

SAMPLE: F925
DATA COLLECTED ON 26-JAN-90 AT 13:36:26
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<7.62E+00		LLD<7.62E+00		911.07	
AG-108M	LLD<2.30E+00		LLD<2.30E+00		433.94	
AG-110M	LLD<1.13E+01		LLD<1.13E+01		657.76	
AM-241	LLD<1.01E+01		LLD<1.01E+01		59.54	
AM-243	LLD<2.57E+00		LLD<2.57E+00		74.67	
AR-41	LLD<1.50E+00		LLD<1.50E+00		1293.64	
AU-198	LLD<2.04E+00		LLD<2.04E+00		411.80	
BA-133	LLD<3.03E+00		LLD<3.03E+00		356.02	
BA-139	LLD<6.16E+00		LLD<6.16E+00		165.85	
BA-140	LLD<8.01E+00		LLD<8.01E+00		537.27	
BA-141	LLD<6.12E+00		LLD<6.12E+00		190.23	
BE-7	LLD<2.09E+01		LLD<2.09E+01		477.59	
BI-207	LLD<1.98E+00		LLD<1.98E+00		569.70	
BI-212	LLD<2.69E+01		LLD<2.69E+01		727.27	
BI-214	LLD<9.38E+00		LLD<9.38E+00		609.32	
CD-109	LLD<3.80E+01		LLD<3.80E+01		88.03	
CE-139	LLD<1.39E+00		LLD<1.39E+00		165.85	
CE-141	LLD<2.12E+00		LLD<2.12E+00		145.44	
CEPR144	LLD<1.77E+01		LLD<1.77E+01		133.51	
CO-56	LLD<1.85E+00		LLD<1.85E+00		846.76	
CO-57	LLD<1.16E+00		LLD<1.16E+00		122.06	
CO-58	LLD<1.78E+00		LLD<1.78E+00		810.75	
CO-60	2.28E+02	+-6.95E+00	2.28E+02	+-6.95E+00	1332.50	-0.48
					1173.24	-0.54
CR-51	LLD<1.61E+01		LLD<1.61E+01		320.09	
CS-134	2.07E+02	+-6.73E+00	2.07E+02	+-6.73E+00	795.84	-0.53
					604.70	-0.43
CS-136	LLD<1.83E+00		LLD<1.83E+00		818.51	
CS-137	4.31E+02	+-9.45E+00	4.31E+02	+-9.45E+00	661.65	-0.48
CS-138	LLD<1.07E+00		LLD<1.07E+00		1435.86	
EU-152	LLD<3.74E+00		LLD<3.74E+00		1408.01	
EU-154	LLD<3.63E+00		LLD<3.63E+00		1274.45	
EU-155	LLD<4.48E+00		LLD<4.48E+00		105.31	
FE-59	LLD<4.14E+00		LLD<4.14E+00		1099.25	
HF-181	LLD<2.27E+00		LLD<2.27E+00		482.20	
HG-203	LLD<1.81E+00		LLD<1.81E+00		279.20	
I-131	LLD<2.35E+00		LLD<2.35E+00		364.48	
I-132	LLD<2.10E+00		LLD<2.10E+00		667.69	
I-133	LLD<2.25E+00		LLD<2.25E+00		529.69	
I-134	LLD<2.68E+00		LLD<2.68E+00		847.03	
I-135	LLD<4.50E+00		LLD<4.50E+00		1260.41	
K-40	LLD<1.83E+01		LLD<1.83E+01		1460.75	
KR-85	LLD<4.65E+02		LLD<4.65E+02		513.99	
KR-85M	LLD<1.35E+00		LLD<1.35E+00		151.17	
KR-87	LLD<5.09E+00		LLD<5.09E+00		402.58	
KR-89	LLD<7.67E+01		LLD<7.67E+01		220.90	
LA-140	LLD<9.43E-01		LLD<9.43E-01		1596.20	

LA-142	LLD<4.47E+00	LLD<4.47E+00	641.83
MN-54	LLD<1.87E+00	LLD<1.87E+00	834.83
MN-56	LLD<2.08E+00	LLD<2.08E+00	846.76
NA-22	LLD<1.08E+00	LLD<1.08E+00	1274.55
NA-24	LLD<2.46E+00	LLD<2.46E+00	1368.60
NB-94	LLD<1.67E+00	LLD<1.67E+00	702.63
NB-95	LLD<1.70E+00	LLD<1.70E+00	765.78
NB-97	LLD<1.37E+01	LLD<1.37E+01	657.92
NP-238	LLD<8.38E+00	LLD<8.38E+00	984.45
NP-239	LLD<1.06E+01	LLD<1.06E+01	277.60
PA-233	LLD<4.84E+00	LLD<4.84E+00	311.98
PA-234M	LLD<3.93E+02	LLD<3.93E+02	1001.03
PB-210	LLD<5.40E+01	LLD<5.40E+01	465.03
PB-212	LLD<3.45E+00	LLD<3.45E+00	239.00
PB-214	LLD<5.18E+00	LLD<5.18E+00	351.92
PO-210	LLD<2.02E+05	LLD<2.02E+05	804.00
PO-214	LLD<8.10E+04	LLD<8.10E+04	799.70
PO-216	LLD<1.67E+05	LLD<1.67E+05	804.90
PU-239	LLD<1.55E+04	LLD<1.55E+04	129.30
PU-241	LLD<5.48E+05	LLD<5.48E+05	148.57
RA-224	LLD<3.69E+01	LLD<3.69E+01	240.99
RA-226	LLD<3.33E+01	LLD<3.33E+01	186.10
RB-88	LLD<7.19E+00	LLD<7.19E+00	1836.00
RB-89	LLD<1.08E+01	LLD<1.08E+01	1031.88
RN-220	LLD<1.68E+03	LLD<1.68E+03	549.73
RU-103	LLD<2.15E+00	LLD<2.15E+00	497.08
RURH106	LLD<3.59E+01	LLD<3.59E+01	621.80
SB-124	LLD<2.66E+00	LLD<2.66E+00	602.72
SB-125	LLD<1.72E+01	LLD<1.72E+01	176.33
SC-46	LLD<2.31E+00	LLD<2.31E+00	1120.45
SE-75	LLD<2.51E+00	LLD<2.51E+00	264.66
SN-113	LLD<2.92E+00	LLD<2.92E+00	391.67
SR-85	LLD<2.04E+00	LLD<2.04E+00	513.99
SR-91	LLD<3.61E+00	LLD<3.61E+00	555.60
SR-92	LLD<9.07E-01	LLD<9.07E-01	1383.94
TA-182	LLD<6.30E+00	LLD<6.30E+00	1121.30
TC-99M	LLD<1.18E+00	LLD<1.18E+00	140.51
TE-123M	LLD<1.28E+00	LLD<1.28E+00	159.00
TE-125M	LLD<3.39E+02	LLD<3.39E+02	109.27
TE-132	LLD<1.61E+00	LLD<1.61E+00	228.16
TH-228	LLD<1.14E+02	LLD<1.14E+02	84.37
TL-208	LLD<2.48E+00	LLD<2.48E+00	583.14
U-235	LLD<2.20E+00	LLD<2.20E+00	185.71
U-237	LLD<6.35E+00	LLD<6.35E+00	208.00
W-187	LLD<5.36E+00	LLD<5.36E+00	685.74
XE-131M	LLD<5.88E+01	LLD<5.88E+01	163.98
XE-133	LLD<4.13E+00	LLD<4.13E+00	81.00
XE-133M	LLD<1.44E+01	LLD<1.44E+01	233.21
XE-135	LLD<1.68E+00	LLD<1.68E+00	249.79
XE-138	LLD<1.25E+01	LLD<1.25E+01	258.41
Y-88	LLD<6.82E-01	LLD<6.82E-01	1836.06
Y-91	LLD<5.14E+02	LLD<5.14E+02	1204.90
Y-91M	LLD<2.73E+00	LLD<2.73E+00	555.60
ZN-65	LLD<4.63E+00	LLD<4.63E+00	1115.55
ZR-95	LLD<3.35E+00	LLD<3.35E+00	756.73
ZR-97	LLD<1.72E+00	LLD<1.72E+00	743.33
TOTAL	8.66E+02 +-1.35E+01	8.66E+02 +-1.35E+01	

STANDARD DEVIATION = 0.04

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.54E-09 UC/LI
TOTAL MEASURED ACTIVITY = 8.66E+02 (+-1.35E+01) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.71	562.83	713.	10.0	3.05E+01
1138.91	568.92	1250.	9.1	5.40E+01
1603.95	801.40	589.	7.8	3.38E+01
2729.71	1364.56	158.	18.1	1.42E+01
2801.22	1400.36	66.	27.8	6.03E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.06	1460.34	206.	14.1	1.95E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                 04-SEP-90  10:30:53


                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   1     /     ADC UNIT NUMBER: 2.0
DETECTOR NUMBER:    2    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2873
ANALYZED BY:        MAX

SAMPLE DESCRIPTION: F926
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 5.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 26-JAN-90 AT 13:38:21

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3006. SECONDS
        DEAD TIME:     0.20 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 21-OCT-88
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222-S COUNTING ROOM 04-SEP-90 10:30:53

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1127.26	563.26	1.59	571.	571.	13.0	CS-134, EU-152
2C	1139.41	569.33	1.59	550.	1018.	11.0	CS-134, BI-207
3	1210.24	604.74	1.56	538.	6009.	2.8	CS-134
4	1324.02	661.62	1.61	411.	9135.	2.2	CS-137
4B		661.85			36.	13.9	
5C	1592.20	795.70	1.70	294.	4266.	3.8	CS-134
6C	1604.37	801.78	1.70	287.	428.	14.5	CS-134
7	2346.50	1172.80	1.99	275.	3765.	3.5	CO-60
8	2664.92	1332.01	2.09	36.	3542.	3.3	CO-60
8B		1332.24			9.	37.4	
9	2730.60	1364.85	1.63	14.	120.	20.8	CS-134
10	2921.58	1460.33	2.19	18.	162.	17.8	K-40
10B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM 04-SEP-90 10:30:53

SAMPLE: F926
DATA COLLECTED ON 26-JAN-90 AT 13:38:21
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<1.14E+00		LLD<1.14E+00		911.07	
AG-108M	LLD<2.89E-01		LLD<2.89E-01		433.94	
AG-110M	LLD<1.42E+00		LLD<1.42E+00		657.76	
AM-241	LLD<1.32E+00		LLD<1.32E+00		59.54	
AM-243	LLD<3.44E-01		LLD<3.44E-01		74.67	
AR-41	LLD<1.87E-01		LLD<1.87E-01		1293.64	
AU-198	LLD<2.57E-01		LLD<2.57E-01		411.80	
BA-133	LLD<3.45E-01		LLD<3.45E-01		356.02	
BA-139	LLD<7.18E-01		LLD<7.18E-01		165.85	
BA-140	LLD<1.02E+00		LLD<1.02E+00		537.27	
BA-141	LLD<7.26E-01		LLD<7.26E-01		190.23	
BE-7	LLD<2.43E+00		LLD<2.43E+00		477.59	
BI-207	LLD<2.58E-01		LLD<2.58E-01		569.70	
BI-212	LLD<3.80E+00		LLD<3.80E+00		727.27	
BI-214	LLD<2.00E+00		LLD<2.00E+00		609.32	
CD-109	LLD<4.44E+00		LLD<4.44E+00		88.03	
CE-139	LLD<1.62E-01		LLD<1.62E-01		165.85	
CE-141	LLD<2.60E-01		LLD<2.60E-01		145.44	
CEPR144	LLD<2.12E+00		LLD<2.12E+00		133.51	
CO-56	LLD<2.69E-01		LLD<2.69E-01		846.76	
CO-57	LLD<1.34E-01		LLD<1.34E-01		122.06	
CO-58	LLD<2.47E-01		LLD<2.47E-01		810.75	
CO-60	2.32E+01	+-8.27E-01	2.32E+01	+-8.27E-01	1332.50	-0.49
					1173.24	-0.43
CR-51	LLD<1.96E+00		LLD<1.96E+00		320.09	
CS-134	2.15E+01	+-8.53E-01	2.15E+01	+-8.53E-01	795.84	-0.15
					604.70	0.05
CS-136	LLD<2.60E-01		LLD<2.60E-01		818.51	
CS-137	3.93E+01	+-9.81E-01	3.93E+01	+-9.81E-01	661.65	-0.03
CS-138	LLD<2.50E-01		LLD<2.50E-01		1435.86	
EU-152	LLD<6.78E-01		LLD<6.78E-01		1408.01	
EU-154	LLD<4.85E-01		LLD<4.85E-01		1274.45	
EU-155	LLD<6.07E-01		LLD<6.07E-01		105.31	
FE-59	LLD<5.62E-01		LLD<5.62E-01		1099.25	
HF-181	LLD<2.93E-01		LLD<2.93E-01		482.20	
HG-203	LLD<2.08E-01		LLD<2.08E-01		279.20	
I-131	LLD<2.67E-01		LLD<2.67E-01		364.48	
I-132	LLD<6.51E-01		LLD<6.51E-01		667.69	
I-133	LLD<2.66E-01		LLD<2.66E-01		529.69	
I-134	LLD<4.14E-01		LLD<4.14E-01		847.03	
I-135	LLD<6.96E-01		LLD<6.96E-01		1260.41	
K-40	LLD<2.21E+00		LLD<2.21E+00		1460.75	
KR-85	LLD<5.96E+01		LLD<5.96E+01		513.99	
KR-85M	LLD<1.68E-01		LLD<1.68E-01		151.17	
KR-87	LLD<5.82E-01		LLD<5.82E-01		402.58	
KR-89	LLD<8.62E+00		LLD<8.62E+00		220.90	
LA-140	LLD<1.33E-01		LLD<1.33E-01		1596.20	

LA-142	LLD<5.92E-01	LLD<5.92E-01	641.83
MN-54	LLD<2.60E-01	LLD<2.60E-01	834.83
MN-56	LLD<3.03E-01	LLD<3.03E-01	846.76
NA-22	LLD<1.72E-01	LLD<1.72E-01	1274.55
NA-24	LLD<2.04E-01	LLD<2.04E-01	1368.60
NB-94	LLD<2.20E-01	LLD<2.20E-01	702.63
NB-95	LLD<2.30E-01	LLD<2.30E-01	765.78
NB-97	LLD<1.61E+00	LLD<1.61E+00	657.92
NP-238	LLD<1.13E+00	LLD<1.13E+00	984.45
NP-239	LLD<1.33E+00	LLD<1.33E+00	277.60
PA-233	LLD<4.97E-01	LLD<4.97E-01	311.98
PA-234M	LLD<5.12E+01	LLD<5.12E+01	1001.03
PB-210	LLD<6.21E+00	LLD<6.21E+00	465.03
PB-212	LLD<3.98E-01	LLD<3.98E-01	239.00
PB-214	LLD<5.59E-01	LLD<5.59E-01	351.92
PO-210	LLD<2.35E+04	LLD<2.35E+04	804.00
PO-214	LLD<1.03E+04	LLD<1.03E+04	799.70
PO-216	LLD<1.83E+04	LLD<1.83E+04	804.90
PU-239	LLD<1.93E+03	LLD<1.93E+03	129.30
PU-241	LLD<6.20E+04	LLD<6.20E+04	148.57
RA-224	LLD<4.16E+00	LLD<4.16E+00	240.99
RA-226	LLD<3.93E+00	LLD<3.93E+00	186.10
RB-88	LLD<8.49E-01	LLD<8.49E-01	1836.00
RB-89	LLD<1.41E+00	LLD<1.41E+00	1031.88
RN-220	LLD<2.34E+02	LLD<2.34E+02	549.73
RU-103	LLD<2.49E-01	LLD<2.49E-01	497.08
RURH106	LLD<4.90E+00	LLD<4.90E+00	621.80
SB-124	LLD<4.86E-01	LLD<4.86E-01	602.72
SB-125	LLD<2.03E+00	LLD<2.03E+00	176.33
SC-46	LLD<3.26E-01	LLD<3.26E-01	1120.45
SE-75	LLD<3.07E-01	LLD<3.07E-01	264.66
SN-113	LLD<3.69E-01	LLD<3.69E-01	391.67
SR-85	LLD<2.62E-01	LLD<2.62E-01	513.99
SR-91	LLD<4.59E-01	LLD<4.59E-01	555.60
SR-92	LLD<1.47E-01	LLD<1.47E-01	1383.94
TA-182	LLD<8.84E-01	LLD<8.84E-01	1121.30
TC-99M	LLD<1.38E-01	LLD<1.38E-01	140.51
TE-123M	LLD<1.57E-01	LLD<1.57E-01	159.00
TE-125M	LLD<4.28E+01	LLD<4.28E+01	109.27
TE-132	LLD<1.81E-01	LLD<1.81E-01	228.16
TH-228	LLD<1.42E+01	LLD<1.42E+01	84.37
TL-208	LLD<3.23E-01	LLD<3.23E-01	583.14
U-235	LLD<2.61E-01	LLD<2.61E-01	185.71
U-237	LLD<7.44E-01	LLD<7.44E-01	208.00
W-187	LLD<8.46E-01	LLD<8.46E-01	685.74
XE-131M	LLD<6.89E+00	LLD<6.89E+00	163.98
XE-133	LLD<4.98E-01	LLD<4.98E-01	81.00
XE-133M	LLD<1.64E+00	LLD<1.64E+00	233.21
XE-135	LLD<1.89E-01	LLD<1.89E-01	249.79
XE-138	LLD<1.41E+00	LLD<1.41E+00	258.41
Y-88	LLD<8.05E-02	LLD<8.05E-02	1836.06
Y-91	LLD<7.12E+01	LLD<7.12E+01	1204.90
Y-91M	LLD<3.47E-01	LLD<3.47E-01	555.60
ZN-65	LLD<7.13E-01	LLD<7.13E-01	1115.55
ZR-95	LLD<4.21E-01	LLD<4.21E-01	756.73
ZR-97	LLD<2.38E-01	LLD<2.38E-01	743.33
TOTAL	8.40E+01 +-1.54E+00	8.40E+01 +-1.54E+00	

STANDARD DEVIATION = 0.24

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.46E-09 UC/LI
TOTAL MEASURED ACTIVITY = 8.40E+01 (+-1.54E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1127.26	563.26	571.	13.0	3.37E+01
1139.41	569.33	1018.	11.0	6.06E+01
1604.37	801.78	428.	14.5	3.43E+01
2730.60	1364.85	120.	20.8	1.48E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.58	1460.33	162.	17.8	2.12E+01

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Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Uranium Analysis

Instrument	WA77344
Procedure / Rev	LA-925-106/A-1
Technologist	R. D. Hale
Date	01-26-90
Temperature	24 C
Starting Time	10:00
Ending Time	11:00
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Inital LMCS Check Std	F0897
2	Reagent Blank	F0922
3	Sample Composite 5	F0899
4	Duplicate Composite 5	F0900
5	Sample Composite 6	F0923
6	Duplicate Composite 6	F0924
7	Spike Composite 6	F0925
8	Final LMCS Check Std	F0926
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58B38/100 uL			5.7 mL
Spike	58B38/100 uL	F0899/100 uL		5.8 mL

Prepared by: D.K. Sato (Signature) D. Sato (Printed Name) Date: 08-05-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-05-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev E 4/04/90 SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: Core 5 Composite

Instrument	WB39939
Procedure / Rev	LA-505-151/A-0
Technologist	J. A. White
Date	April 19, 1990
Temperature	70 F
Starting Time	07:47
Ending Time	15:00
Chemist	S. A. Jones

ICP analysis of Core 5 composite sample.
Fusion Dissolution.
Only data directly related to the analysis of this sample will be included in this package.
No inter-element corrections were made on this data.

	Description	Lab. Id.
1	Initial LMCS Check Std.	na
2	Digested Std. (81C11A)	F1083
3	Reagent Blank	F1084
4	Sample Comp. Core 13	F1085
5	Duplicate Core 13	F1086
6	Spike of F1085	F1087
7	Digested Std. (82C11A)	F1088
8	LMCS Check Std.	na
9	Sample Comp. Core 5	F0899
10	Duplicate Core 5	F0900
11	Acid Blank	na

	Description	Lab. Id.
12	Sample 89-043	F0068
13	Duplicate of 89-043	F0069
14	Sample 89-044	F0092
15	Duplicate of 89-044	F0093
16	LMCS Check Std.	na
17	Sample 89-047	F0140
18	Duplicate of 89-047	F0141
19	Sample 89-048	F0164
20	Duplicate of 89-048	F0165
21	Sample Comp. Core 8	F0959
22	Duplicate of Core 8	F0960

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std.	78C11J/1.0mL	82B38F/1.0mL	77C11I/1.0mL	11.0 mL
Digested LMCS (1)	81C11A/5.0mL			50.0 mL
Digested LMCS (2)	82C11A/5.0mL			50.0 mL
Spike F1087	34C11CO/5.mL	34C11CK/5.0mL	F1085/0.5143g	50.0 mL

Prepared by: [signature] Signature — H. S. Rich Printed Name — Date: May 22, 1990

Verified by: Carry M Seidel Signature — C. M. Seidel Printed Name — Date: May 22, 1990

Approved by: [signature] Signature — L.H. Taylor Printed Name — Date: 9-17-90

SST-102 Rev E 4/04/90 Interim

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	WB39939
Procedure / Rev	LA-505-151/A-0
Technologist	J. A. White
Date	April 19, 1990
Temperature	70 F
Starting Time	07:47
Ending Time	15:00
Chemist	S. A. Jones

ICP analysis of Core 5 Composite sample.

Fusion Dissolution

Only data directly related to the analysis of Core 5 Composite will be included in this package.

No inter-element corrections were made on this data.

	Description	Lab. Id.
1	Initial LMCS Check Std.	N/A
2	Sample Composite 15	F1037
3	Duplicate Composite 15	F1038
4	Final LMCS Check Std.	N/A
5		
6		
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std.	78C11J/1.0mL	82B38F/1.0mL	77C11I/1.0mL	11.0 mL
Digested LMCS (1)	81C11A/5.0mL			50.0 mL
Digested LMCS (2)	82C11A/5.0mL			50.0 mL
Spike F1087	34C11CO/5.mL	34C11CK/5.0mL	F1085/0.5143g	50.0 mL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 07/31/90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 07/31/90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

SST-102 Rev.E 4/04/90 Interim

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ICP Results — Raw Data Summary

Date Analyzed:	April 19, 1990	Acid Digested LMCS Standard	F1083
Procedure:	LA-505-151/A-0	Reagent Blank	F1084
Analyst:	J. A. White	Core 5 Composite	F0899
Digestion	Fusion Dissolution	Duplicate of Core 5 Composite	F0900
Procedure:	LA-505-159/A-0	Acid Digested LMCS Standard	F1088

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	100.37%		0.07 LT	114001	110726	NOT CALC.	100.63%	100.81%
Antimony	105.91%		-0.01 LT	324 LT	1296			102.57%
Arsenic	115.53% #		-0.02 LT	-27 LT	97 LT			115.75% #
Barium	104.16%		-0.01 LT	-31 LT	19 LT	103.28%	92.28%	102.53%
Beryllium	98.38%		0.00 LT	0 LT	4 LT			97.50%
Bismuth	108.36%	102.12%	-0.01 LT	37270	42211	NOT CALC.		106.64%
Boron	101.73%	94.43%	0.03	82 LT	110	134.81%		99.43%
Cadmium	100.12%	93.46%	0.00 LT	-45 LT	-18 LT	89.32%		97.72%
Calcium	106.89%	102.58%	0.09	4383	2660	146.72%		105.03%
Cerium	91.75%		-0.31 LT	-2522 LT	-340 LT	15.40%	88.66%	88.57% #
Chromium	95.51%		-0.03 LT	581	668	235.92%	84.79%	93.30%
Cobalt	97.27%		0.02 LT	134 LT	394	85.08%	86.00%	93.22%
Copper	105.17%	99.09%	-0.01 LT	-96 LT	35 LT	100.71%		103.36%
Europium	98.92%		-0.01 LT	-47 LT	-10 LT			97.72%
Iron	103.46%		0.03	17334	17280	NOT CALC.	94.41%	101.50%
Lanthanum	94.12%	91.05%	-0.02 LT	-128 LT	159 LT	89.51%		92.92%
Lead	106.64%	99.04%	0.01 LT	469	1810	93.18%		104.61%
Lithium	106.08%		-0.01 LT	-106 LT	-24 LT	91.11%	93.39%	103.61%
Magnesium	104.79%	97.56%	0.02	8244	6735	4138.61%		102.45%
Manganese	102.81%		0.01	5067	4794	NOT CALC.	92.70%	100.65%
Mercury	102.27%		-0.05 LT	2352 LT	-148 LT			101.94%
Molybdenum	97.14%	93.73%	0.00 LT	-22 LT	43 LT	85.72%		97.14%
Neodymium	90.76%		-0.64 LT	-5319 LT	-4991 LT	NOT CALC.	77.36%	87.52% #
Nickel	101.54%		-0.01 LT	7346	7174	98.98%	92.68%	99.05%
Phosphorous	115.73% #	93.37%	0.11	23097	24394	NOT CALC.		118.51% #
Samarium	99.36%		-0.35 LT	-2959 LT	-572 LT			96.54%
Selenium	105.01%		-0.06 LT	61 LT	948			104.86%
Silicon	90.40%	75.18%	0.63	30708	9346	-114.70%		90.53%
Silver	107.97%		-0.02 LT	-157 LT	-13 LT	53.52%		106.46%
Sodium	102.01%	94.66%	0.06 LT	144203	142135	NOT CALC.		100.05%
Strontium	105.80%	100.02%	0.00 LT	637	687	86.77%		104.01%
Sulfur	106.08%		0.03	1327	1846			107.95%
Tantalum	96.38%		-0.04 LT	-343 LT	-10 LT	27.57%	73.62%	96.12%
Thallium	105.99%		-0.33 LT	-1490 LT	-626 LT			106.22%
Thorium	106.38%		-0.18 LT	-1410 LT	-46 LT			104.74%
Tin	100.85%		0.02 LT	-16 LT	145 LT	102.74%	93.54%	98.35%
Titanium	100.86%		0.13	-80 LT	10 LT	90.61%	92.17%	101.40%
Tungsten	83.72% #		-0.02 LT	-22 LT	132 LT			83.88% #
Uranium	106.74%		-2.40 LT	-12925 LT	414 LT			103.29%
Vanadium	99.32%		-0.02 LT	-75 LT	-41 LT			100.05%
Zinc	100.91%	93.05%	0.23	7124	4492	66.80%		98.82%
Zirconium	101.51%		-0.04 LT	-90 LT	111 LT	46.04%	93.47%	100.46%

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated
Instrument Standards Outside Control Limits

ICP Results Raw Data Report

Date Analyzed:	April 19, 1990	Acid Digested LMCS Standard	F1083
Procedure:	LA-505-151/A-0	Reagent Blank	F1084
Analyst:	J. A. White	Core 5 Composite	F0899
Digestion	Fusion Dissolution	Duplicate of Core 5 Composite	F0900
Procedure:	LA-505-159/A-0	Acid Digested LMCS Standard	F1088

	SST-1	SST-2	SST-3	Starting LMCS Standard Instrument Standard ppm	Recovery %		LMCS Acid Digestion Standard ppm	Acid Digestion Standard Recovery %	Reagent Blank ppm	Digestion Weight Volume Sample Dilution Three ppm
Aluminum				50.18	100.37%				0.07 LT	
Antimony	10.59				105.91%				-0.01 LT	
Arsenic				57.77	115.53%	#			-0.02 LT	
Barium	10.42				104.16%				-0.01 LT	
Beryllium				9.84	98.38%				0.00 LT	
Bismuth		54.29			108.36%		10.21	102.12%	-0.01 LT	
Boron	10.17				101.73%		9.44	94.43%	0.03	
Cadmium	10.01				100.12%		9.35	93.46%	0.00 LT	
Calcium	10.69				106.89%		10.26	102.58%	0.09	
Cerium	9.18				91.75%				-0.31 LT	
Chromium	9.55				95.51%				-0.03 LT	
Cobalt	9.73				97.27%				0.02 LT	
Copper	10.52				105.17%		9.91	99.09%	-0.01 LT	
Europium		9.89			98.92%				-0.01 LT	
Iron	10.35				103.46%				0.03	
Lanthanum		47.15			94.12%		9.11	91.05%	-0.02 LT	
Lead		53.43			106.64%		9.90	99.04%	0.01 LT	
Lithium	10.61				106.08%				-0.01 LT	
Magnesium	10.48				104.79%		9.76	97.56%	0.02	
Manganese	10.28				102.81%				0.01	
Mercury				25.57	102.27%				-0.05 LT	
Molybdenum				48.57	97.14%		9.35	93.73%	0.00 LT	
Neodymium	9.08				90.76%				-0.64 LT	
Nickel	10.15				101.54%				-0.01 LT	
Phosphorous				57.86	115.73%	#	9.34	93.37%	0.11	
Potassium	24.91				99.66%		8.27	82.65%	-0.53 LT	
Samarium		9.94			99.36%				-0.35 LT	
Selenium				52.51	105.01%				-0.06 LT	
Silicon				45.20	90.40%		7.52	75.18%	0.63	
Silver		10.80			107.97%		7.42		-0.02 LT	
Sodium	25.50				102.01%		9.47	94.66%	0.06 LT	
Strontium	10.58				105.80%		10.00	100.02%	0.00 LT	
Sulfur				53.04	106.08%				0.03	
Tantalum				48.19	96.38%				-0.04 LT	
Thallium				53.00	105.99%				-0.33 LT	
Thorium		53.29			106.38%				-0.18 LT	
Tin	50.43				100.85%				0.02 LT	
Titanium				50.43	100.86%				0.13	
Tungsten				20.93	83.72%	#			-0.02 LT	
Uranium		53.48			106.74%				-2.40 LT	
Vanadium				9.93	99.32%				-0.02 LT	
Zinc	10.09				100.91%		9.31	93.05%	0.23	
Zirconium				50.76	101.51%				-0.04 LT	
Dilution Factor	1.00	1.00	1.00				10.00		1.00	1.00

ICP Results Raw Data Report

	0.5091 g 200.00 mL Sample Dilution Two ppm	0.00255 Sample Dilution One ppm	Digestion Weight Volume Sample Duplicate Dilution Three ppm	0.4777 g 200.00 mL Sample Duplicate Dilution Two ppm	0.00239 Sample Duplicate Dilution One ppm	Digestion Weight Volume Spike of Sample Dilution Three ppm	0.5143 g 50.00 mL Spike of Sample Dilution Two ppm	0.01029 Spike of Sample Dilution One ppm	Spike Recovery %
Aluminum	290.19	259.16		264.47	249.65		507.09	473.99	NOT CALC.
Antimony	13.40	0.83 LT		14.89	3.10		13.40	14.24	
Arsenic	1.22	-0.07 LT		1.41	0.23 LT		-0.58	1.02	
Barium	-0.22	-0.08 LT		0.14	0.05 LT		10.83	10.57	103.28%
Beryllium	0.11	0.00 LT		0.09	0.01 LT		0.02	0.03	
Bismuth	94.87	85.00		100.82	95.23		160.79	176.36	NOT CALC.
Boron	4.99	0.21 LT		1.93	0.26		14.10	10.25	134.81%
Cadmium	-0.16	-0.12 LT		-0.12	-0.04 LT		9.00	10.03	89.32%
Calcium	11.16	7.57		6.35	4.20		20.40	14.91	146.72%
Cerium	-8.40	-6.42 LT		5.75	-0.81 LT		-30.01	1.54 LT	15.40%
Chromium	-1.16	1.48		-1.16	1.60		30.54	19.37	235.92%
Cobalt	2.01	0.34 LT		5.53	0.94		8.30	9.83	85.08%
Copper	-0.13	-0.24 LT		0.47	0.08 LT		9.26	10.82	100.71%
Europium	-0.21	-0.12 LT		0.06	-0.03 LT		-0.57	0.04 LT	
Iron	44.12	39.29		41.27	38.83		218.35	212.56	NOT CALC.
Lanthanum	1.43	-0.33 LT		2.08	0.38 LT		7.16	9.85	89.51%
Lead	17.21	1.19		12.19	4.32		17.21	20.87	93.18%
Lithium	0.00	-0.27 LT		0.22	-0.06 LT		9.24	10.65	91.11%
Magnesium	20.99	2.71		16.09	1.86		416.09	37.95	4138.61%
Manganese	12.90	11.34		11.45	10.94		56.88	57.54	NOT CALC.
Mercury	5.99	-0.41 LT		-1.52	-0.35 LT		-2.46	-0.27 LT	
Molybdenum	0.46	-0.06 LT		0.42	0.10 LT		8.93	9.87	85.72%
Neodymium	-56.38	-13.54 LT		-40.19	-11.92 LT		-66.75	0.47 LT	NOT CALC.
Nickel	18.70	16.86		17.13	15.97		9.91	11.36	98.98%
Phosphorous	58.79	47.64		58.26	47.30		116.71	118.22	NOT CALC.
Potassium	NA	NA		NA	NA		-34.01	9.41	73.37%
Samarium	-10.02	-7.53 LT		8.02	-1.37 LT		-36.47	0.62 LT	
Selenium	4.87	0.16 LT		7.44	2.26		7.17	9.37	
Silicon	78.17	22.15		30.06	22.32		42.19	25.60	-114.70%
Silver	-0.36	-0.40 LT		0.63	-0.03 LT		4.89	5.71	53.52%
Sodium	367.07	334.18		339.49	326.50		838.67	827.74	NOT CALC.
Strontium	1.62	1.45		1.64	1.45		14.46	14.97	86.77%
Sulfur	6.23	3.38		7.46	4.41		67.98	12.69	
Tantalum	-0.50	-0.87 LT		1.01	-0.02 LT		-0.70	3.53	27.57%
Thallium	-13.36	-3.79 LT		15.41	-1.50 LT		-18.49	7.30	
Thorium	-3.45	-3.59 LT		9.82	-0.11 LT		-19.12	2.21	
Tin	0.73	-0.04 LT		1.06	0.35 LT		14.05	10.97	102.74%
Titanium	-0.18	-0.20 LT		0.30	0.02 LT		9.35	9.90	90.61%
Tungsten	0.80	-0.06 LT		1.25	0.32 LT		-2.06	1.00	
Uranium	-52.27	-32.90 LT		39.91	0.99 LT		-175.80	60.96	
Vanadium	-0.52	-0.19 LT		0.96	-0.10 LT		-0.93	0.32 LT	
Zinc	18.13	0.76		10.73	0.85		25.48	13.50	66.80%
Zirconium	-0.16	-0.23 LT		1.28	0.26 LT		1.83	5.97	46.04%
Dilution Factor	101.00	21.00	1.00	101.00	21.00	1.00	101.00	21.00	

ICP Results Raw Data Report

	Standard LMCS Acid Digestion ppm	Acid Digestion Standard Recovery %	SST-1	SST-2	Ending LMCS Standard SST-3	Standard Recovery %		Spike Standard LMCS ppm added	Spike Standard ID Book #	SST-1
Aluminum	10.06	100.63%			50.41	100.81%		10.00		
Antimony			10.26			102.57%				10.00
Arsenic					57.88	115.75%	#			
Barium	9.23	92.28%	10.25			102.53%		10.00		10.00
Beryllium					9.75	97.50%				
Bismuth				53.43		106.64%		10.00		
Boron			9.94			99.43%		10.00		10.00
Cadmium			9.77			97.72%		10.00		10.00
Calcium			10.50			105.03%		10.00		10.00
Cerium	8.87	88.66%	8.86			88.57%	#	10.00		10.00
Chromium	8.56	84.79%	9.33			93.30%		10.00		10.00
Cobalt	8.60	86.00%	9.32			93.22%		10.00		10.00
Copper			10.34			103.36%		10.00		10.00
Europium				9.77		97.72%				
Iron	9.44	94.41%	10.15			101.50%		10.00		10.00
Lanthanum				46.55		92.92%		10.00		
Lead				52.41		104.61%		10.00		
Lithium	9.34	93.39%	10.36			103.61%		10.00		10.00
Magnesium			10.25			102.45%		10.00		10.00
Manganese	9.27	92.70%	10.07			100.65%		10.00		10.00
Mercury					25.49	101.94%				
Molybdenum					48.57	97.14%		10.00		
Neodymium	7.74	77.36%	8.75			87.52%	#	10.00		10.00
Nickel	9.27	92.68%	9.91			99.05%		10.00		10.00
Phosphorous					59.26	118.51%	#	10.00		
Potassium			24.31			97.22%		10.00		25.00
Samarium				9.65		96.54%				
Selenium					52.43	104.86%				
Silicon					45.26	90.53%		10.00		
Silver				10.65		106.46%		10.00		
Sodium			25.01			100.05%		10.00		25.00
Strontium			10.40			104.01%		10.00		10.00
Sulfur					53.97	107.95%				
Tantalum	7.33	73.62%			48.06	96.12%		9.95		
Thallium					53.11	106.22%				
Thorium				52.47		104.74%				
Tin	9.35	93.54%	49.18			98.35%		10.00		50.00
Titanium	9.23	92.17%			50.70	101.40%		10.00		
Tungsten					20.97	83.88%	#			
Uranium	5.01			51.75		103.29%				
Vanadium					10.01	100.05%				
Zinc			9.88			98.82%		10.00		10.00
Zirconium	9.33	93.47%			50.23	100.46%		9.98		
Dilution Factor	10.00		1.00	1.00	1.00					

	SST-2	LMCS Standards Values ppm SST-3	LMCS Standard IDs Book #	ACID DIGESTION LMCS STANDARD VALUES ppm in Sample	ACID DIGEST. LMCS IDs Book #
Aluminum		50.00		100.00	
Antimony					
Arsenic		50.00			
Barium				100.00	
Beryllium		10.00			
Bismuth	50.10			100.00	
Boron				100.00	
Cadmium				100.00	
Calcium				100.00	
Cerium				100.00	
Chromium				100.90	
Cobalt				100.00	
Copper				100.00	
Europium	10.00				
Iron				100.00	
Lanthanum	50.10			100.00	
Lead	50.10			100.00	
Lithium				100.00	
Magnesium				100.00	
Manganese				100.00	
Mercury		25.00			
Molybdenum		50.00		99.80	
Neodymium				100.00	
Nickel				100.00	
Phosphorous		50.00		100.00	
Potassium				100.00	
Samarium	10.00				
Selenium		50.00			
Silicon		50.00		100.00	
Silver	10.00				
Sodium				100.00	
Strontium				100.00	
Sulfur		50.00			
Tantalum		50.00		99.50	
Thallium		50.00			
Thorium	50.10				
Tin				100.00	
Titanium		50.00		100.10	
Tungsten		25.00			
Uranium	50.10				
Vanadium		10.00			
Zinc				100.00	
Zirconium		50.00		99.80	
Dilution Factor				10.00	

ICP Calibration Report

Procedure:	LA-505-151	Revision: A-0	
Instrument:	WB39939		
Technologist:	J. A. White		
Date:	April 19, 1990	Time: 07:47	

Calibration Standards for ICP Program "SST"

Element	Standard	Element	Standard
Aluminum	SST-3	Antimony	SST-4
Arsenic	SST-4	Barium	SST-2
Beryllium	SST-2	Bismuth	SST-4
Boron	SST-3	Cadmium	SST-2
Calcium	SST-2	Cerium	SST-5
Chromium	SST-2	Cobalt	SST-2
Copper	SST-2	Europium	SST-5
Iron	SST-2	Lanthanum	SST-5
Lead	SST-4	Lithium	SST-1
Magnesium	SST-2	Manganese	SST-2
Mercury	SST-3	Molybdenum	SST-3
Neodymium	SST-5	Nickel	SST-2
Phosphorous	SST-3	Potassium	SST-1
Samarium	SST-5	Selenium	SST-4
Silicon	SST-3	Silver	SST-2
Sodium	SST-1	Strontium	SST-2
Sulfur	SST-3	Tantalum	SST-3
Thallium	SST-4	Thorium	SST-4
Tin	SST-4	Titanium	SST-3
Tungsten	SST-3	Uranium	SST-4
Vanadium	SST-2	Zinc	SST-2
Zirconium	SST-3		

ICP Standard Formulations

SST-0:
Calibration blank, 1 M ultrex HNO3.

SST-1:
Stock solutions from AESAR/John Mathey Inc., Seabrook, NH 03874. Individual element solutions as follows:

Li	$LiCO_3$ 10,000 ppm in 5% HNO_3 Lot# 14394A
K	KNO_3 10,000 ppm in 5% HNO_3 Lot# 14379A
Na	$NaCO_3$ 10,000 ppm in 5% HNO_3 Lot# 14400A

200 mL of standard made by combining 25 mL HCl/HNO_3 mixed acid, 1 mL each single element standards, and water.

SST-2:
Stock solutions from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standards as follows:

SM-10	Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, & Ba 100 ppm Lot# 0-119A
SM-20	V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ag, & Cd 100 ppm Lot# 0-119B

50 mL of each mixed standard are added to a 250 mL volumetric flask and diluted to volume with 1 M HNO3.

SST-3:
Stock solutions from AESAR/John Mathey Inc., Seabrook, NH 03874. Individual element solutions as follows:

Al	Al 10,000 ppm in 10% HCl Lot# 9-053A
B	H_3BO_3 10,000 ppm in 1% NH_4OH Lot# 9-335A
Hg	Hg 10,000 ppm in 5% HNO_3 Lot# 8-656S
Mo	Mo 10,000 ppm in 5% HCl Lot# 9-159T
P	P 10,000 ppm in 5% HNO3 Lot# 9-160A
Si	Si 1000 ppm in KOH Lot# 086DM Spex Industries, Edison, NJ
S	$(NH_4)_2SO_4$ in H_2O Lot# 9-231M
Ta	TaCl5 10,000 ppm in 5% HCl/tr HF Lot# 9-335M
Ti	Ti 10,000 ppm in 5% HF Lot# 9-079EE
W	W 10,000 ppm in 5% HF/tr HNO_3 Lot# 8-685L
Zr	$ZrCl_2O$ 10,100 ppm in 5% HCl Lot# 9-078G

50 mL of each mixed standard are added to a 250 mL volumetric flask and diluted to volume with 1 M HNO33.

SST-4:
Stock solution from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standard as follows:

SM-50 Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Se, Te, Th, & U 100 ppm Lot# 0-119D

Solution is used directly for calibration.

SST-5:
Stock solution from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standard as follows:

SM-60 Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, & Lu 100 ppm Lot# 7-165F

50 mL of SM-60 is added to a 250 mL volumetric flask and diluted to volume with 1 M HNO_3.

19-Apr-90 07:39:21

Condition		Value	Min	/	Max
VACUUM	=	16.74	7.000	/	50.00
SPTEMP	=	38.70	37.00	/	39.00
MAINS	=	235.8	220.0	/	247.0
-1000V	=	-1005	-1010	/	-990
CTEMP	=	23.65	19.00	/	35.00
+5V	=	5.160	4.750	/	5.250
+12V	=	12.14	11.70	/	12.30
-12V	=	-12.2	-12.3	/	-11.7
+24V	=	23.16	22.50	/	26.50
-100V	=	-100	-101	/	-99.0
+5VSQ	=	5.150	4.750	/	5.250
+15VSQ	=	15.14	14.70	/	15.30
-15VSQ	=	-15.2	-15.3	/	-14.7

Position Calibration in Progress

	SLIT POS'N	PM	ALPHA SLIT	BETA SLIT	ALPHA LAMBDA1	BETA LAMBDA1	ALPHA LAMBDA2	BETA LAMBDA2
Previous data :								
INSTR	0.00000	586.483	1.00096	-0.3843	1.00009	-0.0675	0.00000	0.00000
Current data :								
INSTR	0.00000	587.525	1.00102	0.31641	1.00009	-0.0667	0.00000	0.00000

START THE PLASMA NOW, PLEASE.19-Apr-90 07:47:14

Sample name : SST0
Programme : SST 19-Apr-90 08:12:00

NAME	MV INT	RSD
AL	2.02	0.96
SB	0.38	1.41
AS	1.10	1.16
BA	4.06	1.19
BE	0.70	0.99
BI	3.93	1.41
B	4.65	1.82
CD	2.38	1.48
CA	0.49	0.82
CE	5.47	1.21
CR	1.49	3.91
CO	0.26	0.58
CU	3.01	1.11
EU	4.24	1.30
FE	1.67	1.92
LA	0.36	0.48
PB	0.27	0.94
LI	4.07	0.98
MG	0.46	0.77
MN	0.78	0.84
HG	4.63	0.23
MO	1.71	0.90
ND	5.87	0.99
NI	3.48	1.25
P	1.28	2.59
K	3.43	0.69
SM	5.25	1.20
SR	1.77	0.54
SI	3.37	1.05
AG	15.51	1.25
NA	5.63	1.34
SR	3.77	1.02
S	0.75	1.80
TA	3.80	1.41
TL	4.43	1.33
TH	1.10	1.05
SN	1.25	3.05
TI	3.63	1.19
W	1.38	1.82
U	5.31	1.19
VI	4.42	1.18
ZN	2.42	0.91
ZR	4.76	1.07

Sample name : SST1
Programme : SST 19-Apr-90 08:16:04

NAME	MV INT	RSD
LI	417.24	1.20
K	13.63	0.90
NA	60.13	1.10

Sample name : SST2
Programme : SST 19-Apr-90 08:18:03

NAME	MV INT	RSD
BA	278.36	0.28
BE	483.17	0.26
CD	321.93	0.52
CA	391.86	0.23
CR	67.99	2.97
CO	5.62	0.30
CU	94.95	0.39
FE	123.57	0.44
MG	418.22	0.28
MN	269.40	0.50
NI	157.96	0.48
AG	443.38	0.51
SR	491.83	0.29
VI	166.57	0.26
ZN	614.54	0.39

Sample name : SST3
Programme : SST 19-Apr-90 08:20:44

NAME	MV INT	RSD
AL	21.20	0.57
B	656.56	0.52
HG	769.40	0.79
MO	294.93	0.47
P	61.18	1.41
SI	77.63	0.49
S	40.45	0.07
TA	124.10	0.63
TI	435.43	0.60
W	64.46	0.68
ZR	152.16	0.53

Sample name : SST4
Programme : SST 19-Apr-90 08:22:54

NAME	MV INT	RSD
SB	7.16	1.20
AS	122.50	1.01
BI	102.90	1.08
PB	4.96	1.03
SE	51.55	0.68
TL	43.76	1.40
TH	13.78	1.01
SN	237.10	0.91
U	12.39	0.65

Sample name : SST5
Programme : SST 19-Apr-90 08:25:27

NAME	MV INT	RSD
CE	15.66	0.48
EU	442.41	0.60
LA	5.53	0.60
ND	16.65	0.23
SM	13.65	0.42

Programme name : SST Channel name : AL Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.9228	22.261	-0.527706E+01	0.260724E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.0240	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	21.201	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SB1 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.3572	7.5166	-0.554354E+01	0.147435E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.3760	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	7.1587	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : AS Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.0472	128.63	-0.908003E+00	0.823710E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.1023	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	122.50	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : BA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.8602	292.27	-0.296277E+00	0.729147E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.0633	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	278.36	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : BE1 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.6697	507.33	-0.292248E-01	0.414536E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.7050	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	483.17	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : BI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.7316	108.05	-0.396876E+01	0.101038E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.9280	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	102.90	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : B Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.4166	689.39	-0.356566E+00	0.766975E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.6490	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	656.56	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : CD Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.2588	338.03	-0.148813E+00	0.625878E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SSTO	0	2.3777	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	321.93	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : CA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.4645	411.45	-0.249891E-01	0.511025E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SSTO	0	0.4890	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	391.86	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : CE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.1981	16.440	-0.107442E+02	0.196361E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SSTO	0	5.4717	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	15.657	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : CR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.4123	71.394	-0.447064E+00	0.300716E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SSTO	0	1.4867	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	67.985	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : CO Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.2492	5.8975	-0.979891E+00	0.373529E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.2623	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	5.6167	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : CU Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.8560	99.693	-0.653979E+00	0.217534E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.0063	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	94.946	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : EU Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.0261	464.53	-0.193441E+00	0.456443E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.2380	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	442.41	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : FE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.5878	129.75	-0.274221E+00	0.164073E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.6713	0.0000	0.0000	-0.000	-0.000		CRV1
SST2	0	123.57	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : LA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.3420	5.8083	-0.139220E+01	0.386723E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.3600	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	5.5317	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : PB Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.2530	5.2094	-0.567270E+01	0.212993E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.2663	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	4.9613	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : LI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.8693	438.10	-0.492900E+00	0.121017E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.0730	0.0000	0.0000	-0.000	-0.000		CRV1
SST1	0	417.24	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : MG Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.4326	439.14	-0.217983E-01	0.478733E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.4553	0.0000	0.0000	-0.000	-0.000		CRV1
SST2	0	418.22	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : MN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.7388	282.87	-0.579004E-01	0.744540E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.7777	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	269.40	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : HG Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.3982	807.87	-0.302682E+00	0.653788E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.6297	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	769.40	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : MO Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.6201	309.67	-0.290791E+00	0.170519E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.7053	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	294.93	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : ND Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.5790	17.478	-0.109022E+02	0.185644E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.8727	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	16.646	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : NI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.3022	165.86	-0.450011E+00	0.129462E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.4760	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	157.96	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : P Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.2138	64.234	-0.106655E+01	0.834761E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.2777	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	61.175	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : K Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.2604	14.309	-0.168307E+02	0.490405E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.4320	0.0000	0.0000	0.0000	0.0000		CRV1
SST1	0	13.628	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SM Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.9904	14.337	-0.125057E+02	0.238067E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.2530	0.0000	0.0000	-0.000	-0.000		CRV1
SST5	0	13.654	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.6825	54.131	-0.355749E+01	0.200874E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.7710	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	51.553	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : SI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.2028	81.507	-0.227014E+01	0.673364E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.3713	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	77.625	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : AG Polynomial type : CC

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Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	14.739	465.55	-0.725194E+00	0.467435E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	15.514	0.0000	0.0000	-0.000	-0.000		CRV1
SST2	0	443.38	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : NA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.3441	63.140	-0.516007E+01	0.917291E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.6253	0.0000	0.0000	0.0000	0.0000		CRV1
SST1	0	60.134	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.5802	516.42	-0.154433E+00	0.409782E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.7687	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	491.83	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : S Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.7166	42.473	-0.950130E+00	0.125956E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.7543	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	40.451	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : TA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.6113	130.30	-0.157996E+01	0.415634E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.8013	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	124.10	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : TL2 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.2129	45.944	-0.112779E+02	0.254313E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.4347	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	43.756	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : TH Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.0418	14.465	-0.864879E+01	0.788644E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.0967	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	13.777	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : SN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.1919	248.95	-0.531989E+00	0.424008E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.2547	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	237.10	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : TI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.4453	457.30	-0.419948E+00	0.115795E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.6267	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	435.43	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : W Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.3075	67.678	-0.109096E+01	0.792657E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.3763	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	64.455	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : U Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.0432	13.014	-0.749247E+02	0.141137E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.3087	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	12.394	100.00	100.00	100.00	0.0000	0.0000	CRV1

Programme name : SST Channel name : V1 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.1949	174.90	-0.544610E+00	0.123336E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.4157	0.0000	0.0000	-0.000	-0.000		CRV1
SST2	0	166.57	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : ZN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.2965	645.27	-0.789814E-01	0.326729E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.4173	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	614.54	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : ZR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.5261	159.77	-0.161619E+01	0.339226E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.7643	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	152.16	50.000	50.000	50.000	-0.000	-0.000	CRV1

ICP Data Report - Acid Blank - (File 1)

Sample name : HNO3
Programme : SST 19-Apr-90 08:44:13

NAME	MV INT	CONCEN	RSD
Al	1.95	-0.199	-21.62
Sb	0.37	-0.039	-57.28
As	1.07	-0.031	-35.43
Ba	3.85	(-0.015	-13.46
Be	0.69	-0.001	-22.94
Bi	3.76	-0.167	-9.26
B	4.49	-0.013	-14.19
Cd	2.28	-0.006	-3.54
Ca	0.48	-0.000	-37.80
Ce	5.20	-0.534	-14.27
Cr	1.29	(-0.058	-5.90
Co	0.26	0.000	*******
Cu	2.88	-0.028	-14.78
Eu	4.02	(-0.010	-11.14
Fe	1.60	-0.012	-22.18
La	0.35	-0.032	-18.33
Pb	0.26	-0.043	-144.34
Li	4.01	-0.007	-68.58
Mg	0.44	-0.001	-18.92
Mn	0.75	-0.002	-13.86
Hg	3.89	(-0.049	-7.27
Mo	1.64	-0.012	-21.56
Nd	5.38	(-0.906	-8.91
Ni	3.33	-0.020	-11.69
P	1.27	-0.004	-531.46
K	3.27	-0.775	-14.72
Sm	4.99	-0.623	-14.98
Se	1.70	-0.139	-26.84
Si	3.23	-0.092	-17.41
Ag	14.76	-0.035	-15.27
Na	5.35	-0.253	-15.23
Sr	3.62	-0.006	-14.57
S	0.72	-0.044	-1.67
Ta	3.63	-0.073	-14.82
Tl	4.16	(-0.701	-13.24
Th	1.05	-0.376	-21.29
Sn	1.21	-0.018	-20.97
Ti	3.46	-0.020	-13.00
W	1.30	(-0.059	-20.24
U	5.04	-3.735	-13.04
V	4.16	(-0.031	-11.46
Zn	2.34	-0.003	-39.44
Zr	4.59	-0.058	-14.15

ICP Data Report - LMCS Check Standard 78C11J - (File 2)

Sample name : 78C11J
Sample code 1 : SST1
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 08:48:34

18300

NAME	MV INT	CONCEN	RSD
Al	2.02	-0.013	-393.95
Sb	1.08	10.306	1.08
As	1.17	0.057	24.65
Ba	143.20	10.145	0.69
Be	0.72	0.001	30.70
Bi	3.92	-0.009	-390.64
B	134.59	9.966	0.37
Cd	160.15	9.875	0.17
Ca	204.52	10.427	0.74
Ce	10.07	9.035	0.59
Cr	32.84	9.427	0.43
Co	2.89	9.818	0.57
Cu	50.17	10.260	0.51
Eu	4.60	0.016	11.83
Fe	63.21	10.098	0.40
La	0.37	0.048	20.40
Pb	0.27	0.028	43.30
Li	89.66	10.357	0.50
Mg	214.58	10.251	0.47
Mn	136.15	10.079	0.34
Hg	3.95	(-0.044	-7.94
Mo	1.75	0.008	48.40
Nd	10.71	8.972	2.24
Ni	80.53	9.975	0.19
P	1.35	0.061	36.28
K	8.43	24.525	0.30
Sm	5.01	-0.575	-22.70
Se	3.40	3.272	0.48
Si	3.31	-0.040	-45.96
Ag	14.91	-0.028	-26.79
Na	32.79	24.917	0.33
Sr	254.70	10.383	0.68
S	0.91	0.200	8.19
Ta	3.70	-0.043	-44.43
Tl	4.39	-0.106	-120.98
Th	1.09	-0.053	-167.03
Sn	117.72	49.380	0.22
Ti	3.49	-0.016	-24.97
W	1.60	0.175	7.38
U	5.39	1.077	66.40
V	4.28	-0.017	-33.23
Zn	305.53	9.904	0.18
Zr	4.65	-0.038	-36.27

ICP Data Report - LMCS Check Standard 82B38F - (File 3)

Sample name : 82B38F
Sample code 1 : SST2
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 08:52:57

18226

NAME	MV INT	CONCEN	RSD
Al	3.67	4.283	1.52
Sb	0.42	0.659	5.63
As	2.98	1.548	2.05
Ba	4.30	0.017	14.28
Be	0.74	0.001	27.77
Bi	57.46	54.091	0.47
B	5.40	0.058	3.39
Cd	2.48	0.007	10.95
Ca	0.73	0.012	1.25
Ce	5.75	0.550	14.46
Cr	1.68	0.058	5.97
Co	0.28	0.062	6.00
Cu	4.10	0.238	1.78
Eu	217.80	9.748	0.28
Fe	2.08	0.067	27.96
La	12.43	)46.675	0.17
Pb	2.77	53.326	0.33
Li	4.43	0.044	19.70
Mg	0.59	0.006	0.74
Mn	0.91	0.010	2.54
Hg	4.56	-0.005	-52.91
Mo	1.83	0.022	7.87
Nd	6.12	0.465	22.94
Ni	3.69	0.027	19.97
P	1.63	0.308	7.52
K	3.40	-0.167	-32.75
Sm	9.47	10.049	0.83
Se	1.93	0.319	5.03
Si	4.21	0.563	3.60
Ag	244.24	10.691	0.28
Na	5.66	0.036	89.17
Sr	3.95	0.008	12.55
S	0.87	0.140	11.23
Ta	4.22	0.173	9.35
Tl	6.75	5.881	1.93
Th	7.80	52.868	0.36
Sn	1.44	0.080	3.41
Ti	4.14	0.059	6.67
W	1.42	0.038	72.86
U	9.18	54.596	1.19
V	6.31	0.233	1.69
Zn	2.69	0.009	9.21
Zr	5.15	0.132	7.08

ICP Data Report - LMCS Check Standard 77C11I - (File 4)

Sample name : 77C11I
Sample code 1 : SSI3
Sample code 2 : DIRECT
Programme : SSI 19-Apr-90 09:02:22 18244

NAME	MV INT	CONCEN	RSD
Al	21.57	50.973	0.24
Sb	0.46	1.263	5.26
As	71.94	58.350	0.32
Ba	4.29	0.017	10.32
Be	244.28	10.097	1.63
Bi	4.89	0.971	1.41
B	5.42	0.059	5.14
Cd	2.61	0.015	11.90
Ca	0.75	0.013	0.67
Ce	5.51	0.073	85.92
Cr	1.50	0.005	95.47
Co	0.29	0.115	6.52
Cu	3.27	0.058	6.13
Eu	4.27	0.002	74.28
Fe	1.95	0.046	3.70
La	0.37	0.027	24.74
Pb	0.28	0.390	8.33
Li	4.13	0.007	40.18
Mg	0.52	0.003	1.60
Mn	1.04	0.019	1.02
Hg	399.37	25.808	0.58
Mo	293.51	49.758	0.43
Nd	5.79	-0.158	-100.24
Ni	7.41	0.510	0.95
P	66.26	)54.245	1.07
K	3.40	-0.132	-80.12
Sm	5.31	0.147	53.52
Se	28.39	53.466	0.71
Si	72.02	46.228	0.06
Ag	22.28	0.316	0.94
Na	5.78	0.146	19.94
Sr	3.87	0.004	21.45
S	42.73	)52.876	0.82
Ta	122.84	49.478	0.72
Tl	25.50	53.560	0.57
Th	1.22	0.983	4.04
Sn	1.71	0.193	0.76
Ti	447.29	51.373	0.16
W	28.21	21.266	0.47
U	6.19	12.420	1.28
V	86.99	10.184	2.07
Zn	3.56	0.037	2.26
Zr	154.39	50.756	0.11

ICP Data Report - Acid Digested Standard 81C11A - (File 5)

Sample name : F1083
Sample code 1 : 81C11A
Sample code 2 : DIRECT
Sample code 3 : DIGEST
Programme : SST 19-Apr-90 09:07:31

NAME	MV INT	CONCEN	RSD
Al	2.11	0.228	31.49
Sb	0.37	-0.049	-180.83
As	1.44	0.275	9.55
Ba	3.83	(-0.017	-20.65
Be	0.70	-0.000	-141.52
Bi	14.03	10.212	0.64
B	127.77	9.443	0.82
Cd	151.70	9.346	1.27
Ca	201.23	10.258	0.57
Ce	5.08	(-0.772	-15.81
Cr	1.39	(-0.030	-21.13
Co	0.26	-0.012	-51.96
Cu	48.56	9.909	0.71
Eu	3.88	(-0.016	-17.94
Fe	1.84	0.028	23.66
La	2.71	9.105	0.51
Pb	0.73	9.904	1.43
Li	3.82	(-0.031	-22.41
Mg	204.24	9.756	0.53
Mn	0.89	0.008	16.27
Hg	3.96	(-0.043	-19.37
Mo	56.56	9.354	0.88
Nd	5.41	(-0.864	-24.79
Ni	3.28	(-0.025	-31.55
P	12.46	9.337	3.79
K	5.12	8.265	0.63
Sm	4.80	(-1.072	-13.13
Se	1.70	-0.151	-53.17
Si	14.54	7.518	6.68
Ag	174.24	7.419	0.59
Na	15.94	9.466	0.71
Sr	247.86	10.002	0.60
S	0.93	0.222	5.59
Ta	3.50	(-0.126	-22.37
Tl	4.00	(-1.116	-14.91
Th	1.02	(-0.573	-16.68
Sn	1.47	0.092	9.79
Ti	4.84	0.140	3.27
W	1.52	0.110	21.00
U	4.90	(-5.829	-16.47
V	4.04	(-0.046	-11.84
Zn	287.21	9.305	0.41
Zr	4.46	(-0.105	-14.92

ICP Data Report - Reagent Blank - (File 6)

Sample name : F1084
Sample code 1 : REAGEN
Sample code 2 : DIRECT
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:12:39

NAME	MV INT	CONCEN	RSD
Al	2.05	0.068	59.96
Sb	0.38	-0.005	-916.63
As	1.08	-0.022	-50.24
Ba	3.96	-0.008	-35.37
Be	0.71	0.000	28.39
Bi	3.92	-0.006	-797.45
B	5.08	0.033	2.92
Cd	2.38	0.000	6376.32
Ca	2.16	0.085	0.70
Ce	5.32	-0.306	-35.66
Cr	1.39	(-0.029	-12.21
Co	0.27	0.022	34.69
Cu	2.95	-0.011	-37.31
Eu	4.09	-0.007	-27.58
Fe	1.87	0.032	14.36
La	0.35	-0.022	-50.94
Pb	0.27	0.014	150.01
Li	3.99	-0.010	-47.62
Mg	0.78	0.015	7.20
Mn	0.92	0.011	4.16
Hg	3.83	(-0.053	-9.08
Mo	1.69	-0.003	-74.48
Nd	5.53	(-0.640	-21.86
Ni	3.42	-0.008	-60.28
P	1.41	0.114	12.79
K	3.32	-0.528	-24.44
Sm	5.10	-0.354	-30.58
Se	1.74	-0.064	-26.70
Si	4.31	0.631	16.43
Ag	15.13	-0.018	-28.50
Na	5.69	0.059	76.28
Sr	3.70	-0.003	-40.42
S	0.78	0.034	6.50
Ta	3.72	-0.035	-47.06
Tl	4.30	-0.331	-21.52
Th	1.07	-0.176	-43.95
Sn	1.29	0.016	107.80
Ti	4.74	0.139	2.06
W	1.35	-0.019	-35.11
U	5.14	-2.399	-29.80
V	4.29	-0.016	-21.91
Zn	9.48	0.231	1.22
Zr	4.66	-0.036	-34.15

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ICP Data Report - Sample F1085 - (File 7)

Sample name : F1085
Sample code 1 : SAMPLE
Sample code 2 : 100-10
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:17:05

NAME	MV INT	CONCEN	DILCOR	RSD
Al	4.10	5.418	547.20✓	0.81
Sb	0.39	0.172	17.373	26.19
As	1.12	0.018	1.858	22.98
Ba	4.18	0.009	0.869	19.07
Be	0.74	0.001	0.134	6.25
Bi	5.40	1.487	150.15✓	0.66
B	4.98	0.025	2.561	3.21
Cd	2.39	0.001	0.072	49.13
Ca	1.52	0.053	5.321✓	1.22
Ce	5.59	0.232	23.469	27.20
Cr	1.70	0.064	6.459✓	5.18
Co	0.27	0.045	4.527	19.24
Cu	3.08	0.017	1.706	17.32
Eu	4.31	0.003	0.324	42.80
Fe	9.83	1.338	135.13✓	0.88
La	0.37	0.024	2.474	18.23
Pb	0.28	0.234	23.663	20.99
Li	4.15	0.009	0.949	34.77
Mg	0.88	0.021	2.071✓	14.02
Mn	8.02	0.540	54.494✓	1.44
Hg	4.11	(-0.034	(-3.456	-7.45
Mo	1.76	0.009	0.878	11.15
Nd	5.72	-0.292	-29.50	-43.58
Ni	3.64	0.021	2.105	5.99
P	2.14	0.719	72.620✓	2.26
K	3.47	0.186	18.822	43.10
Sm	5.35	0.236	23.804	30.12
Se	1.83	0.123	12.444	2.49
Si	4.10	0.494	49.851✓	6.26
Ag	15.84	0.015	1.525	30.69
Na	13.44	7.173	724.43✓	0.45
Sr	5.07	0.053	5.376✓	0.58
S	0.83	0.100	10.050	22.51
Ta	3.86	0.025	2.561	59.21
Tl	4.57	0.337	33.990	23.79
Th	1.12	0.200	20.179✓	21.98
Sn	1.30	0.021	2.141	26.56
Ti	3.70	0.008	0.850	22.37
W	1.42	0.035	3.496	22.08
U	5.45	1.924	194.34	20.58
V	4.55	0.016	1.657	20.90
Zn	7.71	0.173	17.465✓	0.60
Zr	4.86	0.032	3.278	26.87

Dilution factor : 101.000

ICP Data Report - Sample F1085 - (File 8)

Sample name : F1085
Sample code 1 : SAMPLE
Sample code 2 : 500-10
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:21:46

NAME	HV INT	CONCEN	DILCOR	RSD
Al	11.60	24.956	524.07	0.56
Sb	0.39	0.260	5.470✓	16.34
As	1.15	0.039	0.813✓	8.06
Ba	4.37	0.022	0.467✓	12.31
Be	0.74	0.001	0.031✓	4.81
Bi	10.44	6.584	138.27	0.67
B	5.01	0.027	0.574✓	6.67
Cd	2.42	0.003	0.060✓	20.70
Ca	4.15	0.187	3.925	0.36
Ce	5.57	0.193	4.055✓	58.07
Cr	2.94	0.438	9.193	1.38
Co	0.28	0.059	1.229✓	38.30
Cu	3.16	0.033	0.700✓	13.37
Eu	4.30	0.003	0.058	65.98
Fe	40.70	6.404	134.48	0.23
La	0.37	0.040	0.839✓	24.35
Pb	0.29	0.511	10.735✓	9.62
Li	4.12	0.006	0.124	69.90
Mg	1.83	0.066	1.386	0.29
Mn	35.10	2.555	53.656	0.20
Hg	4.19	(-0.029	(-0.601	-9.82
Mo	1.80	0.016	0.335✓	13.38
Nd	5.69	-0.342	-7.186✓	-44.51
Ni	3.97	0.065	1.356✓	11.66
P	4.85	2.984	62.670	2.21
K	3.45	0.092	1.922✓	144.38
Sm	5.32	0.163	3.416✓	77.57
Se	1.92	0.308	6.468✓	13.53
Si	5.65	1.533	32.198	3.75
Ag	15.85	0.016	0.331✓	51.32
Na	42.19	33.545	704.44	0.20
Sr	9.71	0.243	5.110	0.21
S	1.07	0.402	8.438✓	1.10
Ta	3.88	0.035	0.730✓	17.69
Tl	4.58	0.371	7.797✓	35.95
Th	1.12	0.163	3.423	66.05
Sn	1.33	0.031	0.644✓	24.10
Ti	3.74	0.013	0.264✓	30.83
W	1.45	0.057	1.193✓	6.08
U	5.59	3.938	82.692✓	18.67
V	4.54	0.015	0.325✓	42.05
Zn	5.64	0.105	2.214	0.59
Zr	4.94	0.061	1.278✓	17.58

Dilution factor : 21.0000

ICP Data Report - Spike of Sample F1085 - (File 11)

Sample name : F1087
Sample code 1 : SPIKE
Sample code 2 : 100-10
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:33:58

NAME	MV INT	CONCEN	DILCOR	RSD
Al	3.95	5.021	507.09	0.42
Sb	0.39	0.133	13.402	29.40
As	1.10	-0.006	-0.582	-151.41
Ba	5.53	0.107	10.831	1.87
Be	0.71	0.000	0.020	152.03
Bi	5.50	1.592	160.79	3.06
B	6.47	0.140	14.099	0.83
Cd	3.80	0.089	8.997	1.16
Ca	4.44	0.202	20.399	1.38
Ce	5.32	-0.297	-30.01	-40.41
Cr	2.49	0.302	30.544	0.76
Co	0.28	0.082	8.300	9.46
Cu	3.43	0.092	9.264	5.83
Eu	4.12	-0.006	-0.566	-43.79
Fe	14.85	2.162	218.35	1.12
La	0.38	0.071	7.161	15.75
Pb	0.27	0.170	17.210	14.43
Li	4.83	0.092	9.244	4.74
Mg	86.51	4.120	416.09	1.10
Mn	8.34	0.563	56.883	1.21
Hg	4.26	(-0.024	(-2.461	-12.56
Mo	2.22	0.088	8.933	1.90
Nd	5.52	(-0.661	(-66.75	-21.22
Ni	4.23	0.098	9.907	5.58
P	2.66	1.156	116.71	3.69
K	3.36	-0.337	-34.01	-45.88
Sm	5.10	-0.361	-36.47	-40.03
Se	1.81	0.071	7.169	63.81
Si	3.99	0.418	42.189	4.24
Ag	16.55	0.048	4.889	84.71
Na	14.68	8.304	838.67	0.63
Sr	7.26	0.143	14.464	0.43
S	1.29	0.673	67.976	0.29
Ta	3.78	-0.007	-0.700	-235.49
Tl	4.36	-0.183	-18.49	-62.27
Th	1.07	-0.189	-19.12	-43.37
Sn	1.58	0.139	14.047	4.75
Ti	4.43	0.093	9.345	3.03
W	1.35	-0.020	-2.055	-73.65
U	5.19	-1.741	-175.8	-51.50
V	4.34	-0.009	-0.926	-39.04
Zn	10.14	0.252	25.479	0.53
Zr	4.82	0.018	1.827	70.96

Dilution factor : 101.000

Sample name : F1087
Sample code 1 : SPIKE
Sample code 2 : 500-10
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:38:10

NAME	MV INT	CONCEN	DILCOR	RSD
Al	10.68	22.571	473.99	0.53

ICP Data Report - Spike of F1085 - (File 12)

Sample name : F1087
Sample code 1 : SPIKE
Sample code 2 : 500-10
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:38:10

NAME	MV INT	CONCEN	DILCOR	RSD
Al	10.68	22.571	473.99	0.53
Sb	0.42	0.678	14.242	4.35
As	1.16	0.049	1.021	14.61
Ba	10.96	0.503	10.565	0.24
Be	0.74	0.001	0.028	8.84
Bi	12.24	8.398	176.36	0.47
B	11.02	0.488	10.254	1.00
Cd	10.01	0.477	10.026	0.88
Ca	14.39	0.710	14.914	0.51
Ce	5.51	0.073	1.540	73.99
Cr	4.55	0.922	19.370	0.03
Co	0.39	0.468	9.831	5.31
Cu	5.38	0.515	10.824	0.23
Eu	4.28	0.002	0.040	45.94
Fe	63.36	10.122	212.56	0.37
La	0.48	0.469	9.854	1.26
Pb	0.31	0.994	20.873	0.00
Li	8.26	0.507	10.652	0.10
Mg	38.20	1.807	37.950	0.31
Mn	37.58	2.740	57.543	0.62
Hg	4.44	-0.013	-0.265	-7.65
Mo	4.46	0.470	9.871	1.15
Nd	5.88	0.022	0.468	646.39
Ni	7.65	0.541	11.358	0.70
P	8.02	5.630	118.22	1.18
K	3.52	0.448	9.406	8.78
Sm	5.27	0.029	0.617	172.07
Se	1.99	0.446	9.365	1.19
Si	5.18	1.219	25.604	0.66
Ag	21.33	0.272	5.708	16.77
Na	48.60	39.416	827.74	0.16
Sr	21.16	0.713	14.969	0.35
S	1.23	0.604	12.688	1.78
Ta	4.21	0.168	3.529	0.14
Tl	4.57	0.348	7.299	14.95
Th	1.11	0.105	2.208	41.76
Sn	2.49	0.522	10.967	0.69
Ti	7.70	0.471	9.897	0.22
W	1.44	0.048	0.999	11.10
U	5.51	2.903	60.957	11.26
V	4.54	0.015	0.319	23.24
Zn	22.10	0.643	13.503	0.69
Zr	5.60	0.284	5.970	1.20

Dilution factor : 21.0000

ICP Data Report - Acid Digested Standard 82C11A - (File 13)

Sample name : F1088
Sample code 1 : DIGEST
Sample code 2 : DIRECT
Sample code 3 : 000013
Programme : SST 19-Apr-90 09:43:08

NAME	MV INT	CONCEN	RSD
Al	5.88	10.063	1.45
Sb	0.39	0.246	18.33
As	1.42	0.262	2.83
Ba	130.62	9.228	1.74
Be	0.79	0.004	4.42
Bi	4.21	0.280	13.02
B	5.31	0.050	11.73
Cd	2.52	0.009	21.14
Ca	5.75	0.269	1.89
Ce	9.99	8.866	0.56
Cr	29.93	8.555	1.83
Co	2.56	8.600	3.63
Cu	3.10	0.019	29.28
Eu	4.70	0.021	4.16
Fe	59.21	9.441	1.52
La	0.38	0.083	9.76
Pb	0.28	0.341	18.04
Li	81.25	9.339	2.39
Mg	2.33	0.090	1.83
Mn	135.29	9.270	1.65
Hg	4.47	-0.010	-47.80
Mo	1.89	0.031	8.35
Nd	10.04	7.736	4.51
Ni	75.07	9.268	1.53
P	1.49	0.176	8.13
K	3.38	-0.263	-50.60
Sm	5.22	-0.067	-135.85
Se	3.23	2.921	2.60
Si	4.33	0.645	4.64
Ag	16.78	0.059	8.32
Na	6.25	0.577	9.74
Sr	3.96	0.008	11.46
S	0.92	0.207	6.34
Ta	21.42	7.325	0.93
Tl	4.59	0.384	38.16
Th	1.14	0.352	21.51
Sn	23.32	9.354	1.21
Ti	83.30	9.226	1.68
W	2.31	0.739	3.69
U	5.66	5.010	11.19
V	4.42	0.000	
Zn	4.55	0.070	2.50
Zr	32.26	9.328	1.63

ICP Data Report - Acid Blank - (File 14)

Sample name : HNO3
Programme : SST 19-Apr-90 09:48:24

NAME	MV INT	CONCEN	RSD
Al	1.96	-0.169	-16.21
Sb	0.37	-0.044	-66.67
As	1.07	-0.029	-17.39
Ba	3.86	-0.015	-9.37
Be	0.69	-0.000	-43.59
Bi	3.79	-0.139	-34.05
B	4.67	0.001	332.54
Cd	2.26	-0.007	-9.03
Ca	0.47	-0.001	-13.58
Ce	5.23	-0.467	-12.83
Cr	1.29	(-0.060	-7.45
Co	0.26	-0.020	-56.25
Cu	2.88	-0.027	-9.05
Eu	4.04	-0.009	-10.82
Fe	1.61	-0.010	-3.63
La	0.35	-0.030	-32.83
Pb	0.27	0.071	45.83
Li	4.08	0.001	551.09
Mg	0.45	-0.000	-29.04
Mn	0.75	-0.002	-35.38
Hg	4.19	(-0.029	-10.54
Mo	1.63	-0.012	-5.73
Nd	5.42	(-0.847	-9.40
Ni	3.33	-0.019	-24.70
P	1.29	0.012	168.99
K	3.29	-0.696	-9.86
Sm	5.02	-0.546	-13.21
Se	1.71	-0.139	-19.31
Si	3.26	-0.078	-8.60
Ag	14.89	-0.039	-14.95
Na	5.38	-0.227	-11.66
Sr	3.64	-0.005	-12.98
S	0.72	-0.038	-13.19
Ta	3.62	-0.074	-10.21
Tl	4.19	(-0.628	-10.05
Th	1.05	-0.334	-16.76
Sn	1.21	-0.021	-39.90
Ti	3.47	-0.018	-12.54
W	1.31	-0.051	-12.88
U	5.07	-3.387	-10.46
V	4.21	-0.025	-0.48
Zn	2.33	-0.003	-6.18
Zr	4.61	-0.053	-9.39

ICP Data Report - LMCS Check Standard 78C11J - (File 15)

Sample name : 78C11J
Sample code 1 : SST1
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 09:52:37

NAME	MV INT	CONCEN	RSD
Al	2.00	-0.068	-15.38
Sb	1.09	10.591	1.18
As	1.16	0.044	18.97
Ba	146.91	10.416	0.94
Be	0.71	0.000	123.72
Bi	3.84	-0.088	-28.18
B	137.29	10.173	0.55
Cd	162.34	10.012	0.92
Ca	209.66	10.689	0.86
Ce	10.14	9.175	1.22
Cr	33.25	9.551	1.09
Co	2.87	9.727	0.57
Cu	51.35	10.517	0.88
Eu	4.54	0.014	7.31
Fe	64.73	10.346	0.71
La	0.37	0.036	30.93
Pb	0.27	0.078	0.00
Li	91.73	10.608	0.70
Mg	219.35	10.479	0.97
Mn	138.86	10.281	0.91
Hg	4.09	(-0.035	-11.09
Mo	1.73	0.004	36.37
Nd	10.76	9.076	3.51
Ni	81.91	10.154	0.63
P	1.34	0.051	34.41
K	8.51	24.914	1.12
Sm	4.93	(-0.775	-4.39
Se	3.42	3.316	2.26
Si	3.37	-0.067	-9.81
Ag	14.68	(-0.039	-6.98
Na	33.43	25.503	0.87
Sr	261.95	10.580	0.96
S	0.93	0.217	4.65
Ta	3.65	-0.062	-5.75
Tl	4.31	-0.328	-16.88
Th	1.07	-0.189	-23.69
Sn	120.18	50.427	0.94
Ti	3.43	(-0.023	-5.57
W	1.55	0.136	8.71
U	5.30	-0.080	-351.61
V	4.20	-0.026	-17.47
Zn	311.25	10.091	0.84
Zr	4.60	-0.057	-6.57

ICP Data Report - LMCS Check Standard 82B38F - (File 16)

Sample name : 82B38F
Sample code 1 : SST2
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 09:57:20

NAME	MV INT	CONCEN	RSD
Al	3.63	4.198	1.58
Sb	0.41	0.506	1.68
As	2.96	1.528	0.96
Ba	4.20	0.010	17.94
Be	0.72	0.001	34.69
Bi	57.66	54.288	0.85
B	5.47	0.063	4.91
Cd	2.42	0.003	40.50
Ca	0.73	0.012	0.64
Ce	5.63	0.314	13.05
Cr	1.63	0.044	11.62
Co	0.27	0.024	9.12
Cu	4.03	0.224	1.56
Eu	220.96	9.892	0.09
Fe	1.97	0.048	5.86
La	12.55	)47.153	0.49
Pb	2.77	53.426	0.77
Li	4.28	0.025	17.91
Mg	0.59	0.006	0.89
Mn	0.91	0.010	2.66
Hg	4.89	0.017	14.65
Mo	1.79	0.014	15.81
Nd	6.00	0.235	35.15
Ni	3.65	0.022	14.24
P	1.62	0.286	5.77
K	3.33	-0.487	-21.53
Sm	9.43	9.936	0.75
Se	1.88	0.226	5.77
Si	4.16	0.531	3.11
Ag	246.50	10.797	0.49
Na	5.53	-0.091	-31.98
Sr	3.89	0.005	13.79
S	0.86	0.134	10.36
Ta	4.16	0.147	3.21
Tl	6.65	5.646	1.78
Th	7.85	53.294	0.50
Sn	1.42	0.070	6.68
Ti	4.05	0.049	6.51
W	1.39	0.009	92.71
U	9.10	53.477	1.11
V	6.20	0.220	3.16
Zn	2.64	0.007	7.86
Zr	5.07	0.105	8.25

ICP Data Report - LMCS Check Standard 77C11I - (File 17)

Sample name : 77C11I
Sample code 1 : SST3
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 10:01:41

NAME	NV INT	CONCEN	RSD
Al	21.27	50.184	0.81
Sb	0.47	1.322	7.83
As	71.23	57.765	0.66
Ba	4.34	0.020	13.08
Be	238.03	9.838	0.55
Bi	4.97	1.052	3.17
B	5.56	0.070	0.75
Cd	2.62	0.015	10.58
Ca	0.74	0.013	0.23
Ce	5.58	0.221	45.03
Cr	1.50	0.004	99.35
Co	0.30	0.153	3.73
Cu	3.30	0.064	8.80
Eu	4.33	0.004	37.48
Fe	1.97	0.049	13.03
La	0.37	0.030	45.81
Pb	0.29	0.454	9.76
Li	4.23	0.019	2.23
Mg	0.52	0.003	4.16
Mn	1.04	0.019	4.69
Hg	395.71	25.568	0.10
Mo	286.55	48.572	0.80
Nd	5.81	-0.108	-91.66
Ni	7.35	0.501	0.75
P	70.59	>57.863	1.02
K	3.45	0.082	129.01
Sm	5.39	0.318	32.27
Se	27.91	52.507	0.60
Si	70.49	45.198	0.49
Ag	22.48	0.326	0.77
Na	5.87	0.220	21.74
Sr	3.92	0.006	18.45
S	42.86	>53.038	0.68
Ta	119.75	48.190	0.68
Tl	25.27	52.995	1.13
Th	1.24	1.117	6.33
Sn	1.74	0.205	5.94
Ti	439.15	50.431	0.96
W	27.78	20.931	0.68
U	6.29	13.916	4.64
V	84.95	9.932	0.54
Zn	3.56	0.037	0.71
Zr	152.09	49.976	0.95

9 1 1 2 2 0 1 7 3

ICP Data Report (File 18)

Sample name : F899
Sample code 1 : SAMPLE
Sample code 2 : 100-10
Sample code 3 : 000005
Programme : SST 19-Apr-90 10:07:19

NAME	MV INT	CONCEN	DILCOR	RSD
Al	3.13	2.873	290.19	3.71
Sb	0.39	0.133	13.402	50.92
As	1.12	0.012	1.220	144.32
Ba	4.03	-0.002	-0.221	-161.94
Be	0.73	0.001	0.105	46.13
Bi	4.86	0.939	94.871	8.78
B	5.29	0.049	4.991	46.95
Cd	2.35	-0.002	-0.156	-180.44
Ca	2.65	0.110	11.157	2.01
Ce	5.43	-0.083	-8.396	-154.57
Cr	1.45	-0.012	-1.164	-35.42
Co	0.27	0.020	2.012	65.85
Cu	3.00	-0.001	-0.132	-708.40
Eu	4.19	-0.002	-0.214	-113.58
Fe	4.33	0.437	44.124	2.85
La	0.36	0.014	1.432	41.66
Pb	0.27	0.170	17.210	26.02
Li	4.07	-0.000	-0.000	******
Mg	4.80	0.208	20.986	2.17
Mn	2.49	0.128	12.897	2.49
Hg	5.54	0.059	5.987	155.68
Mo	1.73	0.005	0.459	107.19
Nd	5.57	(-0.558	(-56.38	-26.71
Ni	4.91	0.185	18.698	6.00
P	1.98	0.582	58.793	7.24
K	36.76	)163.43	) 16506	1.84
Sm	5.21	-0.099	-10.02	-156.59
Se	1.80	0.048	4.869	140.50
Si	4.52	0.774	78.166	56.92
Ag	15.44	-0.004	-0.360	-277.35
Na	9.59	3.634	367.07	2.76
Sr	4.16	0.016	1.622	10.97
S	0.80	0.062	6.234	32.55
Ta	3.79	-0.005	-0.504	-503.91
Tl	4.38	-0.132	-13.36	-101.47
Th	1.09	-0.034	-3.451	-300.31
Sn	1.27	0.007	0.728	87.32
Ti	3.61	-0.002	-0.179	-316.72
W	1.39	0.008	0.801	218.25
U	5.27	-0.517	-52.27	-185.46
V	4.37	-0.005	-0.519	-117.87
Zn	7.91	0.180	18.133	2.58
Zr	4.76	-0.002	-0.160	-1057.0

Dilution factor : 101.000

ICP Data Report (File 19)

Sample name : F899
Sample code 1 : SAMPLE
Sample code 2 : 500-10
Sample code 3 : 000005
Programme : SST 19-Apr-90 10:18:25

NAME	MV INT	CONCEN	DILCOR	RSD
Al	6.76	12.341	259.16	1.21
Sb	0.38	0.039	0.826	57.28
As	1.10	-0.003	-0.069	-38.19
Ba	4.01	-0.004	-0.080	-96.44
Be	0.70	-0.000	-0.000	-1053.6
Bi	7.93	4.048	84.999	1.06
B	4.78	0.010	0.209	23.20
Cd	2.29	-0.005	-0.115	-32.39
Ca	7.54	0.360	7.566	1.43
Ce	5.32	-0.306	-6.419	-40.18
Cr	1.72	0.070	1.480	1.86
Co	0.27	0.016	0.340	93.26
Cu	2.95	-0.012	-0.244	-54.08
Eu	4.11	-0.006	-0.119	-41.94
Fe	13.08	1.871	39.292	1.45
La	0.36	-0.015	-0.325	-25.00
Pb	0.27	0.057	1.193	112.50
Li	3.97	-0.013	-0.269	-43.30
Mg	3.15	0.129	2.712	1.29
Mn	8.03	0.540	11.341	1.34
Hg	4.33	(-0.020	(-0.412	-12.91
Mo	1.69	-0.003	-0.055	-224.31
Nd	5.53	(-0.645	(-13.54	-18.86
Ni	9.68	0.802	16.858	0.65
P	4.00	2.269	47.641	2.47
K	152.62	)731.62	) 15364	1.22
Sm	5.10	-0.359	-7.532	-41.41
Se	1.77	0.007	0.155	513.37
Si	4.94	1.055	22.154	1.67
Ag	15.11	-0.019	-0.399	-42.37
Na	22.97	15.913	334.18	1.14
Sr	5.45	0.069	1.451	2.03
S	0.88	0.161	3.377	8.83
Ta	3.70	-0.042	-0.873	-57.93
Tl	4.36	-0.181	-3.792	-71.63
Th	1.08	-0.171	-3.588	-53.23
Sn	1.25	-0.002	-0.042	-583.28
Ti	3.54	-0.010	-0.203	-44.27
W	1.37	-0.003	-0.055	-863.78
U	5.20	-1.567	-32.90	-55.48
V	4.34	-0.009	-0.190	-72.16
Zn	3.53	0.036	0.761	1.94
Zr	4.73	-0.011	-0.228	-129.39

Dilution factor : 21.0000

ICP Data Report (File 20)

Sample name : F900
Sample code 1 : DUPSAM
Sample code 2 : 100-10
Sample code 3 : 000005
Programme : SST 19-Apr-90 10:22:33

NAME	MV INT	CONCEN	DILCOR	RSD
Al	3.03	2.619	264.47	0.55
Sb	0.39	0.147	14.891	45.83
As	1.12	0.014	1.414	91.95
Ba	4.08	0.001	0.137	104.57
Be	0.73	0.001	0.092	20.83
Bi	4.92	0.998	100.82	1.24
B	4.90	0.019	1.926	12.33
Cd	2.36	-0.001	-0.118	-45.77
Ca	1.72	0.063	6.354	0.63
Ce	5.50	0.057	5.752	105.74
Cr	1.45	-0.012	-1.164	-22.19
Co	0.28	0.055	5.533	6.82
Cu	3.03	0.005	0.469	70.21
Eu	4.25	0.001	0.058	158.16
Fe	4.16	0.409	41.374	1.77
La	0.37	0.021	2.083	47.19
Pb	0.37	0.121	12.190	17.65
Li	4.09	0.002	0.220	117.06
Mg	3.78	0.159	16.087	0.64
Mn	2.30	0.113	11.450	0.79
Hg	4.40	-0.015	-1.523	-22.05
Mo	1.73	0.004	0.419	27.97
Nd	5.66	-0.398	-40.19	-33.58
Ni	4.79	0.170	17.134	1.63
P	1.97	0.580	58.624	2.46
K	35.60	)157.76	) 15934	0.50
Sm	5.29	0.079	8.015	74.06
Se	1.81	0.074	7.439	40.94
Si	3.81	0.298	30.060	2.15
Ag	15.65	0.006	0.635	57.31
Na	9.29	3.361	339.49	0.45
Sr	4.17	0.016	1.640	3.41
S	0.81	0.074	7.463	9.02
Ta	3.83	0.010	1.008	133.94
Tl	4.49	0.153	15.411	30.38
Th	1.11	0.097	9.824	48.65
Sn	1.28	0.010	1.056	65.54
Ti	3.65	0.003	0.300	76.38
W	1.39	0.012	1.254	102.72
U	5.34	0.395	39.914	97.83
V	4.49	0.009	0.955	9.44
Zn	5.67	0.106	10.730	0.49
Zr	4.80	0.013	1.279	49.70

Dilution factor : 101.000

ICP Data Report (File 21)

Sample name : F900
Sample code 1 : DUPSAM
Sample code 2 : 500-10
Sample code 3 : 000005
Programme : SST 19-Apr-90 10:26:53

NAME	MV INT	CONCEN	DILCOR	RSD
Al	6.58	11.888	249.65	0.59
Sb	0.39	0.147	3.096	30.00
As	1.12	0.011	0.231	131.27
Ba	4.09	0.002	0.046	194.32
Be	0.72	0.000	0.010	86.60
Bi	8.42	4.535	95.226	1.00
B	4.81	0.013	0.263	70.62
Cd	2.35	-0.002	-0.042	-91.36
Ca	4.40	0.200	4.200	1.26
Ce	5.45	-0.039	-0.811	-394.11
Cr	1.74	0.076	1.596	6.43
Co	0.27	0.045	0.941	33.68
Cu	3.02	0.004	0.084	249.02
Eu	4.21	-0.001	-0.025	-270.84
Fe	12.94	1.849	38.828	0.75
La	0.36	0.018	0.379	86.60
Pb	0.28	0.206	4.324	10.35
Li	4.05	-0.003	-0.057	-271.08
Mg	2.30	0.089	1.859	0.82
Mn	7.78	0.521	10.943	0.78
Hg	4.37	(-0.017	(-0.354	-30.56
Mo	1.73	0.005	0.103	96.36
Nd	5.57	(-0.567	(-11.92	-25.17
Ni	9.35	0.761	15.974	0.31
P	3.98	2.252	47.302	1.78
K	155.23	)744.42	) 15633	0.87
Sm	5.23	-0.065	-1.367	-294.60
Se	1.82	0.108	2.264	35.81
Si	4.95	1.063	22.323	2.15
Ag	15.48	-0.002	-0.032	-836.69
Na	22.57	15.548	326.50	0.72
Sr	5.46	0.069	1.452	1.58
S	0.92	0.210	4.408	6.76
Ta	3.80	-0.001	-0.023	-2365.1
Tl	4.41	-0.071	-1.495	-240.54
Th	1.10	-0.005	-0.110	-2400.5
Sn	1.29	0.017	0.347	52.69
Ti	3.64	0.001	0.023	474.70
W	1.40	0.015	0.316	166.63
U	5.31	0.047	0.988	2345.33
V	4.38	-0.005	-0.098	-174.82
Zn	3.65	0.040	0.849	2.55
Zr	4.80	0.013	0.264	157.53

Dilution factor : 21.0000

ICP Data Report - Acid Blank - (File 22)

Sample name : HNO3
Programme : SST 19-Apr-90 10:31:48

NAME	MV INT	CONCEN	RSD
Al	1.94	-0.232	-7.87
Sb	0.37	-0.113	-52.71
As	1.06	-0.034	-3.67
Ba	3.81	(-0.019	-5.82
Be	0.69	-0.001	-26.96
Bi	3.73	(-0.203	-12.90
B	4.58	-0.005	-65.95
Cd	2.22	(-0.010	-7.10
Ca	0.48	-0.001	-8.33
Ce	5.15	(-0.622	-6.75
Cr	1.28	(-0.063	-3.86
Co	0.26	-0.016	-23.08
Cu	2.84	(-0.036	-7.86
Eu	3.98	(-0.012	-5.47
Fe	1.59	(-0.014	-4.45
La	0.35	-0.035	-29.40
Pb	0.27	-0.014	-173.20
Li	3.85	(-0.027	-9.23
Mg	0.44	-0.001	-6.52
Mn	0.75	-0.002	-13.88
Hg	4.40	-0.015	-13.52
Mo	1.62	-0.014	-8.71
Nd	5.31	(-1.045	-4.18
Ni	3.27	(-0.026	-8.51
P	1.28	0.002	809.77
K	3.28	-0.744	-13.25
Sm	4.95	(-0.728	-6.26
Se	1.70	-0.148	-13.04
Si	3.21	-0.111	-6.65
Ag	14.62	(-0.042	-6.40
Na	5.30	(-0.300	-7.25
Sr	3.59	-0.007	-5.68
S	0.73	-0.037	-33.52
Ta	3.59	(-0.089	-5.63
Tl	4.13	(-0.770	-3.81
Th	1.04	(-0.442	-2.73
Sn	1.20	-0.022	-21.73
Ti	3.42	(-0.023	-6.47
W	1.31	-0.052	-10.09
U	4.99	(-4.516	-6.44
V	4.16	(-0.031	-9.86
Zn	2.31	-0.004	-10.83
Zr	4.56	-0.069	-7.46

ICP Data Report - Acid Blank - (File 23)

Sample name : HNO3
Programme : SST 19-Apr-90 10:35:25

NAME	MV INT	CONCEN	RSD
Al	1.92	(-0.278	-11.18
Sb	0.37	-0.128	-35.25
As	1.05	-0.044	-8.81
Ba	3.78	(-0.021	-11.59
Be	0.68	-0.001	-20.00
Bi	3.71	(-0.225	-20.53
B	4.53	-0.009	-66.96
Cd	2.20	(-0.011	-1.19
Ca	0.47	-0.001	-12.74
Ce	5.12	(-0.688	-13.18
Cr	1.26	(-0.068	-5.56
Co	0.26	-0.001	-300.01
Cu	2.82	(-0.040	-10.19
Eu	3.95	(-0.013	-9.75
Fe	1.57	(-0.017	-38.84
La	0.35	-0.050	-13.32
Pb	0.26	-0.128	-9.62
Li	3.82	(-0.031	-10.12
Mg	0.44	-0.001	-15.26
Mn	0.74	(-0.003	-21.26
Hg	4.46	-0.011	-108.21
Mo	1.60	(-0.017	-20.41
Nd	5.32	(-1.030	-7.12
Ni	3.27	(-0.026	-6.48
P	1.26	-0.013	-178.13
K	3.24	(-0.937	-10.43
Sm	4.92	(-0.804	-11.85
Se	1.68	(-0.188	-10.69
Si	3.18	(-0.127	-11.19
Ag	14.53	(-0.046	-11.30
Na	5.26	(-0.337	-15.02
Sr	3.57	(-0.008	-14.01
S	0.72	(-0.048	-37.62
Ta	3.57	(-0.095	-16.69
Tl	4.12	(-0.813	-15.82
Th	1.03	(-0.492	-15.42
Sn	1.20	-0.025	-14.32
Ti	3.40	(-0.026	-11.09
W	1.30	(-0.063	-8.04
U	4.96	(-4.982	-12.47
V	4.15	(-0.033	-17.17
Zn	2.29	(-0.004	-23.36
Zr	4.54	-0.075	-12.22

ICP Data Report - Acid Blank - (File 32)

Sample name : HNO3
Programme : SST 19-Apr-90 11:13:28

NAME	MV INT	CONCEN	RSD
Al	1.93	-0.253	-16.20
Sb	0.37	-0.074	-40.00
As	1.05	-0.044	-20.44
Ba	3.80	(-0.019	-8.95
Be	0.68	-0.001	-26.15
Bi	3.71	(-0.224	-28.45
B	4.46	-0.014	-35.03
Cd	2.21	(-0.010	-5.79
Ca	0.47	-0.001	-11.27
Ce	5.14	(-0.647	-8.84
Cr	1.26	(-0.068	-4.38
Co	0.26	-0.017	-44.61
Cu	2.83	(-0.038	-12.61
Eu	3.97	(-0.012	-8.86
Fe	1.60	-0.012	-17.73
La	0.35	-0.036	-26.96
Pb	0.27	-0.000	*******
Li	3.83	(-0.029	-12.16
Mg	0.44	-0.001	-10.60
Mn	0.74	-0.003	-5.14
Hg	4.58	-0.003	-101.25
Mo	1.62	(-0.015	-8.76
Nd	5.30	(-1.071	-8.15
Ni	3.24	(-0.030	-10.24
P	1.29	0.008	296.65
K	3.23	(-1.002	-2.99
Sm	4.94	(-0.744	-8.34
Se	1.70	-0.145	-5.23
Si	3.18	(-0.129	-9.79
Ag	14.57	(-0.044	-6.64
Na	5.28	(-0.316	-9.66
Sr	3.58	-0.008	-8.69
S	0.72	-0.042	-33.52
Ta	3.57	(-0.095	-8.10
Tl	4.12	(-0.799	-7.55
Th	1.04	(-0.463	-9.02
Sn	1.19	(-0.028	-33.34
Ti	3.41	(-0.025	-7.21
W	1.30	(-0.061	-11.20
U	4.97	(-4.780	-8.74
V	4.14	(-0.034	-4.68
Zn	2.29	(-0.004	-21.36
Zr	4.55	-0.072	-10.58

ICP Data Report - LMCS Check Standard 78C11J - (File 33)

Sample name : 78C11J
Sample code 1 : SST1
Sample code 3 : DIRECT
Programme : SST 19-Apr-90 11:17:13

NAME	MV INT	CONCEN	RSD
Al	1.97	-0.137	-15.35
Sb	1.07	10.257	0.36
As	1.14	0.034	24.35
Ba	144.69	10.253	0.70
Be	0.69	-0.000	-34.64
Bi	3.79	-0.141	-3.68
B	134.29	9.943	0.65
Cd	158.51	9.772	0.97
Ca	206.02	10.503	0.57
Ce	9.98	8.857	0.92
Cr	32.51	9.330	0.99
Co	2.76	9.322	0.25
Cu	50.52	10.336	0.70
Eu	4.47	0.011	8.04
Fe	63.53	10.150	0.88
La	0.37	0.024	18.23
Pb	0.27	0.014	396.88
Li	89.69	10.361	0.52
Mg	214.46	10.245	0.70
Mn	135.96	10.065	0.84
Hg	4.24	(-0.026	-7.84
Mo	1.70	-0.001	-109.08
Nd	10.59	8.752	1.94
Ni	79.98	9.905	0.96
P	1.34	0.053	32.82
K	8.39	24.306	0.90
Sm	4.86	(-0.947	-4.23
Se	3.34	3.158	0.80
Si	3.21	-0.112	-8.22
Ag	14.44	(-0.050	-5.18
Na	32.89	25.012	0.87
Sr	257.58	10.401	0.66
S	0.91	0.196	15.52
Ta	3.58	(-0.092	-13.15
Tl	4.24	-0.496	-15.01
Th	1.06	-0.300	-10.64
Sn	117.24	49.177	0.77
Ti	3.38	(-0.029	-5.66
W	1.54	0.129	15.81
U	5.21	-1.327	-19.07
V	4.14	(-0.034	-18.06
Zn	304.88	9.882	0.86
Zr	4.55	-0.074	-8.91

ICP Data Report - LMCS Check Standard 82B38F - (File 34)

Sample name : 82B38F
Sample code 1 : SST2
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 11:21:20

NAME	MV INT	CONCEN	RSD
Al	3.58	4.069	1.38
Sb	0.41	0.452	4.98
As	2.90	1.477	1.89
Ba	4.15	0.006	29.78
Be	0.72	0.001	5.88
Bi	56.81	53.426	1.49
B	5.34	0.053	7.04
Cd	2.37	-0.000	-557.56
Ca	0.72	0.012	2.17
Ce	5.56	0.175	48.32
Cr	1.60	0.034	7.54
Co	0.26	0.002	149.99
Cu	3.98	0.213	0.87
Eu	218.33	9.772	1.47
Fe	1.95	0.046	7.95
La	12.40	)46.554	1.62
Pb	2.73	52.410	1.22
Li	4.16	0.011	25.99
Mg	0.58	0.006	1.89
Mn	0.89	0.009	6.31
Hg	5.12	0.032	5.58
Mo	1.75	0.008	17.90
Nd	5.93	0.110	49.02
Ni	3.57	0.012	43.95
P	1.62	0.282	6.00
K	3.29	-0.683	-16.18
Sm	9.31	9.654	0.99
Se	1.86	0.176	16.23
Si	4.09	0.487	3.07
Ag	243.27	10.646	1.11
Na	5.45	-0.159	-19.64
Sr	3.85	0.003	27.75
S	0.85	0.120	0.61
Ta	4.10	0.125	10.61
Tl	6.61	5.532	1.17
Th	7.75	52.474	1.49
Sn	1.40	0.061	1.59
Ti	4.00	0.043	4.73
W	1.38	0.001	377.53
U	8.98	51.750	1.10
V	6.18	0.217	2.11
Zn	2.60	0.006	5.67
Zr	5.02	0.088	8.18

ICP Data Report - LMCS Check Standard 77C11I - (File 35)

Sample name : 77C11I
Sample code 1 : SST3
Sample code 2 : DIRECT
Programme : SST 19-Apr-90 11:25:06

NAME	MV INT	CONCEN	RSD
Al	21.36	50.406	0.19
Sb	0.46	1.288	6.31
As	71.36	57.875	0.46
Ba	4.28	0.016	20.19
Be	235.91	9.750	1.00
Bi	4.91	0.991	2.95
B	5.46	0.062	1.82
Cd	2.59	0.013	19.09
Ca	0.74	0.013	1.21
Ce	5.50	0.059	193.40
Cr	1.49	0.000	2621.02
Co	0.29	0.118	3.16
Cu	3.26	0.055	10.19
Eu	4.27	0.001	153.56
Fe	1.95	0.045	6.19
La	0.36	0.009	89.21
Pb	0.28	0.284	4.33
Li	4.15	0.009	27.52
Mg	0.51	0.003	5.92
Mn	1.02	0.018	6.79
Hg	394.44	25.485	0.91
Mo	286.54	48.570	0.58
Nd	5.70	-0.317	-25.18
Ni	7.35	0.502	1.43
P	72.26	)59.255	1.62
K	3.40	-0.160	-96.82
Sm	5.31	0.135	106.53
Se	27.87	52.432	1.18
Si	70.59	45.263	0.59
Ag	22.41	0.322	0.69
Na	5.76	0.128	44.89
Sr	3.87	0.004	34.51
S	43.60	)53.973	1.14
Ta	119.44	48.062	0.84
Tl	25.32	53.112	0.17
Th	1.22	1.004	6.23
Sn	1.73	0.201	1.41
Ti	441.46	50.698	0.22
W	27.83	20.969	0.26
U	6.23	13.003	1.81
V	85.53	10.005	0.09
Zn	3.53	0.036	3.64
Zr	152.84	50.232	0.26

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Plutonium Analysis

Fusion Dissolution / Water Dissolution

Instrument	E60044
Procedure / Rev	LA-503-156/C-2
Technologist	R.D. Hale
Date	02-08-90
Temperature	23 C
Starting Time	09:00 02-07-90
Ending Time	15:00 02-08-90
Chemist	S. A. Catlow

	Description		Lab. Id.
1	Initial LMCS Check Std		F0903
2	Reagent Blank		F0946
3	Sample	Comp 5	F0899
4	Duplicate	Comp 5	F0900
5	Sample	Comp 5	F0905
6	Duplicate	Comp 5	F0906
7	Sample	Comp 6	F0923
8	Duplicate	Comp 6	F0924
9	Sample	Comp 6	F0929
10	Duplicate	Comp 6	F0930
11	Sample	Comp 8	F0947

	Description		Lab. Id.
12	Duplicate	Comp 8	F0948
13	Sample	Comp 8	F0953
14	Duplicate	Comp 8	F0954
15	Spike	Comp 5	F0949
16	Final LMCS Check Std		F0950
17			
18			
19			
20			
21			
22			

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Standard	16B43/100 uL			N/A
Spike	10B43-B/50 uL	F0947/ 1mL	16B43/100 uL	N/A

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 08-14-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-14-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev. E SST-102

9 1 1 2 7 5 7 0 1 1 4

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Np-237, Pu 239/240, Am 241/Pu 238 Cm 243/244		
Procedure	LA-508-051	Revision:	A-2
Instrument:	Canberra Juptier System	Property Number:	
Technologist:	Varied	Payroll Number:	
Date:	Listed on attachments.		

Calibration Standard ID: Book number	N/A
Analyte Concentration:	N/A
Type of Calibration:	N/A

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Detector are aligned not calibration.

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-27-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-27-90

Approved by: [illegible]

Interim Rev. (Draft) 1/18/89 -103

144

9 1 1 2 7 5 9 0 1 4 5

AEA ENERGY CALIBRATION

	TECH/ SHIFT	DATE	BELL #1	BELL #2	BELL#3	BELL #4	BELL #5	BELL #6	BELL #7	BELL #8
Np-237	VR/D	2/3/90	83	151	151	152	155	156	out	153
Pu 239/240		2/3/90	111	229	229	230	232	233	of	232
Am-241/Pu238		2/3/90	137	301	301	301	303	303	service	303
Cm-243/Cm-244		2/3/90	161	367	368	368	369	369		370
Np-237	AJ/D	2/4/90	83	151	150	152	152	154	out	150
Pu-239/240		2/4/90	110	229	228	230	230	231	of	229
Am-241/Pu-238		2/4/90	136	300	300	300	301	301	service	300
Cm-243/Cm-244		2/4/90	160	367	366	367	367	367		368
Np-237	AJ/D	2/5/90	82	149	148	150	153	155	out	151
Pu-239/240		2/5/90	110	228	226	228	231	231	of	230
Am-241/Pu-238		2/5/90	135	229	298	299	301	302	service	301
Cm-243/Cm-244		2/5/90	159	365	365	366	368	367		368
Np-237	VR/D	2/7/90	82	149	149	150	153	154	out	151
Pu-239/240		2/7/90	110	227	227	228	230	231	of	230
Am-241/Pu-238		2/7/90	135	298	299	298	301	301	service	301
Cm-243/Cm-244		2/7/90	159	364	365	365	367	367		368
Np-237	VR/D	2/8/90	81	150	150	152	155	156	out	152
Pu-239/240		2/8/90	109	227	228	230	232	233	of	231
Am-241/Pu-238		2/8/90	135	298	299	300	303	303	service	302
Cm-243/Cm-244		2/8/90	158	365	365	366	369	368		370
Np-237	VR/D	2/9/90	81	149	149	150	152	153	out	151
Pu-239/240		2/9/90	109	227	228	228	230	230	of	230
Am-241/Pu-238		2/9/90	135	299	299	299	301	300	service	301
Cm-243/Cm-244		2/9/90	159	365	366	365	367	366		369
Np-237	AJ/C	2/10/90	82	149	148	151	153	155	out	151
Pu-239/240		2/10/90	110	227	227	229	231	232	of	230
Am-241/Pu-238		2/10/90	136	299	298	300	302	302	service	302
Cm-243/Cm-244		2/10/90	160	365	365	366	368	367		369

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F903 SEG/COMP/#13 PU
File ID: SD4709.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	5.2	4.8	469.869	469.869	20.000	12.660	10.000	5.524
2	2145.9	2208.4	358.677	358.677	20.000	10.661	10.000	4.945
3	280.4	285.9	302.189	302.189	20.000	10.454	10.000	3.516
4	229.4	64.8	264.079	264.079	12.000	6.706	6.000	4.662
5	2612.8	2618.0	229.858	229.858	20.000	10.762	10.000	5.781

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0010		6.322		0.06	0.09	0.47	0.311E-06
2	Cm244	0.4328	5.796	5.789	0.007	0.05	39.74	198.99	0.896E-04
	Cm243		5.786	5.789	-0.003				0.123E-03
3	Pu238	0.0630	5.499	5.518	-0.019	0.05	5.79	40.26	0.181E-04
	Am241		5.480	5.518	-0.038				0.139E-04
4		0.0096		5.335		0.03	0.88	4.41	0.199E-05
5	Pu239	0.4935	5.143	5.170	-0.027	0.05	45.32	226.93	0.102E-03
	Pu240		5.144	5.170	-0.026				0.102E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.067 + (0.0048)*Channel
Energy range (MeV): 4.067 TO 6.525
Efficiency = 0.1997 CPM/DPM

TOTAL COUNT DATA:

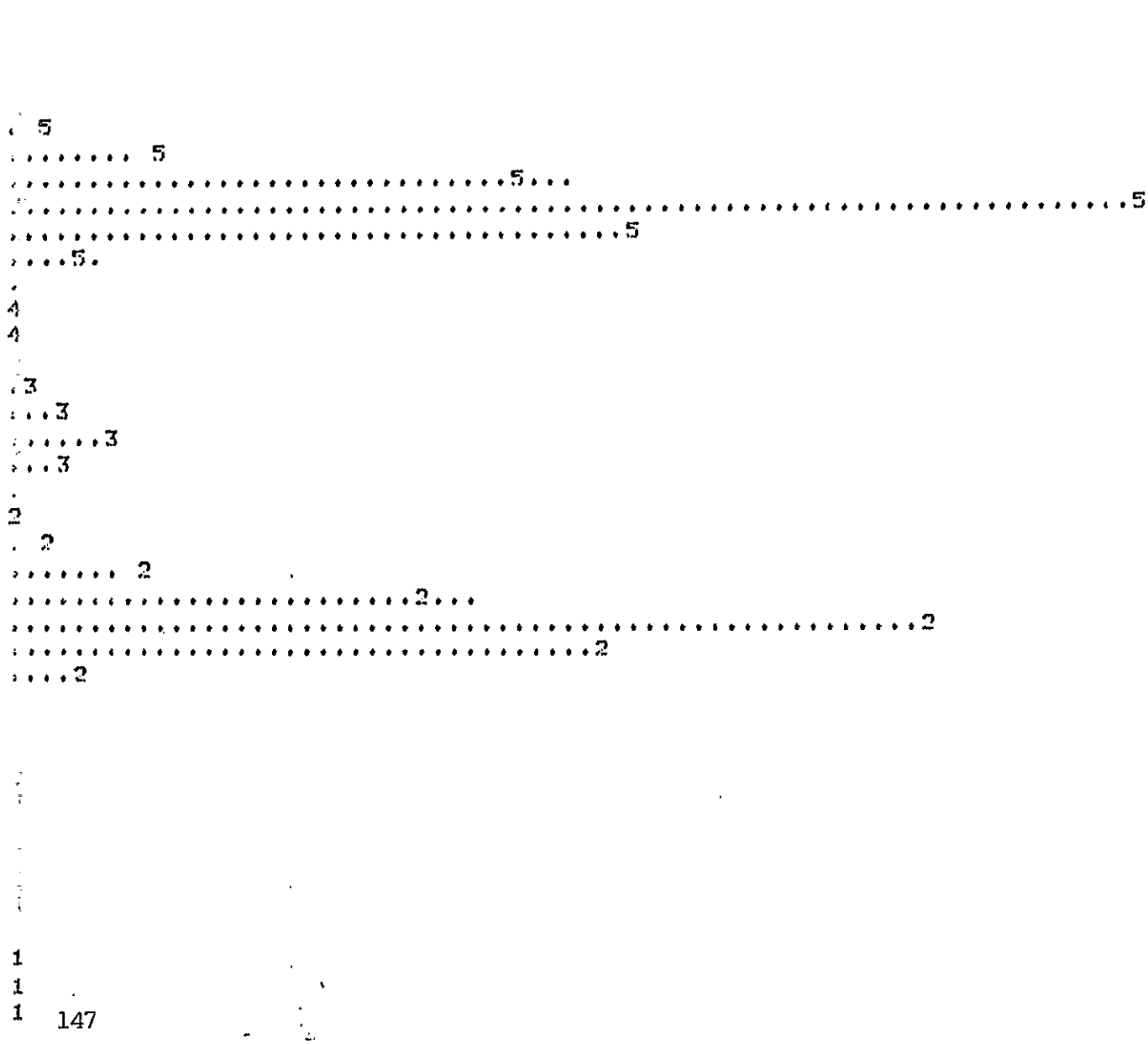
Item	Total	% Recovery
Raw spectrum	45919.0	100.000
Smoothed	45918.7	99.999
Composite fit	45910.5	99.982
Residuals	8.1	0.018

Analyzed by: _____
VR

SPECTRUM SD4709.SPC

P903-7581
9724.5

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC



F903-7587

Raw Data Dump for AEA Spectrum: SP:SD4709.SPC

1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
11	1.	1.	0.	0.	0.	1.	1.	1.	0.	2.
21	1.	0.	0.	1.	0.	0.	1.	0.	1.	0.
31	2.	0.	0.	0.	1.	1.	0.	1.	0.	1.
41	1.	1.	0.	0.	0.	2.	0.	2.	1.	0.
51	1.	1.	0.	0.	1.	0.	0.	1.	4.	0.
61	0.	1.	0.	1.	1.	0.	1.	0.	1.	1.
71	0.	1.	0.	0.	1.	0.	1.	1.	0.	0.
81	0.	0.	2.	1.	1.	1.	1.	0.	0.	1.
91	2.	1.	1.	1.	1.	0.	2.	2.	0.	1.
101	1.	0.	1.	1.	0.	1.	1.	0.	1.	1.
111	0.	3.	0.	0.	0.	0.	2.	2.	0.	1.
121	1.	0.	0.	1.	1.	0.	3.	0.	0.	0.
131	2.	0.	3.	0.	1.	3.	5.	2.	2.	0.
141	1.	1.	2.	4.	1.	5.	1.	4.	1.	1.
151	6.	4.	2.	1.	3.	2.	2.	7.	4.	3.
161	2.	1.	7.	4.	3.	7.	8.	2.	4.	4.
171	5.	10.	7.	8.	5.	7.	11.	11.	7.	6.
181	9.	9.	8.	12.	5.	6.	8.	9.	7.	11.
191	9.	7.	11.	13.	6.	8.	10.	12.	11.	11.
201	15.	22.	26.	29.	37.	37.	70.	47.	85.	97.
211	128.	136.	207.	238.	290.	347.	427.	535.	585.	700.
221	784.	890.	972.	1153.	1192.	1345.	1426.	1577.	1629.	1426.
231	1296.	1248.	1035.	787.	555.	407.	263.	132.	81.	59.
241	20.	15.	7.	8.	12.	8.	10.	8.	19.	24.
251	20.	21.	21.	30.	27.	27.	29.	36.	31.	35.
261	37.	35.	37.	40.	35.	41.	33.	28.	19.	15.
271	15.	9.	15.	7.	12.	8.	14.	14.	9.	27.
281	29.	25.	36.	39.	44.	36.	53.	55.	66.	74.
291	88.	80.	82.	100.	99.	139.	114.	139.	150.	170.
301	172.	150.	148.	143.	120.	106.	81.	46.	34.	25.
311	21.	9.	9.	4.	3.	5.	13.	6.	12.	18.
321	6.	14.	14.	8.	11.	18.	16.	10.	17.	14.
331	23.	32.	40.	44.	50.	49.	56.	87.	111.	142.
341	156.	223.	240.	320.	349.	455.	532.	592.	653.	754.
351	805.	890.	954.	999.	1084.	1256.	1220.	1250.	1184.	1191.
361	976.	851.	680.	466.	302.	176.	75.	43.	26.	11.
371	3.	0.	0.	1.	0.	0.	0.	1.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	1.	0.	0.	0.	0.	0.	3.	0.	2.
421	1.	0.	1.	0.	0.	1.	1.	1.	1.	0.
431	0.	0.	1.	0.	1.	0.	1.	0.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	2.	1.	1.	0.	0.	0.	1.	0.	0.	1.
461	1.	1.	4.	1.	2.	2.	3.	5.	3.	3.
471	3.	0.	1.	3.	1.	3.	1.	0.	0.	0.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F946 SEG/COMP/#8
File ID: SD2714.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.2	4.2	468.114	468.114	20.000	16.828	14.000	13.274
2	1894.2	1914.8	357.234	357.234	20.000	12.011	10.000	5.995
3	83.9	85.9	299.394	299.394	20.000	14.183	10.000	2.399
4	57.9	57.7	262.857	262.857	20.000	7.005	10.000	2.100
5	21.9	23.3	227.770	227.770	20.000	6.104	10.000	2.418
6	4.0	2.6	172.563	172.563	20.000	59.890	10.000	4.825

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0031		6.275		0.08	0.08	0.37	0.166E-06
2	Pu236	0.8871	5.756	5.754	0.002	0.06	35.19	159.58	0.719E-04
3	Pu238	0.0686	5.499	5.482	0.017	0.07	2.72	16.80	0.757E-05
	Am241		5.480	5.482	-0.002				0.580E-05
4		0.0283		5.311		0.03	1.12	5.00	0.225E-05
5	Pu239	0.0096	5.143	5.146	-0.003	0.03	0.38	1.69	0.759E-06
	Pu240		5.144	5.146	-0.002				0.759E-06
6	Np237	0.0043	4.781	4.886	-0.105	0.28	0.17	0.88	0.395E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0047)*Channel
Energy range (MeV): 4.075 TO 6.482
Efficiency = 0.2250 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19661.0	100.000
Smoothed	19661.0	100.000
Composite fit	19834.1	100.880
Residuals	-173.1	-0.880

Analyzed by: _____
VR

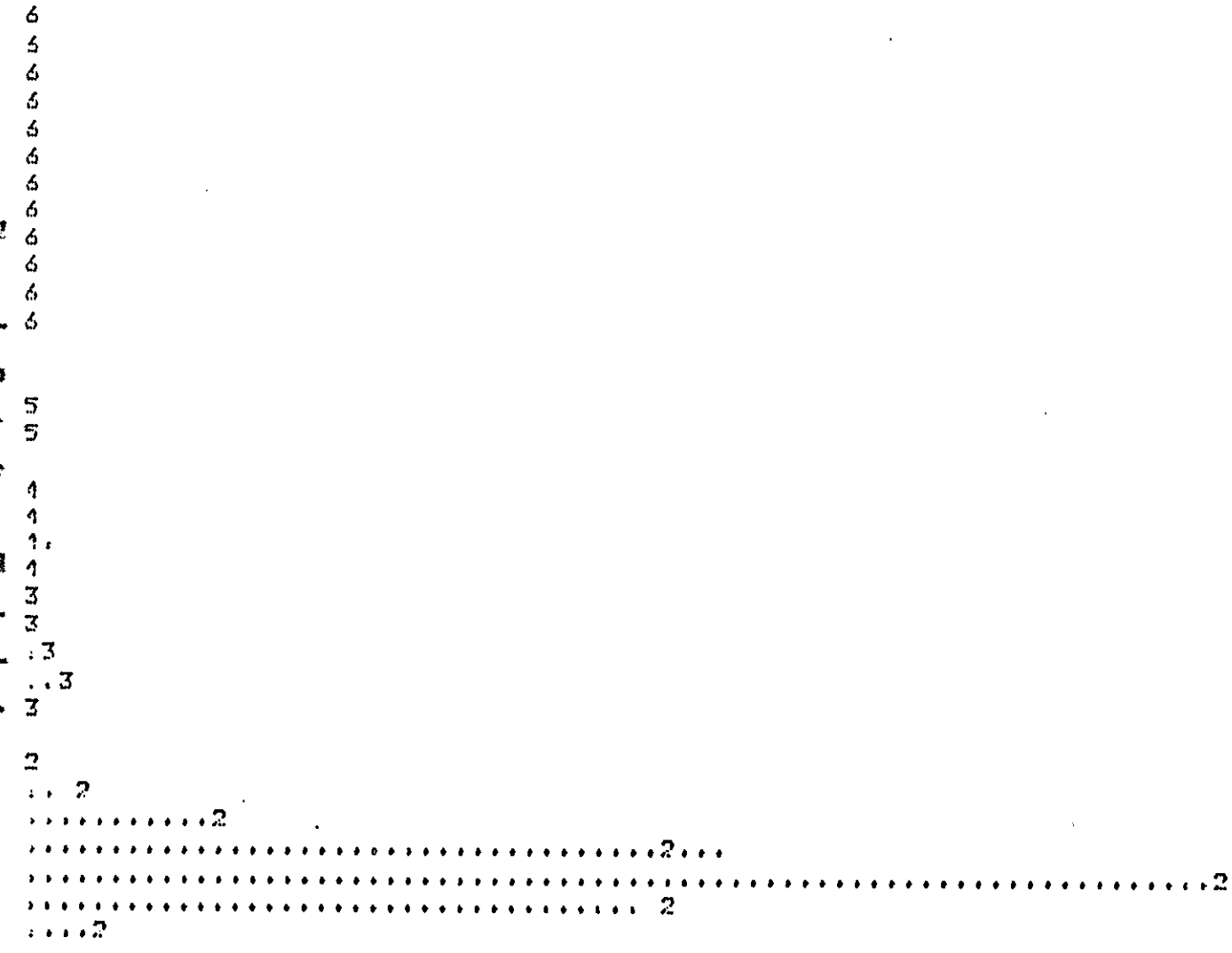
F946-6381

Raw Data Dump for AEA Spectrum: SP:SD2714.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
11	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.
21	1.	0.	0.	2.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
51	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
71	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
91	1.	1.	1.	0.	0.	0.	1.	0.	0.	0.
101	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
111	1.	0.	0.	0.	0.	0.	1.	2.	0.	0.
121	1.	0.	1.	1.	1.	0.	2.	0.	0.	1.
131	2.	1.	0.	1.	1.	0.	1.	0.	0.	1.
141	1.	1.	0.	1.	1.	1.	0.	2.	1.	1.
151	2.	0.	0.	2.	0.	1.	0.	1.	1.	0.
161	0.	1.	3.	1.	2.	0.	1.	1.	1.	4.
171	4.	4.	1.	1.	1.	1.	2.	1.	1.	0.
181	0.	3.	2.	2.	2.	0.	0.	2.	1.	2.
191	0.	2.	1.	0.	1.	3.	4.	4.	0.	2.
201	0.	3.	0.	2.	1.	0.	3.	4.	2.	5.
211	3.	4.	6.	3.	3.	3.	10.	6.	9.	15.
221	14.	13.	15.	13.	22.	8.	15.	15.	23.	10.
231	10.	5.	14.	12.	5.	3.	4.	5.	1.	7.
241	10.	8.	6.	5.	16.	11.	17.	14.	21.	12.
251	25.	25.	33.	24.	24.	38.	26.	25.	28.	40.
261	41.	52.	52.	33.	27.	26.	18.	19.	20.	22.
271	14.	10.	10.	18.	10.	17.	13.	17.	13.	18.
281	14.	27.	30.	28.	23.	24.	33.	35.	27.	36.
291	41.	34.	39.	40.	38.	51.	38.	42.	44.	48.
301	45.	48.	34.	25.	25.	24.	19.	7.	11.	8.
311	5.	6.	7.	5.	7.	6.	4.	5.	7.	15.
321	10.	6.	9.	21.	12.	12.	12.	17.	16.	18.
331	21.	44.	35.	38.	46.	56.	66.	101.	127.	133.
341	205.	250.	257.	334.	415.	511.	550.	597.	683.	687.
351	786.	904.	913.	1084.	1035.	1116.	1072.	1028.	939.	811.
361	684.	536.	405.	268.	192.	128.	66.	36.	16.	9.
371	5.	2.	2.	0.	0.	0.	0.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	1.	1.	0.	2.
411	0.	0.	0.	0.	1.	1.	0.	0.	2.	0.
421	0.	2.	0.	0.	1.	1.	0.	1.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	1.	0.	1.	0.	1.	1.	2.	2.
461	1.	1.	3.	5.	0.	0.	4.	3.	3.	0.
471	2.	1.	2.	2.	3.	1.	0.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

SPECTRUM SD2714.SPC F946-6381

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 7179.2



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151

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F899
File ID: SD3947.SPC

Counted on: 2/ 9/90 @ 9: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	575.7	587.0	358.810	358.810	20.000	14.811	10.000	6.770
2	55.4	56.8	300.987	300.987	28.000	15.211	14.000	3.233
3	148.8	27.9	264.214	264.214	12.000	4.151	6.000	5.001
4	1544.3	1557.2	228.474	228.474	24.000	14.266	12.000	7.688
5	14.4	11.9	149.335	149.335	24.000	38.289	12.000	7.934
6	6.6	6.0	21.052	21.052	28.000	23.984	14.000	15.354

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu236	0.2686	5.756	5.742	0.014	0.07	11.93	60.42	0.272E-04
2	Th228	0.0358	5.430	5.465	-0.035	0.07	1.59	11.13	0.501E-05
	Am241		5.480	5.465	0.015				0.379E-05
3		0.0063		5.288		0.02	0.28	1.40	0.629E-06
4		0.6765		5.117		0.07	30.04	149.15	0.672E-04
5	Np237	0.0097	4.781	4.737	0.044	0.18	0.43	2.46	0.111E-05
6		0.0030		4.121		0.12	0.13	0.67	0.302E-06

DETECTOR CALIBRATION
Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

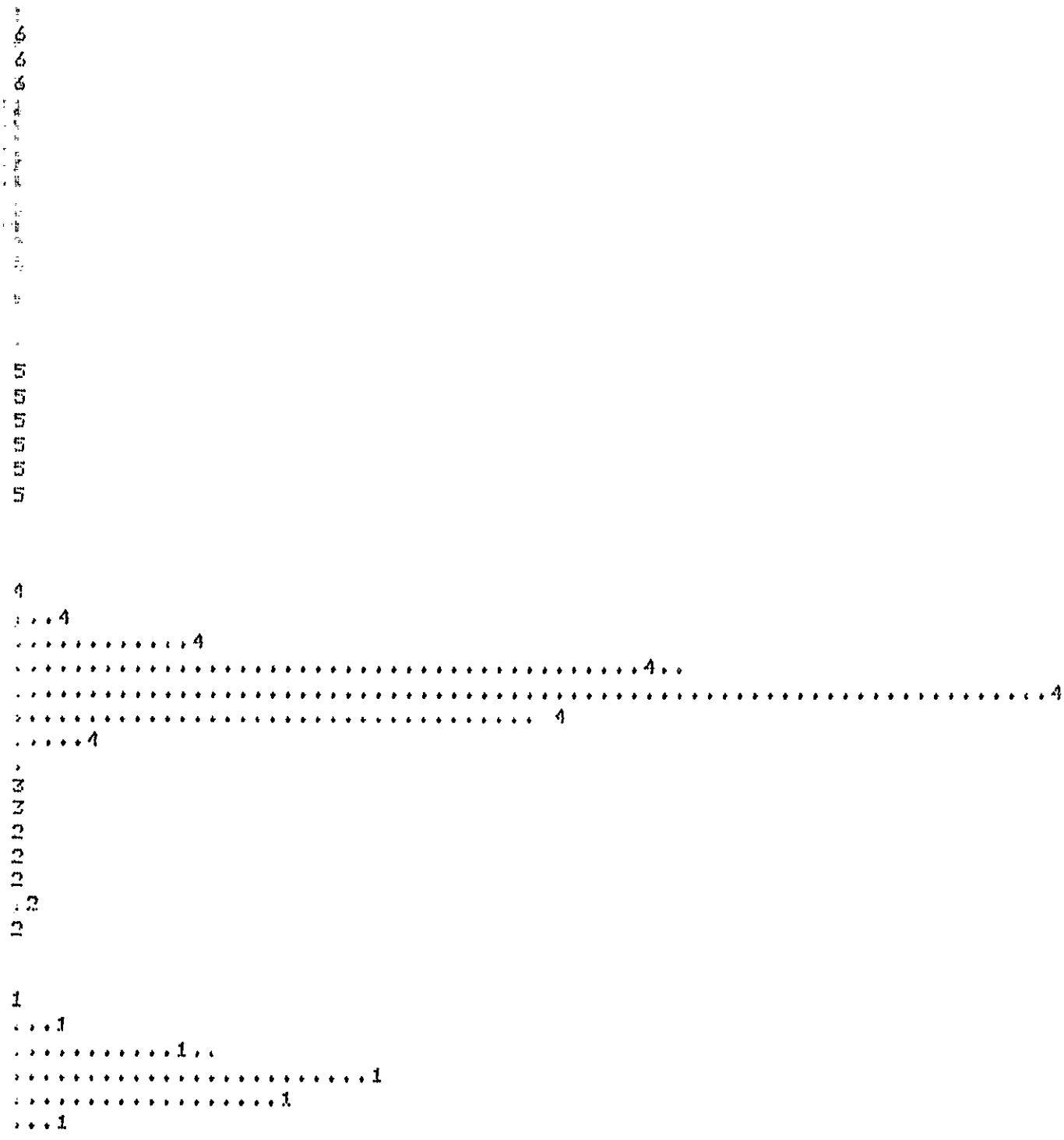
Item	Total	% Recovery
Raw spectrum	22118.0	100.000
Smoothed	22116.6	99.994
Composite fit	22202.5	100.382
Residuals	-85.9	-0.388

Analyzed by: _____
EMB

SPECTRUM SD3947.SPC

F077-0001

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 5903.4



F899-6081

Raw Data Dump for AEA Spectrum: SP:SD3947.SPC

1	0.	0.	0.	0.	0.	1.	2.	1.	2.	4.
11	5.	2.	1.	2.	2.	1.	1.	6.	7.	4.
21	2.	2.	3.	3.	3.	1.	1.	4.	1.	1.
31	0.	2.	1.	0.	1.	0.	1.	0.	0.	2.
41	1.	2.	1.	0.	1.	1.	1.	0.	0.	0.
51	1.	0.	0.	0.	1.	0.	0.	1.	0.	2.
61	0.	0.	2.	0.	1.	0.	2.	1.	2.	0.
71	0.	1.	0.	2.	2.	1.	1.	0.	0.	0.
81	0.	0.	0.	0.	1.	2.	1.	1.	1.	1.
91	0.	0.	1.	1.	3.	1.	0.	1.	3.	1.
101	1.	0.	0.	3.	2.	0.	2.	1.	2.	1.
111	1.	2.	0.	2.	1.	2.	1.	4.	0.	0.
121	1.	1.	0.	0.	1.	4.	0.	0.	1.	2.
131	3.	3.	6.	1.	2.	6.	4.	3.	5.	6.
141	7.	7.	5.	4.	6.	6.	10.	8.	9.	9.
151	6.	6.	4.	5.	3.	3.	1.	4.	2.	3.
161	2.	0.	3.	2.	0.	3.	4.	3.	2.	3.
171	2.	2.	1.	4.	3.	2.	1.	3.	2.	3.
181	3.	6.	1.	3.	1.	6.	4.	2.	3.	5.
191	5.	5.	6.	3.	7.	11.	7.	15.	17.	16.
201	19.	22.	25.	30.	43.	47.	65.	70.	74.	108.
211	145.	154.	163.	213.	258.	305.	394.	418.	476.	584.
221	630.	676.	755.	803.	813.	861.	876.	861.	833.	776.
231	695.	610.	556.	402.	283.	247.	174.	144.	76.	39.
241	45.	22.	8.	9.	6.	6.	3.	3.	7.	9.
251	3.	7.	4.	6.	7.	13.	9.	10.	16.	13.
261	8.	22.	13.	15.	14.	12.	13.	6.	9.	14.
271	11.	2.	5.	3.	7.	9.	5.	11.	6.	5.
281	11.	15.	11.	17.	10.	18.	13.	15.	21.	20.
291	19.	30.	26.	34.	18.	24.	17.	27.	41.	33.
301	32.	23.	25.	23.	23.	22.	18.	12.	21.	6.
311	7.	3.	4.	4.	0.	0.	0.	1.	2.	2.
321	4.	2.	6.	2.	3.	6.	2.	3.	3.	5.
331	12.	7.	12.	15.	18.	24.	35.	29.	27.	57.
341	53.	75.	85.	94.	122.	133.	148.	158.	198.	232.
351	213.	265.	270.	297.	297.	321.	289.	318.	323.	303.
361	293.	245.	199.	172.	136.	117.	74.	53.	36.	19.
371	14.	8.	7.	7.	3.	2.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	1.	0.	0.	1.	1.	1.	0.	0.
461	0.	1.	1.	1.	1.	0.	0.	3.	1.	5.
471	0.	0.	0.	1.	0.	4.	0.	0.	0.	2.
481	0.	0.	1.	0.	0.	3.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-900
File ID: SD2715.SPC

Counted on: 2/ 9/90 @ 9: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.0	3.7	470.169	470.169	24.000	16.507	12.000	2.797
2	1301.7	1353.5	355.962	355.962	24.000	13.828	12.000	4.634
3	134.6	133.8	298.526	298.526	24.000	15.589	12.000	3.075
4	447.7	0.0	260.591	260.591	12.000	12.123	6.000	6.102
5	3070.6	3115.0	226.351	226.351	24.000	13.351	12.000	4.805
6	12.1	11.2	20.662	20.662	20.000	17.738	10.000	10.374

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0012		6.285		0.08	0.12	0.53	0.240E-06
2	Pu236	0.2978	5.756	5.748	0.008	0.06	29.75	134.90	0.608E-04
3	Am241	0.0394	5.480	5.478	0.002	0.07	3.93	18.60	0.938E-05
4		0.0000		5.300		0.06	0.00	0.00	0.000E+00
5	Pu239	0.6595	5.143	5.139	0.004	0.06	65.88	292.79	0.132E-03
	Pu240		5.144	5.139	0.005				0.132E-03
6		0.0022		4.172		0.08	0.22	0.98	0.442E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0047)*Channel
Energy range (MeV): 4.075 TO 6.482
Efficiency = 0.2250 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	51292.0	100.000
Smoothed	51290.3	99.997
Composite fit	49948.3	97.380
Residuals	1340.7	2.614

Analyzed by: _____
EMB

F900.-6181

Raw Data Dump for AEA Spectrum: SP:SD2715.SPC

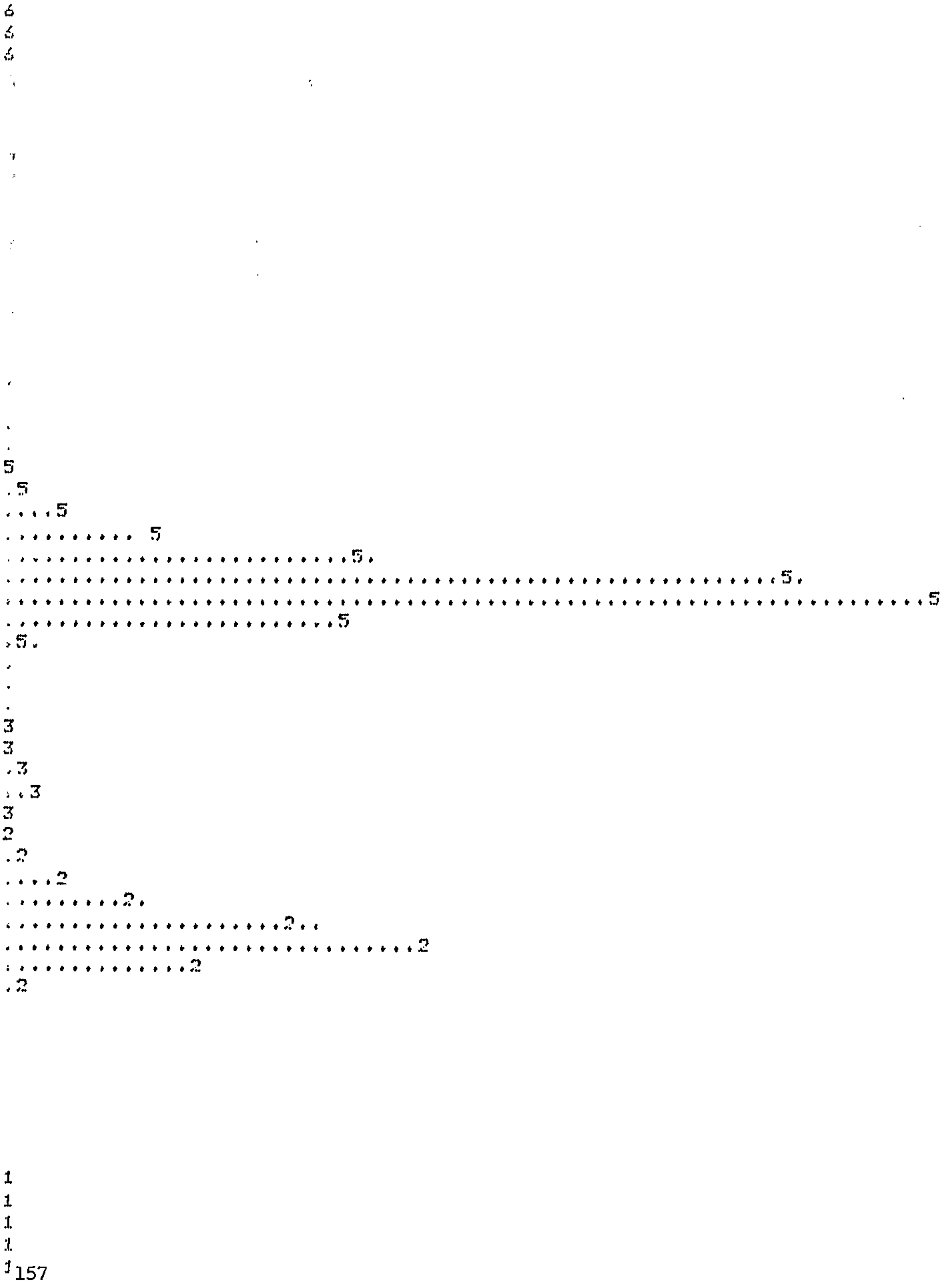
1	0.	0.	0.	0.	0.	2.	1.	6.	2.	1.
11	5.	7.	3.	8.	4.	8.	3.	4.	6.	10.
21	8.	6.	4.	4.	4.	4.	0.	0.	0.	3.
31	1.	1.	2.	0.	3.	1.	2.	1.	1.	1.
41	3.	1.	3.	2.	1.	4.	1.	3.	3.	2.
51	4.	3.	1.	1.	1.	4.	3.	2.	7.	1.
61	1.	1.	4.	3.	1.	3.	1.	3.	3.	1.
71	1.	1.	1.	1.	3.	5.	7.	1.	4.	3.
81	2.	2.	4.	5.	1.	4.	3.	3.	5.	2.
91	3.	5.	5.	4.	1.	3.	3.	8.	3.	4.
101	3.	3.	1.	4.	7.	7.	3.	2.	10.	5.
111	6.	3.	3.	8.	7.	6.	11.	6.	9.	6.
121	6.	9.	4.	12.	9.	9.	13.	17.	15.	13.
131	14.	17.	10.	14.	12.	16.	18.	19.	13.	13.
141	18.	22.	21.	18.	23.	24.	27.	18.	21.	23.
151	24.	17.	15.	20.	16.	13.	21.	14.	19.	25.
161	26.	16.	19.	27.	25.	24.	26.	19.	22.	30.
171	32.	36.	30.	38.	31.	34.	37.	32.	31.	34.
181	36.	48.	35.	51.	59.	49.	57.	53.	71.	62.
191	67.	54.	72.	92.	106.	95.	111.	150.	142.	147.
201	146.	170.	178.	240.	250.	288.	305.	386.	386.	508.
211	507.	593.	688.	741.	837.	931.	1037.	1178.	1283.	1255.
221	1445.	1542.	1637.	1719.	1744.	1743.	1652.	1453.	1406.	1215.
231	1015.	770.	610.	438.	295.	212.	125.	78.	44.	19.
241	22.	13.	13.	11.	19.	14.	10.	13.	20.	16.
251	27.	22.	21.	36.	14.	29.	27.	28.	25.	28.
261	32.	30.	32.	19.	16.	18.	23.	28.	14.	18.
271	16.	11.	10.	17.	22.	31.	21.	28.	22.	38.
281	32.	34.	34.	43.	43.	47.	46.	58.	58.	51.
291	53.	58.	68.	64.	80.	64.	91.	77.	81.	65.
301	77.	49.	46.	44.	40.	38.	25.	32.	26.	29.
311	29.	23.	19.	21.	28.	23.	21.	34.	30.	31.
321	32.	32.	36.	43.	43.	53.	49.	46.	61.	60.
331	67.	85.	113.	116.	120.	126.	168.	176.	197.	223.
341	293.	313.	350.	378.	441.	444.	510.	543.	627.	636.
351	624.	668.	698.	646.	703.	710.	699.	664.	576.	506.
361	441.	325.	239.	176.	101.	66.	39.	31.	16.	6.
371	3.	0.	0.	0.	0.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
411	2.	0.	3.	1.	2.	0.	0.	0.	0.	0.
421	1.	1.	1.	1.	0.	0.	1.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
441	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.
451	1.	0.	1.	1.	3.	1.	0.	0.	1.	1.
461	1.	4.	2.	3.	1.	1.	0.	2.	6.	2.
471	1.	0.	2.	2.	2.	1.	1.	0.	2.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

9 1 1 2 5 9 0 1 5 7

F700-6181

SPECTRUM SD2715.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 11024.1



G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-949 SEG.COMP#11 PU
File ID: S03954.SPC

Counted on: 2/11/90 @11: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	10.4	10.0	471.543	471.543	20.000	13.382	10.000	6.489
2	1898.2	1910.1	359.114	359.114	20.000	13.459	10.000	7.396
3	85.1	87.0	301.260	301.260	20.000	13.453	10.000	2.603
4	50.6	52.5	264.610	264.610	20.000	8.169	10.000	1.755
5	149.1	151.5	229.417	229.417	20.000	10.611	10.000	7.113

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0045		6.283		0.06	0.19	0.96	0.430E-06
2	Pu236	0.8469	5.756	5.744	0.012	0.06	35.86	181.69	0.818E-04
3	Th228	0.0593	5.430	5.466	-0.036	0.06	2.51	17.54	0.790E-05
	Am241		5.480	5.466	0.014				0.597E-05
4		0.0305		5.290		0.04	1.29	6.41	0.289E-05
5		0.0588		5.121		0.05	2.49	12.35	0.556E-05

DETECTOR CALIBRATION
Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21109.0	100.000
Smoothed	21107.7	99.994
Composite fit	21170.5	100.291
Residuals	-62.9	-0.298

Analyzed by: _____
DM

F949-6281

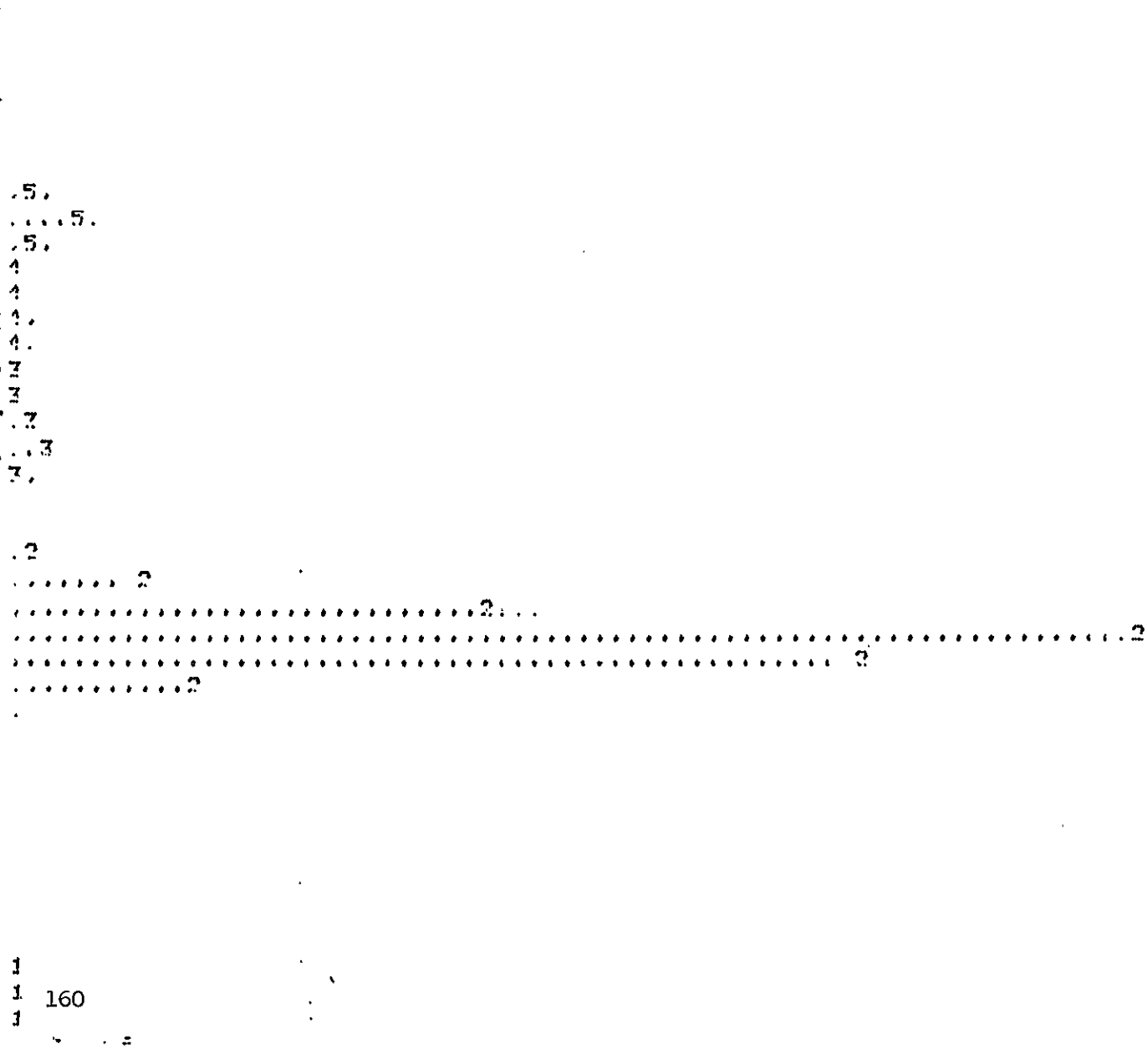
Raw Data Dump for AEA Spectrum: SP:SD3954.SPC

1	0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
11	0.	0.	0.	0.	0.	2.	3.	2.	0.	2.
21	0.	0.	0.	1.	0.	0.	2.	0.	0.	0.
31	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
41	0.	0.	2.	0.	0.	1.	1.	0.	1.	1.
51	0.	0.	0.	1.	0.	1.	0.	0.	1.	0.
61	0.	1.	0.	0.	0.	0.	0.	1.	2.	0.
71	0.	0.	0.	0.	1.	1.	1.	1.	0.	1.
81	1.	1.	0.	0.	2.	0.	1.	1.	0.	0.
91	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
101	1.	0.	1.	0.	0.	0.	1.	0.	1.	1.
111	1.	0.	1.	1.	0.	1.	1.	1.	0.	1.
121	3.	1.	0.	2.	2.	0.	1.	3.	0.	0.
131	0.	1.	0.	0.	1.	2.	1.	0.	2.	1.
141	2.	1.	1.	0.	1.	3.	3.	2.	0.	1.
151	2.	2.	3.	1.	2.	1.	2.	1.	0.	1.
161	3.	3.	1.	0.	2.	1.	0.	0.	0.	2.
171	1.	3.	0.	2.	2.	0.	1.	0.	3.	0.
181	5.	0.	0.	2.	3.	0.	1.	0.	2.	1.
191	4.	0.	1.	1.	0.	0.	0.	3.	1.	2.
201	2.	5.	3.	1.	1.	2.	1.	5.	0.	5.
211	1.	6.	8.	14.	18.	24.	26.	33.	34.	41.
221	53.	59.	70.	87.	77.	77.	100.	79.	96.	86.
231	80.	69.	58.	42.	43.	28.	20.	17.	6.	10.
241	7.	5.	7.	6.	12.	12.	9.	15.	14.	10.
251	21.	28.	16.	22.	19.	25.	30.	26.	26.	29.
261	32.	46.	31.	38.	32.	25.	30.	30.	25.	24.
271	19.	11.	13.	9.	10.	8.	13.	7.	11.	9.
281	25.	24.	19.	15.	27.	27.	32.	31.	21.	17.
291	39.	32.	29.	37.	36.	39.	41.	53.	48.	46.
301	44.	39.	46.	50.	38.	25.	19.	11.	15.	11.
311	13.	10.	3.	3.	0.	1.	1.	2.	1.	1.
321	1.	2.	4.	3.	4.	8.	2.	6.	5.	12.
331	15.	11.	19.	28.	19.	44.	58.	66.	61.	79.
341	111.	133.	223.	251.	317.	337.	410.	462.	517.	649.
351	696.	725.	856.	938.	951.	1047.	1069.	1106.	1083.	981.
361	942.	817.	655.	565.	445.	311.	234.	159.	99.	75.
371	48.	23.	21.	5.	6.	0.	2.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	1.	0.	2.	2.	1.	1.
421	3.	1.	1.	1.	0.	0.	1.	3.	0.	0.
431	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	2.	2.	1.	0.	2.	0.	2.
461	7.	2.	5.	2.	6.	1.	5.	4.	8.	7.
471	4.	7.	7.	2.	2.	3.	5.	1.	2.	0.
481	2.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

F949-6281

SPECTRUM SD3954.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 6956.3



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G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F950 SEG/COMP/#12 PU
File ID: SD3946.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1946.0	1958.5	357.840	357.840	24.000	14.663	12.000	8.261
2	245.9	249.9	300.354	300.354	24.000	12.967	12.000	4.179
3	321.6	69.1	262.412	262.412	12.000	5.250	6.000	6.220
4	2343.9	2333.2	228.108	228.108	24.000	13.601	12.000	8.431
5	5.2	8.2	150.480	150.480	80.000	2.000	40.000	0.200
6	1.6	0.9	126.257	126.257	8.000	0.382	4.000	0.057

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu236	0.4328	5.756	5.738	0.018	0.07	37.39	191.98	0.865E-04
2	Th228	0.0625	5.430	5.462	-0.032	0.06	5.48	38.29	0.172E-04
	Am241		5.480	5.462	0.018				0.130E-04
3		0.0089		5.279		0.03	0.78	3.85	0.173E-05
4		0.4919		5.115		0.07	43.06	213.81	0.963E-04
5		0.0037		4.742		0.01	0.32	1.59	0.715E-06
6	Np237	0.0003	4.640	4.626	0.014	0.00	0.02	1.85	0.835E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	43612.0	100.000
Smoothed	43611.1	99.998
Composite fit	43772.9	100.369
Residuals	-161.8	-0.371

Analyzed by: _____
VR

Raw Data Dump for AEA Spectrum: SP1SD3946.SPC

1	0.	0.	0.	0.	0.	0.	2.	3.	1.	0.
11	2.	0.	1.	2.	1.	1.	1.	1.	0.	0.
21	1.	1.	2.	0.	0.	1.	1.	1.	1.	0.
31	1.	0.	1.	2.	1.	0.	0.	0.	0.	0.
41	0.	1.	2.	2.	0.	0.	1.	2.	1.	1.
51	0.	2.	0.	1.	1.	1.	0.	2.	1.	0.
61	0.	0.	1.	0.	1.	0.	2.	3.	1.	0.
71	0.	2.	1.	2.	1.	0.	0.	0.	1.	1.
81	1.	0.	1.	0.	1.	2.	0.	1.	0.	0.
91	2.	0.	0.	2.	0.	1.	1.	1.	2.	0.
101	2.	2.	2.	0.	1.	1.	2.	2.	1.	2.
111	2.	1.	3.	0.	3.	7.	1.	1.	2.	0.
121	2.	2.	3.	2.	3.	4.	5.	0.	1.	2.
131	3.	0.	1.	0.	0.	1.	0.	3.	4.	1.
141	1.	4.	7.	0.	5.	0.	2.	0.	3.	4.
151	4.	3.	2.	1.	3.	0.	2.	0.	1.	2.
161	2.	4.	1.	1.	3.	1.	1.	3.	0.	1.
171	6.	4.	4.	2.	6.	4.	2.	2.	1.	1.
181	0.	2.	4.	2.	1.	3.	0.	5.	4.	4.
191	4.	4.	7.	5.	2.	7.	7.	6.	9.	7.
201	16.	21.	23.	23.	42.	47.	66.	72.	112.	136.
211	164.	186.	224.	334.	394.	473.	562.	603.	726.	841.
221	902.	1109.	1134.	1198.	1312.	1294.	1379.	1310.	1333.	1074.
231	1017.	829.	709.	489.	402.	304.	204.	145.	82.	68.
241	36.	21.	16.	9.	13.	13.	16.	11.	18.	23.
251	23.	16.	20.	26.	25.	22.	16.	36.	35.	35.
261	27.	36.	30.	22.	29.	28.	21.	26.	22.	14.
271	12.	10.	4.	11.	18.	12.	14.	15.	24.	23.
281	38.	40.	34.	42.	43.	44.	69.	55.	73.	88.
291	86.	88.	107.	91.	121.	135.	131.	146.	136.	148.
301	123.	141.	115.	88.	73.	57.	41.	37.	24.	29.
311	12.	8.	7.	3.	2.	5.	3.	3.	5.	2.
321	6.	5.	1.	4.	6.	5.	4.	4.	8.	6.
331	24.	15.	24.	34.	31.	52.	68.	104.	118.	139.
341	169.	210.	290.	338.	347.	489.	518.	610.	674.	760.
351	844.	914.	957.	1047.	1099.	1043.	1095.	1059.	992.	929.
361	826.	722.	560.	460.	351.	230.	183.	130.	85.	44.
371	30.	14.	14.	6.	1.	2.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
421	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
451	0.	0.	1.	0.	1.	0.	0.	1.	1.	1.
461	0.	1.	1.	1.	1.	1.	2.	4.	1.	1.
471	3.	2.	1.	0.	0.	1.	2.	1.	2.	0.
481	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

SPECTRUM SD3946.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 8021.5

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Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Americium Analysis

Fusion Dissolution / Water Dissolution

(*) No spike recovery.

Instrument	E60044
Procedure / Rev	LA-503-156/C-2
Technologist	6B598 R.D. Hale
Date	02-08-90
Temperature	23 C
Starting Time	09:00 02-07-90
Ending Time	15:00 02-08-90
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0897
2	Reagent Blank	F0946
3	Sample Comp 5	F0899
4	Duplicate Comp 5	F0900
5	Spike Comp 5	F0949
6	Final LMCS Check Std	F0950
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Standard	16B43/100 uL			N/A
Spike	*			N/A

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 08-24-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-24-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev E 4/04/90 SST-102

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Np-237, Pu 239/240, Am 241/Pu 238 Cm 243/244		
Procedure	LA-508-051	Revision:	A-2
Instrument:	Canberra Juptier System	Property Number:	
Technologist:	Varied	Payroll Number:	
Date:	Listed on attachments.		

Calibration Standard ID: Book number	N/A
Analyte Concentration:	N/A
Type of Calibration:	N/A

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Detector are aligned not calibration.

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-27-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-27-90

Interim Rev. (Draft) 1/18/89

103

165

9 1 1 2 1 5 9 0 1 1 6

AEA ENERGY CALIBRATION

	TECH/ SHIFT	DATE	BELL #1	BELL #2	BELL#3	BELL #4	BELL #5	BELL #6	BELL #7	BELL #8
Np-237	VR/D	2/3/90	83	151	151	152	155	156	out	153
Pu 239/240		2/3/90	111	229	229	230	232	233	of	232
Am-241/Pu238		2/3/90	137	301	301	301	303	303	service	303
Cm-243/Cm-244		2/3/90	161	367	368	368	369	369		370
Np-237	AJ/D	2/4/90	83	151	150	152	152	154	out	150
Pu-239/240		2/4/90	110	229	228	230	230	231	of	229
Am-241/Pu-238		2/4/90	136	300	300	300	301	301	service	300
Cm-243/Cm-244		2/4/90	160	367	366	367	367	367		368
Np-237	AJ/D	2/5/90	82	149	148	150	153	155	out	151
Pu-239/240		2/5/90	110	228	226	228	231	231	of	230
Am-241/Pu-238		2/5/90	135	229	298	299	301	302	service	301
Cm-243/Cm-244		2/5/90	159	365	365	366	368	367		368
Np-237	VR/D	2/7/90	82	149	149	150	153	154	out	151
Pu-239/240		2/7/90	110	227	227	228	230	231	of	230
Am-241/Pu-238		2/7/90	135	298	299	298	301	301	service	301
Cm-243/Cm-244		2/7/90	159	364	365	365	367	367		368
Np-237	VR/D	2/8/90	81	150	150	152	155	156	out	152
Pu-239/240		2/8/90	109	227	228	230	232	233	of	231
Am-241/Pu-238		2/8/90	135	298	299	300	303	303	service	302
Cm-243/Cm-244		2/8/90	158	365	365	366	369	368		370
Np-237	VR/D	2/9/90	81	149	149	150	152	153	out	151
Pu-239/240		2/9/90	109	227	228	228	230	230	of	230
Am-241/Pu-238		2/9/90	135	299	299	299	301	300	service	301
Cm-243/Cm-244		2/9/90	159	365	366	365	367	366		369
Np-237	AJ/C	2/10/90	82	149	148	151	153	155	out	151
Pu-239/240		2/10/90	110	227	227	229	231	232	of	230
Am-241/Pu-238		2/10/90	136	299	298	300	302	302	service	302
Cm-243/Cm-244		2/10/90	160	365	365	366	368	367		369

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F 897 SED.COMP#7 AM
File ID: SD2726.SPC

Counted on: 2/13/90 @ 0: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	2041.1	2030.9	299.349	299.349	24.000	16.162	12.000	5.953
2	3932.2	3937.6	253.170	253.170	20.000	13.999	10.000	4.917

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/cc
1	Pu238	0.4269	5.499	5.509	-0.010	0.08	63.53	1339.46	0.626E-03
	Am241		5.480	5.509	-0.029				0.479E-03
2		0.5731		5.297		0.07	85.29	1343.14	0.605E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.107 + (0.0047)*Channel
Energy range (MeV): 4.107 TO 6.514
Efficiency = 0.0635 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	75197.0	100.000
Smoothed	75196.7	100.000
Composite fit	74407.8	98.950
Residuals	788.9	1.049

Analyzed by: _____
MAX

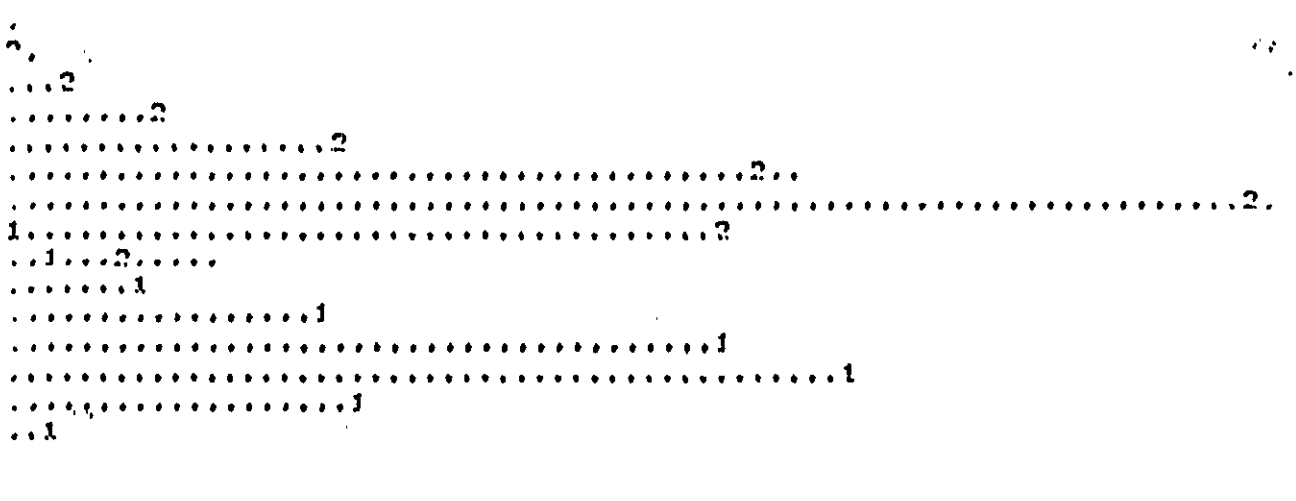
F 897-6582

Raw Data Dump for AEA Spectrum: SP:SD2726.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
11	0.	0.	3.	1.	1.	2.	0.	0.	1.	1.
21	0.	2.	0.	0.	0.	3.	0.	2.	0.	2.
31	0.	1.	2.	1.	0.	3.	1.	3.	0.	0.
41	2.	1.	2.	1.	0.	1.	0.	0.	2.	0.
51	1.	3.	2.	1.	1.	2.	1.	1.	0.	0.
61	2.	3.	0.	1.	2.	2.	0.	1.	2.	1.
71	1.	1.	2.	0.	4.	3.	0.	2.	1.	1.
81	0.	0.	3.	1.	1.	3.	1.	0.	1.	2.
91	1.	1.	0.	0.	3.	1.	1.	5.	1.	3.
101	0.	2.	2.	1.	0.	0.	0.	1.	0.	2.
111	1.	3.	1.	1.	4.	2.	6.	2.	2.	0.
121	3.	2.	4.	2.	2.	2.	1.	4.	1.	3.
131	1.	2.	1.	1.	0.	4.	0.	2.	4.	2.
141	3.	5.	3.	2.	4.	1.	3.	1.	3.	0.
151	5.	4.	4.	0.	5.	1.	3.	2.	4.	5.
161	5.	5.	2.	5.	5.	4.	4.	7.	5.	3.
171	5.	7.	9.	8.	9.	9.	4.	3.	8.	8.
181	7.	6.	8.	8.	12.	10.	16.	11.	20.	12.
191	10.	12.	8.	19.	19.	24.	16.	11.	18.	29.
201	28.	25.	27.	33.	30.	33.	54.	49.	54.	52.
211	51.	63.	71.	83.	82.	80.	97.	95.	124.	150.
221	133.	181.	173.	204.	215.	224.	237.	237.	281.	330.
231	331.	354.	403.	433.	533.	506.	580.	676.	709.	843.
241	946.	1078.	1170.	1345.	1457.	1612.	1749.	1823.	2038.	2181.
251	2189.	2326.	2241.	2102.	1961.	1704.	1479.	1218.	972.	729.
261	589.	448.	393.	342.	265.	225.	193.	180.	203.	151.
271	145.	137.	171.	170.	185.	209.	236.	259.	274.	332.
281	396.	421.	508.	541.	628.	660.	766.	872.	995.	1063.
291	1157.	1288.	1305.	1402.	1481.	1579.	1557.	1612.	1547.	1444.
301	1185.	1132.	923.	796.	635.	528.	407.	333.	242.	160.
311	130.	99.	75.	57.	45.	29.	18.	12.	5.	2.
321	2.	4.	0.	1.	0.	1.	1.	1.	0.	0.
331	1.	1.	2.	1.	2.	2.	1.	1.	2.	2.
341	3.	1.	4.	4.	3.	0.	0.	0.	2.	0.
351	1.	2.	3.	1.	0.	0.	0.	0.	2.	0.
361	0.	0.	1.	0.	0.	3.	1.	0.	1.	0.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	1.	2.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.
471	1.	0.	1.	1.	0.	1.	0.	1.	0.	1.
481	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
511	0.	0.								

SPECTRUM SD2726.SPC F-8917-6582

1-LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 15192.4



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G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F946 AM
File ID: SD3956.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.9	4.3	353.061	353.061	24.000	27.195	12.000	4.586
2	122.1	47.0	296.965	296.965	12.000	0.111	6.000	4.586
3	2724.3	2794.8	253.936	253.936	24.000	18.856	12.000	4.432
4	4.3	3.1	108.136	108.136	72.000	295.052	36.000	17.485

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Ra224	0.0020	5.680	5.715	-0.035	0.13	0.15	0.82	0.368E-06
2	Th228	0.0007	5.430	5.445	-0.015	0.00	0.05	0.38	0.171E-06
3	Am243	0.9935	5.234	5.239	-0.005	0.09	78.29	3533.97	0.159E-02
4	U 235	0.0038	4.396	4.539	-0.143	1.42	0.30	2.64	0.119E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	39211.0	100.000
Smoothed	39209.6	99.996
Composite fit	39401.6	100.486
Residuals	-192.0	-0.490

Analyzed by: _____
MAX

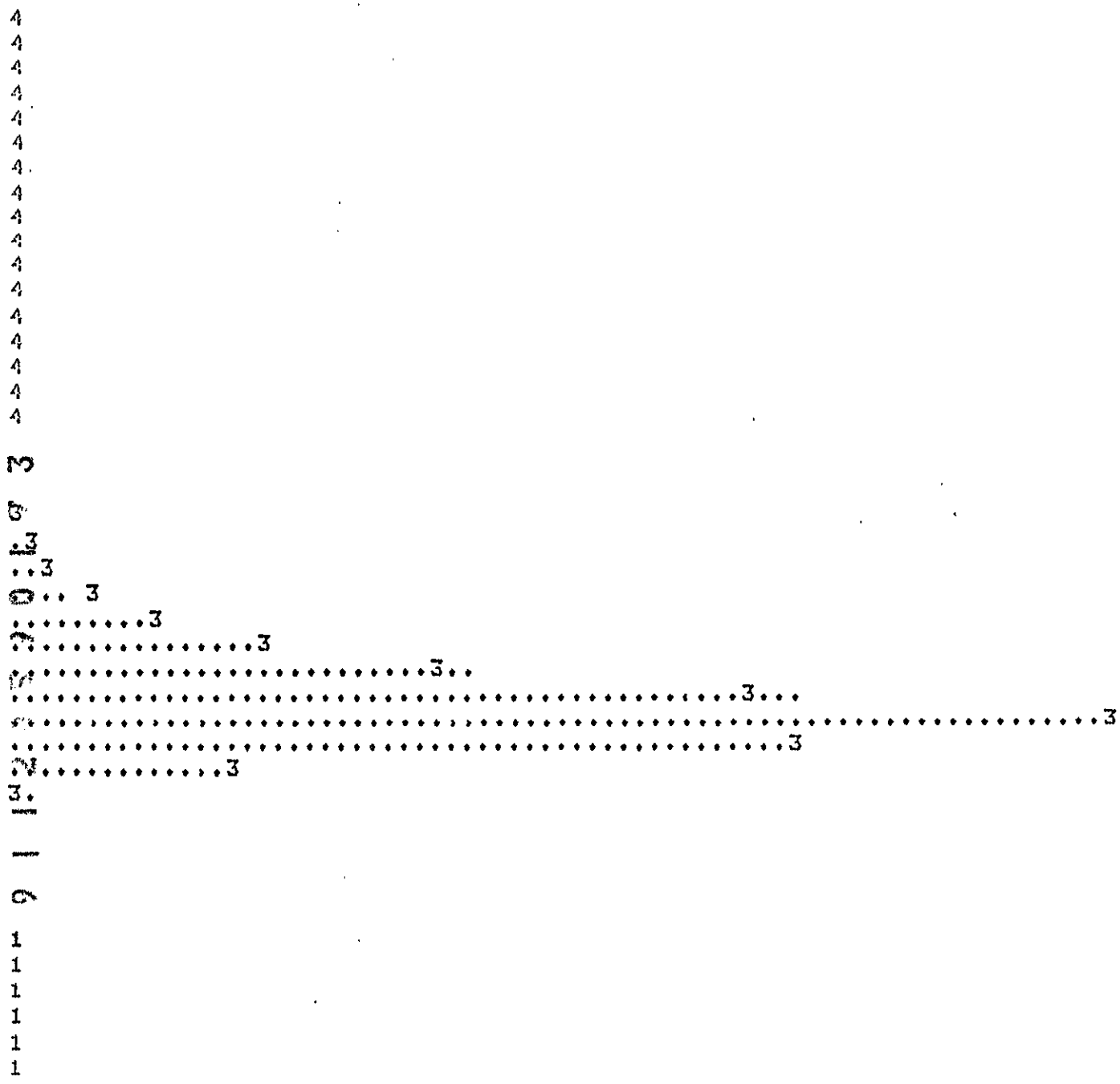
Raw Data Dump for AEA Spectrum: SP:SD3956.SPC

1	0.	0.	0.	0.	0.	2.	0.	2.	0.	0.
11	1.	1.	0.	0.	1.	1.	0.	0.	0.	1.
21	3.	2.	1.	0.	0.	0.	3.	1.	1.	1.
31	3.	0.	1.	2.	0.	0.	1.	1.	0.	1.
41	0.	1.	2.	4.	1.	0.	1.	1.	0.	1.
51	0.	0.	3.	0.	0.	0.	1.	0.	0.	0.
61	0.	0.	1.	3.	1.	1.	1.	1.	1.	2.
71	0.	1.	1.	4.	2.	1.	0.	3.	3.	2.
81	1.	1.	1.	0.	0.	3.	2.	1.	0.	0.
91	1.	0.	0.	1.	1.	0.	0.	2.	3.	0.
101	1.	2.	2.	3.	3.	1.	4.	4.	1.	0.
111	2.	3.	2.	1.	1.	1.	2.	0.	4.	3.
121	1.	1.	1.	1.	2.	0.	3.	3.	3.	1.
131	2.	2.	3.	1.	5.	2.	2.	5.	1.	2.
141	3.	0.	1.	4.	3.	4.	2.	3.	2.	2.
151	3.	3.	3.	1.	2.	9.	2.	3.	3.	3.
161	5.	8.	6.	9.	0.	4.	5.	5.	7.	7.
171	5.	11.	2.	5.	5.	8.	12.	7.	8.	6.
181	11.	13.	15.	17.	9.	15.	21.	19.	14.	20.
191	28.	24.	22.	24.	31.	47.	38.	33.	49.	42.
201	42.	43.	40.	50.	57.	48.	62.	66.	86.	70.
211	84.	95.	99.	130.	148.	116.	141.	174.	159.	214.
221	197.	216.	235.	228.	257.	304.	342.	330.	370.	386.
231	442.	468.	496.	541.	546.	628.	598.	665.	778.	826.
241	863.	911.	967.	1074.	1099.	1169.	1251.	1278.	1305.	1377.
251	1445.	1512.	1452.	1456.	1360.	1349.	1273.	1129.	961.	830.
261	725.	583.	443.	341.	246.	222.	159.	122.	101.	72.
271	65.	43.	44.	39.	28.	13.	14.	6.	9.	5.
281	6.	6.	3.	0.	6.	5.	8.	2.	9.	5.
291	9.	4.	8.	5.	3.	5.	5.	10.	8.	9.
301	2.	6.	2.	1.	5.	3.	2.	5.	1.	1.
311	1.	2.	0.	0.	2.	0.	0.	1.	0.	2.
321	0.	0.	3.	1.	1.	0.	1.	0.	2.	1.
331	0.	2.	0.	1.	0.	2.	1.	1.	1.	2.
341	3.	1.	0.	1.	0.	2.	2.	3.	2.	4.
351	2.	5.	2.	0.	1.	4.	2.	3.	1.	0.
361	1.	0.	1.	0.	2.	1.	1.	0.	1.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	3.	0.	1.	1.	0.
431	0.	1.	1.	0.	1.	2.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
471	0.	0.	1.	0.	2.	2.	1.	2.	2.	3.
481	1.	0.	0.	1.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

F946-6382

SPECTRUM SD3956.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 10532.2



G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F899 AM
File ID: SD8074.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 8/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	8.0	7.4	365.099	365.099	24.000	14.761	12.000	1.282
2	1046.7	1012.6	305.300	305.300	20.000	13.062	10.000	3.419
3	2851.1	2747.2	260.227	260.227	20.000	12.386	10.000	3.229
4	9.0	5.8	142.776	142.776	44.000	2.000	22.000	0.200

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Cm244	0.0042	5.796	5.792	0.004	0.07	0.38	2.12	0.953E-06
	Cm243		5.786	5.792	-0.006				0.131E-05
2	Pu238	0.2697	5.499	5.511	-0.012	0.06	24.51	189.13	0.852E-04
	Am241		5.480	5.511	-0.031				0.653E-04
3		0.7237		5.299		0.06	65.78	365.45	0.165E-03
4		0.0025		4.747		0.01	0.22	1.25	0.563E-06

DETECTOR CALIBRATION
Energy(MEV) = 4.076 + (0.0047)*Channel
Energy range (MeV): 4.076 TO 6.482
Efficiency = 0.1800 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	46550.0	100.000
Smoothed	46549.4	99.999
Composite fit	45449.5	97.636
Residuals	1099.9	2.363

Analyzed by: _____
MAX

Raw Data Dump for AEA Spectrum: SP:SD8074.SPC

1	0.	0.	0.	0.	0.	0.	2.	0.	0.	1.
11	1.	0.	1.	0.	4.	0.	3.	1.	0.	0.
21	0.	1.	1.	0.	2.	1.	0.	2.	3.	2.
31	0.	1.	1.	1.	0.	1.	2.	4.	2.	4.
41	1.	0.	2.	2.	1.	3.	1.	2.	1.	2.
51	1.	0.	2.	2.	2.	4.	0.	4.	2.	0.
61	0.	4.	0.	1.	1.	1.	3.	1.	0.	0.
71	2.	0.	3.	0.	2.	0.	1.	0.	1.	2.
81	2.	3.	3.	6.	4.	2.	1.	2.	1.	4.
91	3.	4.	1.	1.	0.	2.	4.	1.	2.	3.
101	0.	0.	1.	3.	5.	1.	1.	1.	3.	0.
111	2.	2.	2.	4.	1.	0.	2.	1.	4.	3.
121	3.	2.	3.	4.	1.	2.	2.	1.	4.	5.
131	2.	1.	1.	4.	3.	3.	5.	6.	2.	6.
141	6.	10.	2.	2.	4.	5.	4.	3.	3.	5.
151	1.	3.	5.	2.	5.	5.	2.	0.	5.	7.
161	2.	2.	5.	4.	4.	6.	4.	4.	10.	3.
171	5.	7.	5.	2.	5.	8.	5.	8.	10.	10.
181	14.	6.	18.	12.	16.	17.	9.	23.	14.	15.
191	19.	14.	19.	21.	16.	22.	27.	16.	29.	15.
201	20.	28.	24.	37.	26.	37.	46.	35.	40.	47.
211	51.	40.	54.	57.	75.	59.	85.	78.	90.	115.
221	98.	153.	121.	165.	166.	187.	213.	258.	281.	287.
231	333.	373.	362.	360.	352.	346.	392.	378.	381.	407.
241	390.	410.	409.	495.	499.	582.	613.	657.	691.	819.
251	877.	986.	1089.	1135.	1287.	1432.	1567.	1641.	1724.	1657.
261	1545.	1469.	1236.	952.	760.	534.	403.	301.	242.	219.
271	200.	182.	167.	147.	176.	157.	151.	162.	153.	137.
281	133.	153.	143.	163.	128.	150.	174.	149.	195.	208.
291	218.	199.	251.	235.	298.	315.	334.	408.	431.	486.
301	510.	494.	598.	632.	619.	589.	510.	441.	358.	287.
311	203.	172.	114.	116.	89.	52.	42.	37.	27.	17.
321	8.	12.	7.	5.	1.	3.	4.	0.	2.	4.
331	3.	1.	2.	0.	1.	2.	4.	0.	1.	2.
341	1.	1.	4.	4.	2.	0.	1.	4.	2.	5.
351	3.	2.	3.	3.	1.	4.	1.	5.	4.	5.
361	1.	1.	8.	5.	4.	5.	2.	4.	3.	3.
371	1.	1.	1.	0.	1.	1.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	1.	0.	0.	0.	1.	0.
411	1.	2.	0.	0.	0.	1.	0.	0.	0.	0.
421	1.	0.	0.	1.	0.	0.	1.	0.	0.	1.
431	4.	2.	0.	2.	1.	1.	1.	2.	2.	2.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
511	0.	0.								

SPECTRUM SD8074.SPC F 899-6082

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 10837.1

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G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F900 AM
File ID: SD6024.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 6/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.5	4.1	437.192	437.192	20.000	12.566	10.000	3.424
2	19.3	12.4	347.618	347.618	12.000	0.019	6.000	3.424
3	1024.5	1021.2	301.918	301.918	24.000	16.541	12.000	4.074
4	3010.7	3047.7	255.862	255.862	24.000	14.214	12.000	4.001

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Cm242	0.0010	6.115	6.140	-0.025	0.06	0.10	0.65	0.292E-06
2	Ra224	0.0001	5.680	5.710	-0.030	0.00	0.01	0.05	0.205E-07
3	Pu238	0.2706	5.499	5.491	0.008	0.08	27.04	188.50	0.849E-04
	Am241		5.480	5.491	-0.011				0.650E-04
4	Am243	0.7284	5.234	5.270	-0.036	0.07	72.78	3321.38	0.150E-02

DETECTOR CALIBRATION
Energy(MEV) = 4.042 + (0.0048)*Channel
Energy range (MeV): 4.042 TO 6.499
Efficiency = 0.1992 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	50350.0	100.000
Smoothed	50349.6	99.999
Composite fit	49958.8	99.223
Residuals	390.8	0.776

Analyzed by: _____
MAX

F900-6182

Raw Data Dump for AEA Spectrum: SP:SD6024.SPC

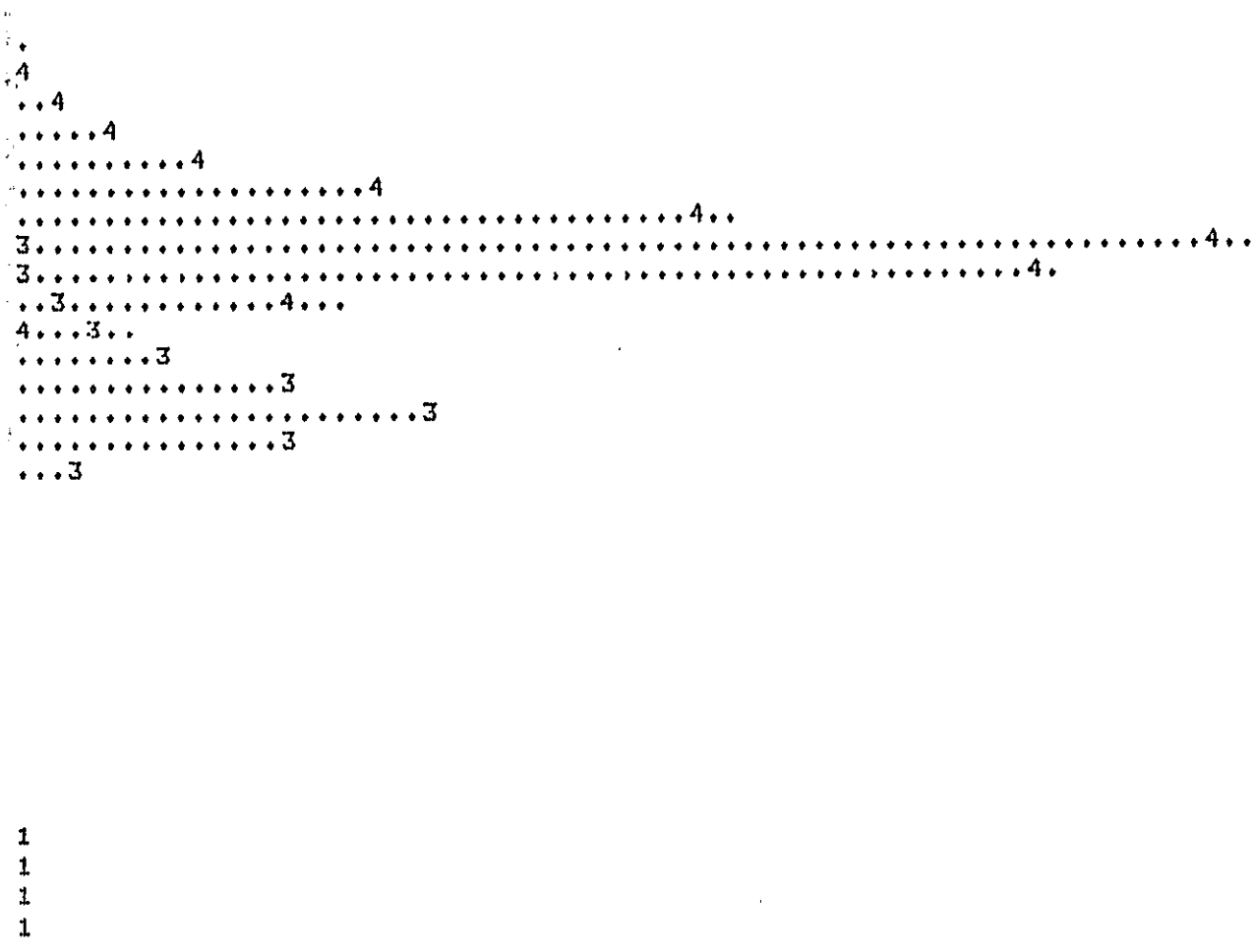
1	0.	0.	0.	0.	0.	0.	1.	1.	1.	1.
11	1.	0.	0.	0.	0.	0.	0.	0.	1.	2.
21	0.	0.	2.	0.	1.	0.	0.	3.	0.	1.
31	0.	2.	0.	0.	1.	0.	2.	1.	0.	1.
41	0.	0.	0.	1.	1.	0.	1.	0.	0.	1.
51	0.	0.	0.	2.	1.	1.	1.	1.	0.	0.
61	1.	2.	0.	0.	0.	1.	0.	2.	1.	0.
71	1.	0.	1.	1.	2.	0.	0.	0.	3.	0.
81	0.	0.	0.	0.	1.	0.	1.	0.	3.	1.
91	0.	0.	0.	2.	1.	4.	1.	3.	0.	2.
101	1.	1.	1.	2.	1.	2.	6.	1.	0.	2.
111	0.	2.	1.	0.	1.	2.	2.	2.	1.	1.
121	0.	1.	3.	3.	1.	3.	2.	1.	0.	4.
131	2.	2.	1.	1.	1.	0.	4.	3.	1.	2.
141	2.	2.	3.	5.	0.	3.	4.	0.	4.	2.
151	8.	3.	3.	6.	3.	6.	3.	4.	5.	6.
161	4.	4.	2.	8.	6.	11.	6.	5.	3.	8.
171	5.	9.	15.	10.	10.	5.	11.	17.	17.	8.
181	19.	11.	12.	13.	18.	19.	10.	20.	20.	25.
191	15.	21.	20.	24.	18.	25.	43.	22.	30.	36.
201	31.	28.	33.	41.	36.	49.	54.	54.	55.	59.
211	67.	68.	77.	75.	83.	86.	84.	109.	121.	121.
221	133.	130.	131.	180.	186.	177.	242.	221.	240.	264.
231	277.	290.	351.	369.	401.	435.	488.	536.	571.	624.
241	668.	790.	834.	887.	975.	1008.	1168.	1231.	1360.	1400.
251	1513.	1538.	1570.	1661.	1664.	1735.	1615.	1502.	1279.	1108.
261	926.	765.	587.	434.	295.	261.	207.	208.	179.	148.
271	124.	140.	130.	104.	108.	101.	107.	111.	135.	107.
281	151.	157.	172.	174.	191.	220.	223.	235.	282.	300.
291	331.	352.	388.	390.	465.	475.	506.	502.	529.	604.
301	557.	543.	538.	512.	420.	391.	338.	282.	217.	159.
311	128.	108.	80.	57.	58.	39.	29.	17.	13.	7.
321	6.	9.	4.	2.	2.	2.	2.	3.	0.	3.
331	3.	1.	7.	0.	1.	3.	4.	0.	1.	2.
341	0.	3.	2.	0.	4.	2.	3.	3.	1.	2.
351	0.	4.	1.	1.	1.	0.	0.	1.	3.	3.
361	2.	2.	2.	3.	0.	2.	3.	1.	0.	2.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	2.	0.	0.	0.	0.	0.	0.	1.	1.	0.
411	1.	0.	0.	0.	0.	1.	2.	2.	0.	1.
421	0.	0.	1.	1.	0.	2.	2.	1.	2.	0.
431	2.	1.	0.	4.	4.	3.	1.	3.	3.	2.
441	0.	0.	1.	1.	1.	0.	0.	0.	1.	0.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
481	1.	0.	0.	1.	1.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

9 1 1 2 0 5 0 1 7 8

SPECTRUM SD6024.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC

11096.1



178

F949-6282

F949-6282

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-949 SEG.COMP#11 AM
File ID: S03950.SPC

Counted on: 2/13/90 @ 1: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	69.9	45.7	294.281	294.281	16.000	8.605	8.000	0.000
2	1416.7	1464.9	248.325	248.325	32.000	25.605	16.000	4.657
3	2.4	3.3	101.979	101.979	152.000	2.000	76.000	0.200
4	0.0	0.1	27.155	27.155	0.000	0.200	0.000	0.200

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Th228	0.2115	5.430	5.432	-0.002	0.04	13.54	94.68	0.426E-04
2	Am243	0.7866	5.234	5.212	0.022	0.12	50.35	2272.65	0.102E-02
3		0.0019		4.509		0.01	0.12	0.61	0.274E-06
4		0.0000		4.150		0.00	0.00	0.00	0.105E-08

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0040)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31305.0	100.000
Smoothed	31295.7	99.970
Composite fit	32005.0	102.236
Residuals	-709.3	-2.266

Analyzed by: _____
MAX

F949-6282

Raw Data Dump for 6EA Spectrum: SP:SD3958.SPC

1	0.	0.	0.	0.	0.	8.	10.	10.	11.	10.
11	11.	11.	18.	16.	6.	10.	10.	14.	7.	12.
21	16.	15.	9.	10.	17.	10.	16.	15.	9.	10.
31	9.	17.	16.	4.	11.	8.	10.	11.	16.	14.
41	17.	9.	11.	14.	14.	19.	23.	12.	11.	17.
51	18.	9.	12.	14.	20.	17.	16.	12.	18.	11
61	18.	17.	12.	15.	8.	20.	17.	11.	17.	14.
71	12.	20.	20.	21.	20.	17.	13.	18.	16.	25.
81	17.	22.	18.	14.	24.	15.	19.	20.	14.	21.
91	27.	25.	23.	20.	22.	15.	24.	22.	30.	29.
101	24.	23.	20.	23.	29.	17.	23.	19.	26.	18.
111	22.	24.	25.	23.	29.	22.	26.	18.	24.	33.
121	24.	33.	25.	30.	29.	28.	27.	24.	31.	23.
131	19.	29.	28.	36.	31.	30.	29.	33.	27.	27.
141	28.	29.	31.	41.	32.	44.	46.	42.	28.	49.
151	54.	34.	47.	33.	31.	38.	37.	50.	42.	51.
161	51.	47.	41.	45.	60.	37.	60.	43.	44.	38.
171	37.	40.	59.	48.	55.	59.	60.	65.	57.	60.
181	53.	59.	68.	65.	64.	60.	74.	56.	86.	84.
191	68.	75.	82.	82.	76.	93.	101.	86.	95.	102.
201	110.	109.	110.	144.	129.	131.	137.	140.	152.	151.
211	155.	170.	165.	181.	183.	201.	199.	213.	208.	236.
221	216.	270.	261.	292.	303.	324.	347.	335.	400.	403.
231	396.	472.	456.	515.	498.	565.	564.	588.	650.	672.
241	661.	696.	733.	764.	768.	747.	758.	762.	760.	739.
251	693.	664.	626.	613.	511.	472.	422.	360.	297.	263.
261	177.	187.	139.	101.	85.	61.	52.	35.	41.	26.
271	25.	18.	16.	19.	17.	18.	7.	16.	12.	14.
281	13.	16.	11.	11.	10.	16.	12.	12.	14.	7.
291	9.	15.	16.	16.	17.	10.	8.	17.	9.	9.
301	5.	7.	5.	9.	5.	1.	3.	2.	2.	3.
311	1.	1.	2.	3.	1.	1.	0.	0.	2.	0.
321	2.	0.	1.	1.	0.	1.	1.	1.	2.	0.
331	0.	1.	1.	4.	2.	0.	1.	1.	2.	1.
341	1.	2.	1.	1.	0.	1.	1.	1.	2.	1.
351	1.	1.	0.	0.	1.	1.	0.	0.	0.	0.
361	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	2.	0.
441	1.	0.	0.	0.	0.	0.	0.	1.	0.	1.
451	0.	1.	2.	0.	1.	0.	1.	0.	0.	0.
461	0.	1.	1.	0.	0.	1.	0.	0.	0.	0.
471	1.	1.	0.	1.	1.	1.	1.	0.	2.	2.
481	1.	0.	2.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

4100

F-919-C252

SPECTRUM SD3958.SPC

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F950-L582

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F950 AM
File ID: SD2724.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	17.8	11.2	347.151	347.151	12.000	0.091	6.000	0.000
2	2259.9	2267.7	299.307	299.307	24.000	17.117	12.000	4.348
3	3066.1	3106.7	253.961	253.961	24.000	14.243	12.000	3.364

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu236	0.0265	5.756	5.742	0.014	0.00	3.83	19.94	0.898E-05
2	Pu238	0.4131	5.499	5.512	-0.013	0.08	59.70	423.25	0.191E-03
	Am241		5.480	5.512	-0.032				0.146E-03
3		0.5604		5.295		0.07	80.98	413.39	0.186E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.076 + (0.0048)*Channel
Energy range (MeV): 4.076 TO 6.533
Efficiency = 0.1959 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	71370.0	100.000
Smoothed	71369.7	100.000
Composite fit	72254.9	101.240
Residuals	-885.3	-1.240

Analyzed by: _____
MAX

F950-6582

Raw Data Dump for AEA Spectrum: SP:SD2724.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	3.
11	2.	1.	0.	0.	1.	0.	0.	1.	2.	0.
21	0.	0.	1.	0.	2.	0.	1.	1.	0.	2.
31	1.	1.	2.	0.	1.	0.	1.	2.	2.	1.
41	0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
51	0.	0.	0.	3.	0.	1.	1.	1.	0.	2.
61	1.	0.	3.	0.	0.	0.	0.	0.	1.	1.
71	1.	3.	0.	1.	0.	0.	1.	1.	1.	3.
81	2.	1.	3.	2.	1.	3.	0.	2.	3.	1.
91	0.	3.	3.	4.	1.	3.	4.	3.	2.	2.
101	1.	0.	2.	2.	2.	5.	1.	2.	0.	0.
111	1.	0.	2.	0.	4.	0.	1.	2.	2.	0.
121	2.	4.	2.	0.	2.	1.	2.	0.	2.	4.
131	1.	0.	1.	4.	2.	3.	4.	3.	5.	4.
141	3.	4.	3.	5.	3.	2.	5.	6.	3.	5.
151	6.	5.	10.	10.	2.	4.	7.	7.	8.	7.
161	6.	9.	2.	1.	8.	6.	10.	7.	8.	11.
171	9.	10.	9.	12.	9.	20.	22.	10.	13.	17.
181	19.	17.	20.	14.	34.	24.	24.	21.	27.	31.
191	43.	42.	29.	45.	45.	46.	53.	58.	48.	65.
201	64.	60.	70.	83.	97.	82.	93.	116.	116.	107.
211	121.	147.	163.	150.	174.	187.	188.	193.	213.	215.
221	288.	298.	313.	329.	324.	372.	383.	403.	413.	443.
231	449.	479.	519.	562.	548.	572.	626.	662.	750.	843.
241	894.	933.	1006.	1146.	1214.	1338.	1373.	1513.	1536.	1619.
251	1686.	1740.	1708.	1741.	1678.	1583.	1410.	1245.	1020.	842.
261	701.	564.	308.	337.	309.	280.	270.	278.	227.	222.
271	211.	244.	256.	239.	264.	270.	296.	300.	339.	359.
281	435.	446.	466.	483.	567.	652.	671.	675.	733.	854.
291	934.	972.	1045.	1059.	1103.	1226.	1223.	1235.	1222.	1260.
301	1132.	1017.	891.	839.	693.	545.	470.	350.	298.	222.
311	171.	115.	93.	70.	50.	40.	21.	12.	8.	7.
321	3.	3.	0.	3.	0.	1.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	2.	4.	2.	1.
341	1.	1.	2.	3.	1.	5.	1.	2.	1.	2.
351	2.	2.	1.	0.	0.	0.	1.	2.	0.	0.
361	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	2.	1.	2.	0.	0.	0.	0.
431	1.	2.	0.	0.	1.	0.	1.	0.	0.	0.
441	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	2.	1.	0.	1.	0.	0.	0.	0.	2.	0.
471	0.	0.	1.	1.	1.	4.	1.	0.	1.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Neptunium Analysis

Fusion Dissolution

Mount Volume = 500 uL

Instrument	
Procedure / Rev	LA-933-141 / G-1
Technologist	R. D. Hale
Date	03-12-90
Temperature	23 C
Starting Time	10:00
Ending Time	17:00
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0897
2	Reagent Blank	F0898
3	Sample Composite 5	F0899
4	Duplicate Composite 5	F0900
5	Sample Composite 6	F0923
6	Duplicate Composite 6	F0924
7	Sample Composite 8	F0947
8	Duplicate Composite 8	F0948
9	Sample Composite 7	F0977
10	Duplicate Composite 7	F0978
11	Spike Composite 7	F0979

	Description	Lab. Id.
12	Final LMCS Check Std	F0980
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	148B33 /100uL			N/A
Spike	148B33/100uL	F0947/250 uL		N/A

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 08/20/90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08/20/90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim

Rev. E 4/04/90

SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Technetium Analysis

Fusion Dissolution

Instrument	WA77930
Procedure / Rev	LA-438-101/C-2
Technologist	S. C. Lai
Date	02-15-90
Temperature	N/A
Starting Time	08:00
Ending Time	15:00
Chemist	S.A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0897
2	Blank	F0898
3	Sample Core 5	F0899
4	Duplicate Core 5	F0900
5	Spike Core 5	F0901
6	Final LMCS Check Std.	F0902
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std.	148B39/250uL			20 mL
Spike	148B39/250uL	F0899/500 uL		20 mL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 08-15-90

Verified by: Carry M Seidel (Signature) C.M. Seidel (Printed Name) Date: 08-15-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

9 1 1 2 5 9 0 1 3 6

Interim 4/04/90 Rev. E SST-102

185

Single Shell Tank Calibration Record

Phase I-A

Analyte:	TC 99		
Procedure	LA-508-121	Revision:	A-0
Instrument:	Liquid Scintillation Counter	Property Number:	WA77390
Technologist:	R. A. Jones	Payroll Number:	
Date:	09-19-88		

Calibration Standard ID: Book number	Packard 6005802 #2
Analyte Concentration:	See attached calibration sheets.
Type of Calibration:	Quench Curve.

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See attached calibration sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Quench Curve

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-12-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-12-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

9 1 1 2 5 9 0 1 3 7

```
SINGLE LABEL DPM  SET UP ON 19 SEP 1988 (EDITED)                THU 03 MAY 1990 [illegible]

UNKNOWN ID(20CHAR)TO 99 DIRECT
UNKNOWN REPLICATES(1-10) 1
UNKNOWN NORM FACTOR(P/0 7DIGITS) ISO1:0 1.00000
UNKNOWN UNITS(5CHAR)                ISO1:    DPM
INDIVIDUAL UNKNOWN NORM FACTORS(Y/N)N
HALF LIFE CORRECTION(Y/N)N

BACKGROUND QUENCH CURVES(Y/N)Y  COUNT BACKGROUND SAMPLES(Y/N)Y
STORE AND RE-USE THIS BACKGROUND COUNT(Y/N)N

STANDARD ID(20CHAR)131B28-A 1-10
QUENCH LIMITS(5DIGITS)LOW:73.67   HIGH:207.7
QUENCH MODE(S/M)M
```

```
SINGLE LABEL DPM QUENCH STANDARDS                               THU 03 MAY 1990 [illegible]

QUENCH STANDARDS STORED                                 SET UP ON  19 SEP 1988 (EDITED)

STANDARD ID(20CHAR)131B28-A 1-10
COUNT QUENCH STANDARDS(Y/N)N QUENCH MODE(S/M)M

                                        ISO1
STANDARD DPM(10DIGITS)                0.00030000
HALF LIFE, DAYS(N/10DIGITS)           N
REFERENCE DATE (DAY MON YEAR)         1 JAN 1983
                    (HOUR MIN)              00 00
QUENCH LIMITS(5DIGITS)LOW:73.67   HIGH:207.7
PLOT QUENCH CURVES(Y/N)N

EDIT OR RE-COUNT QUENCH STANDARDS(N=NO/E=EDIT,R=RE-COUNT)N
```

QUENCH STANDARDS FOR ISOTOPE 1 THU 03 MAY 19[illegible]

H#	EFF1	H#	EFF1
73.67	95.93	87.00	95.62
100.3	95.45	110.0	94.96
120.0	94.66	137.7	94.41
145.7	94.32	164.0	93.07
179.3	92.90	207.7	91.02

DELETE STANDARD(N/ H#)N RE-ORDER(Y/N)N
DISPLAY QUENCH CURVE(Y/N)N PLOT QUENCH CURVE(Y/N)N

POOR COPY RECEIVED

9 1 1 2 3 5 9 0 1 9

```
ID(12CHAR)TC-99, ALL                USER  5                          THU 03 MAY 1990 08:4
PRESET TIME(.01-999.99) 10.00   HB(0-10) 3   SCR(H/X:Y) H
SAMPLE REPEAT(0-10) 1           AOC(Y/N) Y   PROGRAM SUMMARY(Y/N) Y
CYCLE REPEAT(1-10) 1            OCF(Y/N) N   LSR: TIME(.1-999.95)  0.10 INT999.9
RS232 OUTPUT(Y/N) N             RCM(Y/N) Y   RCM: TIME(.1-999.95)  0.10 INT999.95
2 PHASE(Y/N) Y POST CHK(Y/N)N   VIAL(S/P)S   VOLUME(1=18-11ML/2=11-7ML/3=7-2ML)1

COUNT CHANNELS(1,2,3) 1
CHANNEL SETTINGS      LL      UL    2SIGMA    BKG SUB   RKG 2SIG      LSR
        CHANNEL 1    150     800     0.10       0.00       0.00        0


DATA CALCULATION PROGRAM (SELECT ONE) 5
 1 CPM          2 COUNTS       3 SL % REF    4 DL % REF    5 SL DPM      6 DL DPM
 7 TL DPM       8 SL DIG INT 9 DL DIG INT 10 SL RIA
PRINT FORMAT(1=STANDARD/2=SHORT/3=SELECT) 1
```

POOR COPY RECEIVED

TECHNICIUM ANALYSIS
LA-438-101

USER: 5 ID:TC-99, ALL PRESET TIME: 10.00 THU 15 FEB 1990 21:3
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
HH: 3 ADC:Y OCF:N RCM:Y 2 PHASE MONITOR:Y POST CHK:N VIAL:6 VOLUME:1
RCM-TIME: 0.10 INT:995.95
CHANNEL 1-LL:150 UL: 800 2SIGMA: 0.10 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 3

SINGLE LABEL DPM SET UP ON 19 SEP 1988 08:22

UNKNOWN ID:TC 99 DIRECT UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR ISO1:0 1.00000
UNKNOWN UNITS ISO1:DPM
UNKNOWN HALF LIFE CORRECTION:N
INDIVIDUAL UNKNOWN NORM FACTORS:N BACKGROUND QUENCH CURVES:Y
STANDARD ID:131828-A 1-10 QUENCH LIMITS LOW:73.67 HIGH:207.7
HALF LIFE(DAYS: ISO1:N
STANDARD DPM ISO1:0.00000000

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG HH	RCM%	SP	.P.
B1	**- 1	1	46.50	9.27	10.00	11.07	152.7	1.34		
	HH: 152, 152, 154									

BACKGROUND QUENCH CURVES: CONSTANT

CHANNEL 1
QUENCH CURVE COEFFICIENTS
A: 46.50000 B:0.00000000 C:0.00000000 D:0.00000000000

BACKGROUND QUENCH CURVE CORRELATION TABLE

BKG	HH	MEASURED CPM.	CALCULATED CPM.	PERCENT DIFF.	FLAG
1	152.7	46.50	46.50	0.00	

BACKGROUND QUENCH LIMITS LOW:0.000 HIGH:1000.
TOTAL QUENCH LIMITS LOW:73.67 HIGH:207.7

	SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCNT 2P
F897	1	**- 3	1	965.60	2.15	10.00	22.51	139.7	0.30
		H#: 140, 140, 139							
		ISO1 %EFF CH1:94.39						ISO1 DPM	:367.7501
+spike	2	**- 4	1	3433.[illegible]	1.08	10.00	33.72	139.0	3.20
		H#: 139, 139, 139							
		ISO1 %EFF CH1:94.40						ISO1 DPM	:3597.699

POOR COPY RECEIVED

	SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCNT 2P
F898	3	**- 5	1	59.30	8.21	10.00	44.91	138.7	0.57
		H#: 139, 139, 139							
		ISO1 %EFF CH1:94.40						ISO1 DPM	:[illegible]
+spike	4	**- 6	1	2412.20	[illegible].25	10.00	54.15	131.7	0.26
		H#: 133, 139, 139							
		ISO1 %EFF CH1:94.40						ISO1 DPM	:2506.036
F899	5	**- 7	1	66.10	7.78	10.00	67.35	139.0	9.92
		H#: 139, 139, 139							
		ISO1 %EFF CH1:94.40						ISO1 DPM	:20.76325
+spike	6	**- 8	1	2468.20	1.27	10.00	78.53	139.3	0.31
		H#: 140, 139, 139							
		ISO1 %EFF CH1:94.40						ISO1 DPM	:2563.407
F900	7	**- 9	1	63.90	7.91	10.00	89.74	140.7	18.43
		H#: 140, 141, 141							
		ISO1 %EFF CH1:94.39						ISO1 DPM	:15.43439
+spike	8	**-10	1	2363.20	1.30	10.00	100.94	140.0	0.30
		H#: 140, 140, 140							
		ISO1 %EFF CH1:94.39						ISO1 DPM	:[illegible]
F901	9	**-11	1	903.10	2.10	10.00	112.14	138.7	0.99
		H#: 138, 139, 139							
		ISO1 %EFF CH1:94.40						ISO1 DPM	:907.4145
+spike	10	**-12	1	3340.50	1.09	10.00	123.34	140.3	0.23
		H#: 140, 140, 141							
		ISO1 %EFF CH1:94.39						ISO1 DPM	:3489.764
F902	11	**- 1	1	902.00	2.11	10.00	134.57	140.7	0.99
		H#: 141, 140, 141							
		ISO1 %EFF CH1:94.39						ISO1 DPM	:906.3569
+spike	12	**- 2	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
192		H#: 142, 142, 142							
		ISO1 %EFF CH1:[illegible]						ISO1 DPM	[illegible]

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Iodine-129 Analysis

Fusion Dissolution

(*) Total volume sent for counting.

Instrument	WA77390
Procedure / Rev	LA-378-103 / A-2
Technologist	S. A. Cervantes
Date	02-16-90
Temperature	25 C
Starting Time	08:00; 02-13-90
Ending Time	16:30; 02-14-90
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0897
2	Blank Comp 5	F0898
3	Sample Comp 5	F0899
4	Duplicate Comp 5	F0900
5	Spike Comp 5	F0901
6	Final LMCS Check Std	F0902
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	73B39 / 1 mL			2 mls*
Spike	73B39 / 1 mL	Sample / 1 mL		2 mls*

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-15-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-15-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev.E 4/04/90 SST-102

192

9 1 1 2 7 5 7 0 1 7 3

11292

No.	Isotope	Half-life	STND--UCI
	Energy	Abs.Int.(%)	
1	I 129	1.600E+06 D	0.589
	29.7	55.00	
2	I 129	1.600E+06 D	0.589
	39.6	7.50	
3	SE 75	119.77 D	0.419E-01
	121.1	17.30	
4	SB 125	1004.40 D	0.447E-01
	176.3	6.80	
5	SE 75	119.77 D	0.419E-01
	264.7	59.10	
6	SE 75	119.77 D	0.419E-01
	279.5	25.20	
7	SB 125	1004.40 D	0.447E-01
	380.5	1.53	

Maximum Energy Error for Isotope Identification = 1.5 keV

Command-- ?

I1292 01/09/89

No.	Energy (keV)	Efficiency
1	29.7	0.589E+00
2	39.6	0.589E+00
3	121.1	0.419E-01
4	176.3	0.447E-01
5	264.7	0.419E-01
6	279.5	0.419E-01
7	380.5	0.447E-01

COMMAND-- ?

H-2 DET. ISOTOPE FILE

No.	Isotope	Half-life	MPC Value	Calc.Limit
	Energy	Abs.Int.(%)		
1	I 129	1.600E+06 D	---	Yes
	39.6	7.50		
2	AM 241	1.580E+05 D	---	Yes
	59.5	35.90		
3	AM 243	2.700E+06 D	---	Yes
	74.7	66.00		
4	SB 125	1004.40 D	---	Yes
	176.3	6.80		
5	SE 75	119.77 D	---	Yes
	136.0	59.00		
	121.1	17.30		

Maximum Energy Error for Isotope Identification = 1.5 keV

MDL values are corrected for decay.

Command-- ?

AUTOMATIC ISOTOPE ANALYSIS 15-FEB-90 16:01:43 F.897-6585

SAMPLE PARAMETERS

Spectrum Label:	F-897	
Sample Counting Date	14-FEB-90	18:56:57
Sample Collection Date	14-FEB-90	18:56:00
Decay Time	0. Days	0.016 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name: JIM -- H2 SHP FILE 5/13/86
Efficiency File Name: WEM01 -- H2 EFF TABLE 5/13/86
Isotope File Name: WIM01 -- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	[illegible]	19.2	2513.	590.	2.3	1.375	0.0000E+00	
2	34.0*	34.0	506.	590.	6.8	1.375	0.4492E+00	
3	39.3	39.2	407.	742.	8.6	1.373	0.5054E+00	I 129
4	59.8	59.7	21.	56.	48.9	1.369	0.5637E+00	AM 241
5	74.5	74.3	51.	80.	26.6	1.367	0.6149E+00	AM 243
6	91.5	91.2	29.	76.	41.5	1.366	0.5913E+00	

9112570177

1011-0500

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129 ?	0.968E-04 +/- 0.931E-05	1.00				
39.6	0.968E-04	7.50	8.15	8.6	0.4	
AM 241 ?	0.934E-06 +/- 0.456E-06	1.00				
59.5	0.934E-06	35.90	0.42	48.9	-0.2	
AM 243 ?	0.112E-05 +/- 0.298E-06	1.00				
74.7	0.112E-05	66.00	1.01	26.6	0.4	

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
SB 125		1.00				
176.3	<0.139E-04	6.80	< 0.82			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
29.3	50.26	2.3	34.0	10.11	6.8	91.2	0.58	41.5

STOP --
BG4500

898-6385

SAMPLE PARAMETERS

Spectrum Label:	F-898 SEG.COMP#8	
Sample Counting Date	15-FEB-90	16:04:04
Sample Collection Date	15-FEB-90	16:04:00
Decay Time	0. Days	0.001 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name: JIM -- H2 SHP FILE 5/13/86
Efficiency File Name: WEM01 -- H2 EFF TABLE 5/13/86
Isotope File Name: WIM01 -- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	31.7*	31.7	101.	221.	19.6	1.375	0.4322E+00	
2	36.4*	36.4	41.	221.	42.5	1.375	0.4718E+00	
3	74.6	74.4	47.	113.	31.7	1.367	0.6151E+00	AM 243
4	91.3	91.0	27.	83.	44.4	1.366	0.5917E+00	

F878-6385

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
AM 243 ?	0.104E-05 +/- 0.330E-06	1.00				
74.7	0.104E-05	66.00	0.94	31.7	0.3	

- -

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
I 129		1.00				
39.6	<0.101E-04	7.50	< 0.85			
AM 241		1.00				
59.5	<0.204E-05	35.90	< 0.92			
SB 125		1.00				
176.3	<0.144E-04	6.80	< 0.86			

- -

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
31.7	2.02	19.6	36.4	0.82	42.5	91.0	0.55	44.3

STOP --
BG4500

FS99-6-085

SAMPLE PARAMETERS

Spectrum Label:	F-899 SEG.COMP#9	
Sample Counting Date	15-FEB-90	17:17:12
Sample Collection Date	15-FEB-90	17:17:00
Decay Time	0. Days	0.003 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3002. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name: JIM -- H2 SHP FILE 5/13/86
Efficiency File Name: WEM01 -- H2 EFF TABLE 5/13/86
Isotope File Name: WIM01 -- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	31.7	31.7	149.	124.	12.5	1.375	0.4322E+00	
2	74.4	74.2	35.	105.	41.3	1.367	0.6146E+00	AM 243
3	97.7	97.4	25.	65.	43.2	1.366	0.5810E+00	
4	139.8	139.4	29.	90.	43.5	1.368	0.4944E+00	

F 591-6085

***** IDENTIFIED ISOTOPES *****

Nuclide Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
AM 243 ?	0.773E-06 +/- 0.319E-06		1.00			
74.7	0.773E-06	66.00	0.70	41.3	0.5	

***** MDL TABLE *****

Nuclide Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
I 129			1.00			
39.6	<0.109E-04	7.50	< 0.92			
AM 241			1.00			
59.5	<0.197E-05	35.90	< 0.89			
SR 125			1.00			
176.3	<0.146E-04	6.80	< 0.87			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
31.7	2.98	12.5	97.4	0.49	43.2	139.4	0.59	43.5

STOP --
BG4500

F900-61E5

AUTOMATIC ISOTOPE ANALYSIS 15-FEB-90 20:04:04

SAMPLE PARAMETERS

Spectrum Label:	F-900 SEG.COMP#10	
Sample Counting Date	15-FEB-90	18:13:01
Sample Collection Date	15-FEB-90	18:13:00
Decay Time	0. Days	0.000 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	31.8*	31.8	121.	201.	16.2	1.375	0.4329E+00	
2	59.1	59.0	24.	51.	40.0	1.369	0.5625E+00	AM 241
3	74.6	74.4	40.	86.	33.1	1.367	0.6151E+00	AM 243
4	184.1	183.6	24.	57.	43.5	1.378	0.3630E+00	

201.1

F9C0-6185

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
AM 241 ?	0.109E-05 +/- 0.435E-06		1.00			
59.5	0.109E-05	35.90	0.49	40.0	0.5	
AM 243 ?	0.890E-06 +/- 0.294E-06		1.00			
74.7	0.890E-06	66.00	0.90	33.1	0.3	

- -

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
I 129			1.00			
39.6	<0.971E-05	7.50	<	0.82		
SB 125			1.00			
176.3	<0.151E-04	6.80	<	0.90		

- -

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
31.8	2.42	16.2	183.6	0.48	43.5			

STOP --
BG4500

F901.-625

SAMPLE PARAMETERS

Spectrum Label:	F-901 SEG.COMP#11	
Sample Counting Date	15-FEB-90	20:05:34
Sample Collection Date	15-FEB-90	20:05:00
Decay Time	0. Days	0.009 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Band.	% Err.	FWHM (keV)	Eff.	
1	29.4*	29.4	1882.	522.	2.7	1.375	0.0000E+00	
2	34.0*	34.0	345.	522.	9.0	1.375	0.4492E+00	
3	39.4	39.3	312.	650.	10.2	1.373	0.5067E+00	I 129
4	59.6	59.5	22.	64.	49.6	1.369	0.5633E+00	AM 241
5	74.3	74.1	41.	97.	34.4	1.367	0.6143E+00	AM 243

F-701.-6-285

***** IDENTIFIED ISOTOPES *****

Nuclide Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129 ?	0.740E-04 +/- 0.757E-05	1.00				
39.6	0.740E-04	7.50	6.25	10.2	0.3	
AM 241 ?	0.980E-06 +/- 0.486E-06	1.00				
59.5	0.980E-06	35.90	0.44	49.6	0.0	
AM 243 ?	0.907E-06 +/- 0.312E-06	1.00				
74.7	0.907E-06	66.00	0.82	34.4	0.6	

***** MDL TABLE *****

Nuclide Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
SB 125		1.00				
176.3	<0.143E-04	6.80	< 0.85			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
29.4	37.65	2.7	34.0	6.89	8.9			

STOP --
BG4500

F102.-6585

AUTOMATIC ISOTOPE ANALYSIS 15-FEB-90 22:08:55

SAMPLE PARAMETERS

Spectrum Label:	F-902 SEG.COMP#12	
Sample Counting Date	15-FEB-90	21:15:58
Sample Collection Date	15-FEB-90	21:15:00
Decay Time	0. Days	0.016 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	29.3*	29.3	4910.	840.	1.6	1.375	0.0000E+00	
2	34.1*	34.1	960.	840.	4.6	1.375	0.4501E+00	
3	39.3	39.2	822.	994.	5.3	1.373	0.5054E+00	I 129
4	74.2	74.0	34.	79.	37.3	1.367	0.6140E+00	AM 243
5	92.6	92.3	30.	53.	35.3	1.366	0.5895E+00	

9114190207

F902.-6585

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129 ?	0.195E-03 +/- 0.103E-04	1.00				
39.6	0.195E-03	7.50	16.45	5.3	0.4	
AM 243 ?	0.761E-06 +/- 0.284E-06	1.00				
74.7	0.761E-06	66.00	0.68	37.3	0.7	

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
AM 241		1.00				
59.5	<0.190E-05	35.90	< 0.85			
SB 125		1.00				
176.3	<0.152E-04	6.80	< 0.91			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
29.3	98.19	1.6	34.1	19.21	4.6	92.3	0.59	35.3

STOP --
BG4500

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	HW38316
Procedure / Rev	LA-220-101 / C-0
Technologist	M. M. Sims
Date	03-08-90
Temperature	N/A
Starting Time	15:00 / 03-08-90
Ending Time	6:18 / 03-09-90
Chemist	S. A. Catlow

Strontium Analysis

Fusion Dissolution

(*) Sample is prepared as a dry mount.

(**) The spike ratio was too low for recovery.

	Description	Lab. Id.
1	Initial LMCS Check Std	F0897
2	Reagent Blank	F0898
3	Sample Comp 5	F0899
4	Duplicate Comp 5	F0900
5	Spike	F0901
6	Final LMCS Check Std	F0902
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	106B44/ 1 mL			N/A*
Spike **				

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-14-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-14-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev E 4/04/90 SST-102

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9 1 1 2 7 5 7 0 2 0 9

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Strontium		
Procedure	LO-508-002	Revision:	A-1
Instrument:	Detector #10	Property Number:	WA45242
Technologist:	R. A. Jones	Payroll Number:	
Date:	5-21-89		

Calibration Standard ID: Book number	48B16G; 48B16J; 48B16L
Analyte Concentration:	36760; 58980; 112700 cpm.
Type of Calibration:	Efficiency

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-29-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-29-90

Interim Rev.(Draft) 1/18/89

208

103

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 10

TIME ZERO DATE (HD): 13977

RADIONUCLIDE: SrY-90
HALF LIFE: 10590
COUNT TIME: 5
CPM BKG: 22

DATE COUNTED (HD): 16309

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
48B16T	1	05/21/89		84795	84166	84768	83389
48B16U	1	05/21/89		107308	108714	109687	109090
48B16TV	1	05/21/89		208878	200713	210979	211700
48B16G	2	05/21/89		62088	62802	61690	63053
48B16J	2	05/21/89		102092	101782	101676	101546
48B16L	2	05/21/89		192834	198242	197051	195835
	5						
	5						
	5						

STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
48B16T	1"	40910	16834	1.16	19610	0.4793
48B16U	1"	54640	21718	1.16	25299	0.4630
48B16TV	1"	104000	41592	1.16	48450	0.4659
AVERAGE, 1" =		0.4694 +/- @95%		0.0171	3.64 %	ON 05/21/89

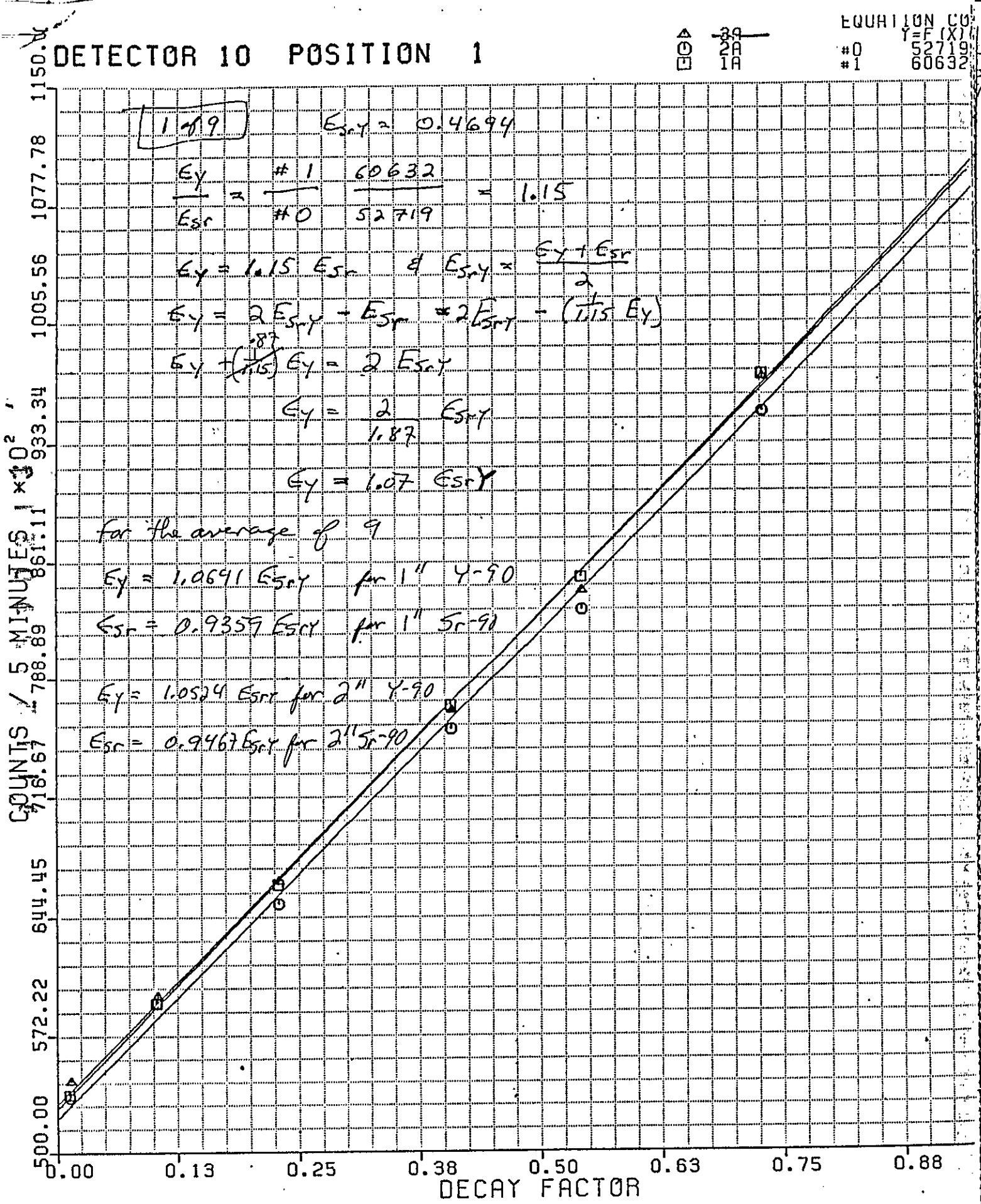
STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
48B16G	2"	36760	12460	1.16	14514	0.3948
48B16J	2"	58980	20333	1.16	23686	0.4016
48B16L	2"	112700	39176	1.16	45636	0.4049
AVERAGE, 2" =		0.4005 +/- @95%		0.0101	2.52 %	ON 05/21/89

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
36B40A6	5"	0	0	1.16	0	ERR
36B40B6	5"	0	0	1.16	0	ERR
36B40C5	5"	0	0	1.16	0	ERR
AVERAGE, 5" =		ERR +/- @95%		ERR	ERR %	ON 05/21/89

NEW EFFS FOR DET 10 SrY-90 1" = 0.4694 2" = 0.4005

5" = ERR

Procedure LQ-508-005 "Calibration of Beta Detectors for Sr-90 And Y-90" is used to determine ^{90}Sr & ^{90}Y efficiencies from the above calibration using an equilibrium mixture of ^{90}SrY.



1 of 9

$E_{SrY} = 0.4694$

$$\frac{E_Y}{E_{Sr}} = \frac{\#1}{\#0} \quad \frac{60632}{52719} = 1.15$$

$$E_Y = 1.15\, E_{Sr} \quad \& \quad E_{SrY} = \frac{E_Y + E_{Sr}}{2}$$

$$E_Y = 2E_{SrY} - E_{Sr} = 2E_{SrY} - \left(\frac{1}{1.15} E_Y\right)$$

$$E_Y + \left(\frac{1}{1.15}\right) E_Y = 2\, E_{SrY} \quad (.87)$$

$$E_Y = \frac{2}{1.87} E_{SrY}$$

$$E_Y = 1.07\, E_{SrY}$$

for the average of 9

$E_Y = 1.0641\, E_{SrY}$ for 1" Y-90

$E_{Sr} = 0.9359\, E_{SrY}$ for 1" Sr-90

$E_Y = 1.0524\, E_{SrY}$ for 2" Y-90

$E_{Sr} = 0.9467\, E_{SrY}$ for 2" Sr-90

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WATER DIGESTION TEST ANALYSIS

SINGLE SHELL TANK PROJECT

CORE 5 COMPOSITE
WATER DIGESTION

RESULTS FROM 1ST LEACH
UNITS FOR SAMPLES ARE WET WEIGHT

Tank: 241-U-110
Core: 5

Segment: F0893
Customer ID: Core Composite 5

	Check Standard	Blank		Sample		Sample Duplicate		Spike of Sample		Check Standard
Laboratory ID:	N/A	F0904		F0905		F0906		F0907		N/A
Water Digestion	N/A	N/A		9.3	g/L	10.9	g/L	10.7	g/L	N/A
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
pH	101.10%	5.94		11.46		11.85		N/A		101.00%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0932
Ion Chromatograph										
Fluoride	95.10%	<0.1	ppm	4.38E+03	ug/g	1.42E+04	ug/g	125.50%		99.70%
Chloride	98.90%	0.178	ppm	<1.09E+03	ug/g	<9.27E+02	ug/g	101.82%		103.50%
Nitrate	100.00%	0.751	ppm	3.38E+04	ug/g	6.27E+04	ug/g	109.83%		100.80%
Phosphate	104.00%	<1.0	ppm	1.09E+04	ug/g	2.84E+04	ug/g	112.83%		103.20%
Sulphate	93.30%	<1.0	ppm	1.09E+04	ug/g	4.34E+03	ug/g	105.50%		92.30%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Ammonia	96.40%	<1.19E+02	ppm	<1.28E+04	ug/g	<1.09E+04	ug/g	94.80%		94.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Carbonate	101.00%	5.40	ug	2.85E+03	ug/g	2.61E+03	ug/g	102.69%		102.10%
Laboratory ID:										
Chrome VI	*	*		*		*		*		*
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Nitrite	99.00%	<3.49E-01	ppm	7.27E+03	ug/g	1.36E+04	ug/g	96.10%		98.80%
Laboratory ID:	F0201	F0216		F0905		F0906		F0204		F0205
Total Alpha	97.30%	9.96E-07	uci/L	<3.67E-03	uci/g	<3.13E-03	uci/g	**		100.80%
Total Beta	105.10%	2.97E-05	uci/L	1.02E+01	uci/g	1.49E+01	uci/g	**		106.60%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
GEA Cs-137	96.90%	<5.45E-02	uci/L	14	uci/g	13.6	uci/g	102.40%		95.07%
Laboratory ID:	F0903	F0946		F0905		F0906		F0949		F0950
Putonium	109.50%	<7.29E-03	uci/L	8.62E-04	uci/g	<5.63E-04	uci/g	**		105.90%
Laboratory ID:	F0897	F0946		F0905		F0906		F0949		F0950
Americium 241	101.30%	<1.50E-02	uci/L	<1.24E-03	uci/g	<1.04E-03	uci/g	**		105.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Carbon 14	86.50%	<5.60E-04	uci/L	5.16E-04	uci/g	4.32E-04	uci/g	88.90%		98.00%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Iodine 129	104.80%	<1.99E-01	uci/L	<6.78E-03	uci/g	<9.82E-03	uci/g	94.70%		107.50%
Laboratory ID:	F1058	F0904		F0905		F0906		F1081		F1077
Neptunium	70.80%	<1.08	uci/L	<1.16E-01	uci/g	<9.91E-02	uci/g	34.80%		71.60%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Strontium 90	97.20%	<4.98E-03	uci/L	7.62E-02	uci/g	5.69E-02	uci/g	123.00%		100.50%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Technetium 99	94.30%	<2.11E-02	uci/L	3.12E-03	uci/g	6.60E-03	uci/g	1.16%		101.00%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Tritium	99.30%	<1.13E-02	uci/L	2.21E-03	uci/g	2.71E-03	uci/g	98.30%		99.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Arsenic	94.60%	<5.00E-03	ppm	<5.38E-01	ug/g	<4.59E-01	ug/g	81.70%		98.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Mercury	99.80%	<1.44E-03	ppm	<1.55E-01	ug/g	<1.32E-01	ug/g	98.20%		104.60%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Selenium	106.00%	<1.00E-02	ppm	<1.08	ug/g	<9.17E-01	ug/g	73.90%		94.40%

* Did Not Run Analysis.
** Ratio of Standard To Sample Insufficient To Calculate Spike Recovery.

ICP Results Data Summary

Date Analyzed: JULY 9, 1990
Procedure: LA-505-151/A-0
Analyst: J. A. WHITE
Digestion Procedure: Water Digestion LA-505-159/A-0

Reagent Blank	F904
Core 5 Composite	F905
Duplicate Core 5 Composite	F906
Spike of Core 5 Composite	F907

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	101.94%	NA	< 2.35	4332	6274	125.25%	NA	102.50%
Antimony	103.10%	NA	< 2.99	< 307	< 273	108.72%	NA	103.33%
Arsenic	108.56%	NA	< 0.70	< 72	< 64	110.09%	NA	109.09%
Barium	108.49%	NA	< 0.08	< 8	< 7	108.99%	NA	106.68%
Beryllium	107.33%	NA	< 0.01	< 1	< 1	108.14%	NA	106.33%
Cadmium	102.99%	NA	< 0.12	< 13	< 11	101.47%	NA	103.17%
Calcium	104.32%	NA	1.04	63	1946	103.30%	NA	102.78%
Chromium	90.82%	NA	< 0.12	807	2405	90.91%	NA	90.53%
Cobalt	104.45%	NA	< 0.77	< 79	< 71	98.54%	NA	104.74%
Copper	104.12%	NA	< 0.50	< 51	< 46	106.69%	NA	102.75%
Iron	106.43%	NA	< 0.23	29	< 21	106.52%	NA	106.33%
Lithium	102.50%	NA	< 0.10	< 10	< 9	101.09%	NA	101.12%
Magnesium	107.64%	NA	0.45	92	2367	124.83%	NA	107.44%
Manganese	103.54%	NA	< 0.03	< 4	< 3	101.98%	NA	102.93%
Molybdenum	98.32%	NA	< 0.15	< 16	< 14	100.07%	NA	98.41%
Nickel	102.34%	NA	< 0.46	< 47	< 42	101.50%	NA	102.75%
Potassium	104.45%	NA	< 6.68	< 685	< 611	122.48%	NA	106.83%
Selenium	99.48%	NA	< 1.99	255	4289	110.85%	NA	100.23%
Silver	103.78%	NA	< 0.58	< 59	< 53	102.92%	NA	107.60%
Sodium	101.90%	NA	4.10	127953	111278	NOT CALC.	NA	101.79%
Strontium	104.58%	NA	< 0.03	< 3	< 3	102.99%	NA	103.14%
Thallium	99.91%	NA	1.51	< 141	< 126	127.83%	NA	99.80%
Vanadium	99.65%	NA	< 0.39	< 40	< 36	102.07%	NA	98.23%
Zinc	103.98%	NA	0.21	19	1909	103.43%	NA	103.54%
Dilution Factor		LT: Less Than						
	NC:	Not Calibrated						
	NOT CALC:	Not Calculated						
Other Elements								
Boron	103.83%	NA	2.40	667	2498	103.11%	NA	103.08%
Cerium	96.87%	NA	< 4.28	< 439	< 391	99.99%	NA	99.00%
Europium	96.18%	NA	< 0.08	< 8	< 7	95.39%	NA	96.20%
Lanthanum	93.88%	NA	< 0.44	< 46	< 41	95.46%	NA	98.40%
Mercury	104.05%	NA	0.77	66	1903	100.76%	NA	104.93%
Neodymium	95.33%	NA	< 6.71	< 688	< 613	89.02%	NA	93.97%
Sulfur	101.58%	NA	< 0.51	1802	5103	94.22%	NA	102.49%
Tantalum	96.99%	NA	< 0.86	< 88	< 79	98.38%	NA	97.63%
Tin	102.44%	NA	< 0.45	< 47	< 41	106.91%	NA	102.92%
Titanium	101.96%	NA	< 0.11	< 11	< 10	103.44%	NA	101.79%
Zirconium	96.87%	NA	< 0.44	< 46	< 41	99.10%	NA	96.70%

SINGLE SHELL TANK PROJECT

CORE 5 COMPOSITE
WATER DIGESTION

RESULTS 1ST LEACH
RESULTS ON LABORATORY DIGESTIONS

Tank: 241-U-110
Core: 5
Segment: F0893
Customer ID: Core Composite 5

	Check Standard	Blank		Sample		Sample Duplicate		Spike of Sample		Check Standard
Laboratory ID:	N/A	F0904		F0905		F0906		F0907		N/A
Water Digestion	N/A	N/A		9.30	g/L	10.90	g/L	10.70	g/L	N/A
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
pH	101.10%	5.94		11.46		11.85		N/A		101.00%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0932
Ion Chromatrograph										
Fluoride	95.10%	<0.1	ppm	4.07E+01	ppm	1.55E+02	ppm	125.50%		99.70%
Chloride	98.90%	1.78E-01	ppm	<10.1	ppm	<10.1	ppm	101.82%		103.50%
Nitrate	100.00%	7.51E-01	ppm	3.14E+02	ppm	6.83E+02	ppm	109.83%		100.80%
Phosphate	104.00%	<1.0	ppm	<101.00	ppm	3.10E+02	ppm	112.83%		103.20%
Sulphate	93.30%	<1.0	ppm	<101.00	ppm	4.73E+01	ppm	105.50%		92.30%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Ammonia	96.40%	<1.19E+02	ppm	<1.19E+02	ppm	<1.19E+02	PPM	94.80%		94.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Carbonate	101.00%	5.4	ug	2.65E-02	g/L	2.85E-02	g/L	102.69%		102.10%
Laboratory ID:										
Chrome VI	*	*		*		*		*		*
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Nitrite	99.00%	<3.49E-01	ppm	6.76E+01	ppm	1.48E+02	ppm	96.10%		98.80%
Laboratory ID:	F0201	F0216		F0905		F0906		F0204		F0205
Total Alpha	97.30%	9.96E-07	uci/L	<3.41E-02	uci/L	<3.41E-02	uci/L	**		100.80%
Total Beta	105.10%	2.97E-05	uci/L	9.52E+01	uci/L	1.62E+02	uci/L	**		106.60%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
GEA Cs-137	96.90%	<5.45E-02	uci/L	1.30E+02	uci/L	1.48E+02	uci/L	102.40%		95.07%
Laboratory ID:	F0903	F0946		F0905		F0906		F0949		F0950
Plutonium	109.50%	<7.29E-03	uci/L	8.02E-03	uci/L	<6.14E-03	uci/L	**		105.90%
Laboratory ID:	F0897	F0946		F0905		F0906		F0949		F0950
Americium 241	101.30%	<1.50E-02	uci/L	<1.15E-02	uci/L	<1.13E-02	uci/L	**		105.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Carbon 14	86.50%	<5.60E-04	uci/L	4.80E-03	uci/L	4.71E-03	uci/L	88.90%		98.00%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Iodine 129	104.80%	<1.99E-01	uci/L	<6.31E-02	uci/L	<1.07E-01	uci/L	94.70%		107.50%
Laboratory ID:	F1058	F0904		F0905		F0906		F1081		F1077
Neptunium	70.80%	<1.08	uci/L	<1.08	uci/L	<1.08	uci/L	34.80%		71.60%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Strontium 90	97.20%	<4.98E-03	uci/L	7.09E-01	uci/L	6.19E-01	uci/L	123.00%		100.50%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Technetium 99	94.30%	<2.11E-02	uci/L	2.90E-02	uci/L	7.19E-02	uci/L	1.16%		101.00%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Tritium	99.30%	<1.13E-02	uci/L	2.06E-02	uci/L	2.95E-02	uci/L	98.30%		99.80%
Labortory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Arsenic	94.60%	<5.00E-03	ppm	<5.00E-03	ppm	<5.00E-03	ppm	81.70%		98.80%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Mercury	99.80%	<1.44E-03	ppm	<1.44E-03	ppm	<1.44E-03	ppm	98.20%		104.60%
Laboratory ID:	F0903	F0904		F0905		F0906		F0907		F0908
Selenium	106.00%	<1.00E-02	ppm	<1.00E-02	ppm	<1.00E-02	ppm	73.90%		94.40%

* Did Not Run Analysis
** Ratio Of Standard To Sample Insufficient To Calculate Spike Recovery.

SINGLE SHELL TANK PROJECT

CORE 5 COMPOSITE
WATER DIGESTION
RESULTS FROM 3RD LEACH
RESULTS ON LABORATORY DIGESTION

Tank: 241-U-110
Core: 5
Segment: F0893
Customer ID: Composite Core 5

	Check Standard	Blank	Sample	Sample Duplicate	Spike of Sample	Check Standard
Laboratory ID:	N/A	F0904	F0905	F0906	F0907	N/A
Water Digestion	N/A	N/A	10.02 g/L	10.10 g/L	10.06 g/L	N/A
Laboratory ID:	F0903	F0904	F0905	F0906	F0907	F0908
Total Organic Carbon	98.80%	5.2 ug	<5.50E-03 g/L	<5.50E-03 g/L	97.38%	98.10%

SINGLE SHELL TANK PROJECT

CORE 5 COMPOSITE
WATER DIGESTION
RESULTS FROM 3RD LEACH
UNITS FOR SAMPLES ARE WET WEIGHT

Tank: 241-U-110
Core: 5
Segment: F0893
Customer ID: Composite Core 5

	Check Standard	Blank	Sample	Sample Duplicate	Spike of Sample	Check Standard
Laboratory ID:	N/A	F0904	F0905	F0906	F0907	N/A
Water Digestion	N/A	N/A	10.02 g/L	10.10 g/L	10.06 g/L	N/A
Laboratory ID:	F0903	F0904	F0905	F0906	F0907	F0908
Total Organic Carbon	98.80%	5.2 ug	<5.49E+02 ug/g	<5.05E+02 ug/g	97.38%	98.10%

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	N/A
Procedure / Rev	LA-504-101/A-2
Technologist	S.A. Cervantes
Date	01-31-90
Temperature	25 C
Starting Time	13:00 / 01-29-90
Ending Time	10:00 / 01-31-90
Chemist	H. S. Rich

Water Digestion

Note: Sample is not spiked prior to digestion. This procedure provides a sample to be spiked later with the appropriate element.

	Description	Lab. Id.
1	Reagent Blank	F0904
2	Sample Composite 5	F0905
3	Duplicate Composite 5	F0906
4	Spike Composite 5	F0907
5		
6		
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
N/A				
Spike (see note)				

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 7-27-90

Verified by: Carey M. Seidel (Signature) C. M. Seidel (Printed Name) Date: 7-27-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev E 4/04/90 SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	N/A
Procedure / Rev	LA-504-101 / A-2
Technologist	M. Franz
Date	05-30-90
Temperature	N/A
Starting Time	05-17-90
Ending Time	05-30-90
Chemist	H. S. Rich

Water Digestion

Note: Sample is not spiked prior to digestion.

1.) This procedure provides a sample to be spiked later with the appropriate element.

2.) Analysis performed on this digestion will be identified as "Third Leaching"

	Description	Lab. Id.
1	Reagent Blank	F0904
2	Sample Comp 5	F0905
3	Duplicate Comp 5	F0906
4	Spike Comp 5	F0907
5	Reagent Blank	F0928
6	Sample Comp 6	F0929
7	Duplicate Comp 6	F0930
8	Spike Comp 6	F0931
9	Reagent Blank	F0982
10	Sample Comp 7	F0983
11	Duplicate Comp 7	F0984

	Description	Lab. Id.
12	Spike Comp 7	F0985
13	Reagent Blank	F1006
14	Sample Comp 14	F1007
15	Duplicate Comp 14	F1008
16	Spike Comp 14	F1009
17	Reagent Blank	F1030
18	Sample Comp 15	F1031
19	Duplicate Comp 15	F1032
20	Spike Comp 15	F1033
21	Reagent Blank	F1054
22	Sample Comp 12	F1055

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
N/A				
Spike (See Note)				

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-28-90

Verified by: Carey M. Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-28-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev E SST-102

9112150222

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	N/A
Procedure / Rev	LA-504-101 / A-2
Technologist	M. Franz
Date	05-30-90
Temperature	N/A
Starting Time	05-17-90
Ending Time	05-30-90
Chemist	H. S. Rich

Water Digestion

Notes: Sample is not spiked prior to digestion.

1.) This procedure provides a sample to be spiked later with appropriate element.

2.) Analysis performed on this digestion will be identified as "Third Leaching"

	Description	Lab. Id.
1	Duplicate Comp 12	F1056
2	Spike Comp 12	F1057
3	Reagent Blank	F1078
4	Sample Comp 13	F1079
5	Duplicate Comp 13	F1080
6	Spike	F1081
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
N/A				
Spike (See Notes)				

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-28-90

Verified by: Cary M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-28-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

SST-102 Rev E 4/04/90 Interim

9 1 1 2 5 7 0 2 2 3

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

pH Analysis of the Water Digestion

Instrument	N/A
Procedure / Rev	LA-211-102
Technologist	M. Franz
Date	02-06-90
Temperature	N/A
Starting Time	07:30
Ending Time	10:00
Chemist	R. E. Brandt

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Sample Composite 6	F0929
6	Duplicate Composite 6	F0930
7	Sample Composite 8	F0953
8	Duplicate Composite 8	F0954
9	Final LMCS Check Std	F0908
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	72C11 / 1 mL			1 mL

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-22-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-22-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

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9 1 1 2 5 0 2 2 4

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Ion Chromatograph Analysis

Water Analysis

(*) Chromatogram Only

Instrument	Dionex 4000
Procedure / Rev	LA-533-105/A-3
Technologist	N. Wright
Date	02-20-90
Temperature	24 C
Starting Time	11:40
Ending Time	14:20
Chemist	H. S. Rich

	Description		Lab. Id.
1	Eluent Blank		*
2	Initial LMCS Check Std		F0903
3	Blank		F0904
4	Sample	Comp 5	F0905
5	Duplicate	Comp 5	F0906
6	Sample & Spike	Comp 5	F0907
7	Sample	Comp 8	F0929
8	Duplicate	Comp 8	F0930
9	Final LMCS Check Std		F0932
10			
11			

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Standard	6C11HI/100uL			10.1mL
Spike	35C9-67/300uL	F0905/50uL		5.3 mL

Prepared by: D. K. Sato (Signature) D.K. Sato (Printed Name) Date: 8-13-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-13-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev E SST-102

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Ion Chromatograph		
Procedure	LA-533-105	Revision:	A-3
Instrument:	Dionex 4000	Property Number:	WB24721
Technologist:	Nora Wright	Payroll Number:	
Date:	2/14/90		

Calibration Standard ID: Book number 35C9-67 issued 02-06-90

Analyte Concentration: F-47; Cl-60.0; NO_3-481; PO_4-492; SO_4-482 (in ppm)

Type of Calibration:

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Sherley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-05-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-05-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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9 1 1 2 1 5 9 0 2 2 6

Detector Parameters

Number of Detectors	1
Detector 1 Type	CDM

Report Options

Run Time (minutes)	11.50
Detector 1 real time plot scale	20.00
Print Report	Yes
Print Replot	Yes
AutoScale Replot to Highest Peak	Yes
Print Retention Times on Chromatogram	Yes
List Peaks Not Found in this run	No
Report Unknowns found in run	Yes
Record Raw Data	Yes
Raw Data File Name: A:\90021401.D08	
Record Result Data	No

Integration Parameters

Sampling Rate (seconds)	0.20
Peak Threshold (mV or uS/data pt interval)	0.400
Starting Peak Width (seconds)	10.0
Peak Area Reject	1000

Integration Timed Events

Time	Description

Calibration Parameters

External or Internal Calibration	External
Calibrate by Area or Height	Height
Replace Or Average Calibrations	Replace
Number Of Levels for Calibration	6
Calibration fit type	Quadratic
Response Factor for unknown peaks	0.0
Default Injection Volume	1.0
Default Dilution Factor	1.0
Area Reject for Reference Peaks	1000
Percent Retention Time Window for Reference Peaks	5.0

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Component # 1 FLUORIDE Retention Time 0.97
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 5.44273E-004
Least Squares Intercept = 2.08122E-002
Ka = -6.49314E-009

Level	Amount	Area	Height
1	1.41700E-001	1336	246
2	3.53200E-001	3478	616
3	7.03000E-001	7271	1226
4	1.39220E+000	15622	2625
5	2.73070E+000	37180	5315
6	5.25910E+000	74116	11092

Component # 2 CHLORIDE Retention Time 1.53
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 7.08981E-004
Least Squares Intercept = -1.98232E-002
Ka = -1.71853E-008

Level	Amount	Area	Height
1	1.35700E-001	1267	200
2	3.38300E-001	2903	489
3	6.73300E-001	6430	1017
4	1.33330E+000	13713	2088
5	2.61540E+000	28370	4066
6	5.03700E+000	59291	9183

Component # 3 NITRITE Retention Time 1.95
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 6.03688E-004
Least Squares Intercept = 4.43181E-001
Ka = 3.82519E-009

Level	Amount	Area	Height
1	1.06990E+000	9937	1360
2	2.66670E+000	25698	3515
3	5.30700E+000	53506	7323
4	1.05099E+001	114215	15244
5	2.06146E+001	218918	28443
6	3.97026E+001	440177	49476

Component # 4 BROMIDE Retention Time 3.00
Reference Peak FLUORIDE Window Size 5.00%
Least Squares Slope = 1.66948E-003
Least Squares Intercept = 2.80223E-001
Ka = -5.76698E-010

Level	Amount	Area	Height
1	1.00100E+000	0	495
2	2.49500E+000	0	1341
3	4.96500E+000	0	2740
4	9.86850E+000	0	5689
5	1.92877E+001	0	11502
6	3.71471E+001	0	22240

Component # 5 NITRATE Retention Time 3.28
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 2.28401E-003
Least Squares Intercept = -7.74708E-003
Ka = 5.71081E-009

Level	Amount	Area	Height
1	1.12180E+000	5253	468
2	2.79600E+000	15077	1234
3	5.56430E+000	30767	2460
4	1.10197E+001	63964	4753
5	2.16145E+001	132213	9250
6	4.16284E+001	274103	17468

Component # 6 PHOSPHATE Retention Time 5.15
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 5.62393E-003
Least Squares Intercept = 1.29089E-001
Ka = -8.49058E-008

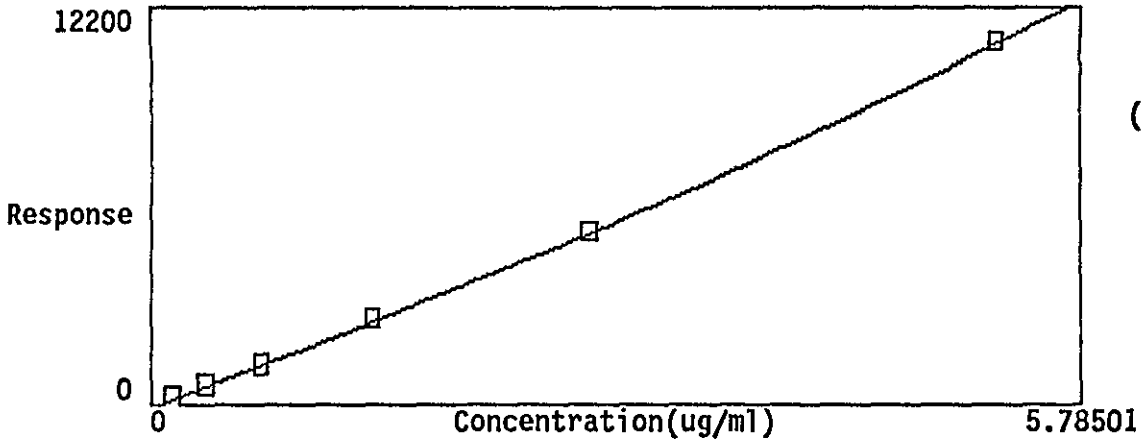
Level	Amount	Area	Height
1	1.06990E+000	2854	180
2	2.66670E+000	7216	437
3	5.30700E+000	16848	948
4	1.05090E+001	32539	1886
5	2.06146E+001	69406	3876
6	3.97026E+001	142872	8003

Component # 7 SULFATE Retention Time 6.43
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 2.93889E-003
Least Squares Intercept = 2.61562E-001
Ka = -2.14409E-008

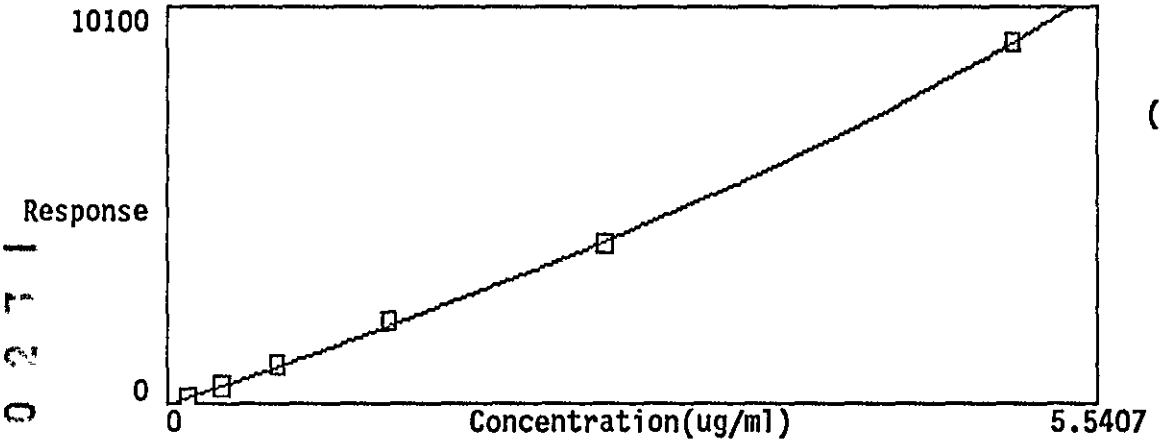
Level	Amount	Area	Height
1	1.18360E+000	6077	338
2	2.95020E+000	17483	922
3	5.87130E+000	36861	1890
4	1.16275E+001	79004	4005
5	2.28068E+001	163581	8158
6	4.39247E+001	343157	16953

Component # 8 Oxalate Retention Time 9.77
Reference Peak FLUORIDE Window Size 10.00%
Least Squares Slope = 0.00000E+000
Least Squares Intercept = 0.00000E+000
Ka = 0.00000E+000

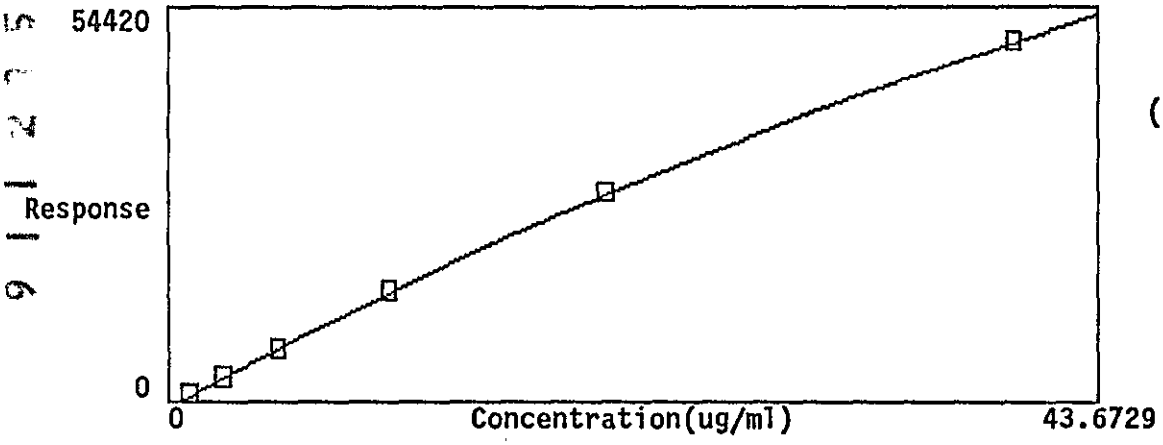
Level	Amount	Area	Height
1	0.00000E+000	0	0
2	0.00000E+000	0	0
3	0.00000E+000	0	0
4	0.00000E+000	0	0
5	0.00000E+000	0	0
6	0.00000E+000	98993	5848



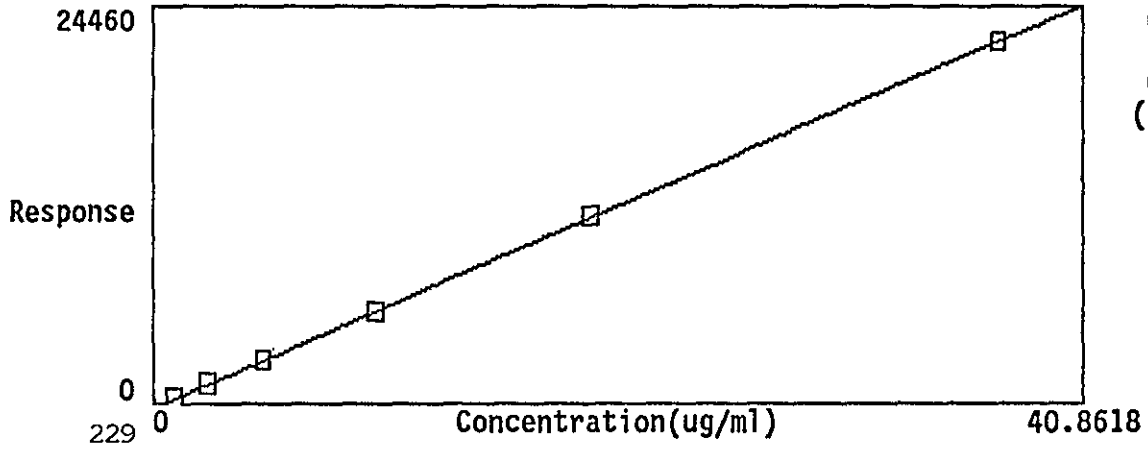
Component: FLUORIDE
Fit Type: Quadratic
Conc = (-6.493897e-009
(5.442836e-004 * Resp)+



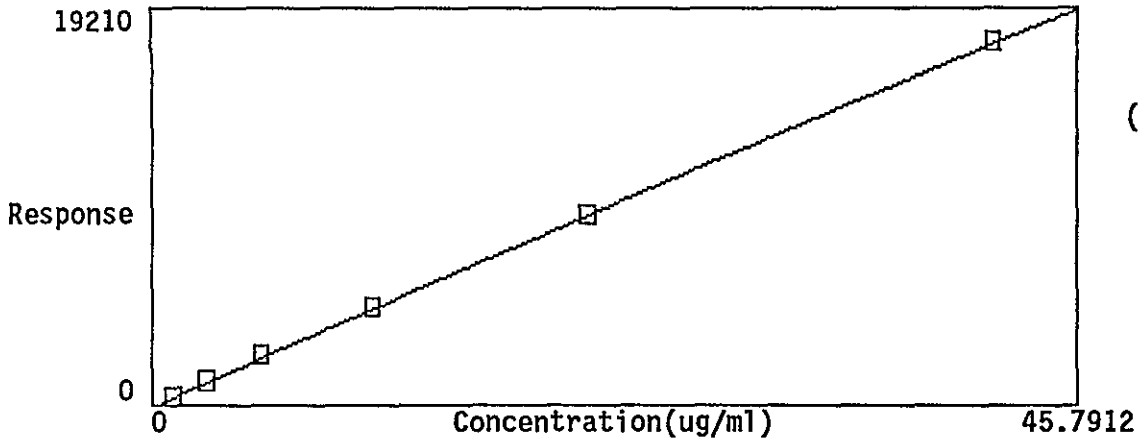
Component: CHLORIDE
Fit Type: Quadratic
Conc = (-1.718534e-008
(7.089808e-004 * Resp)+



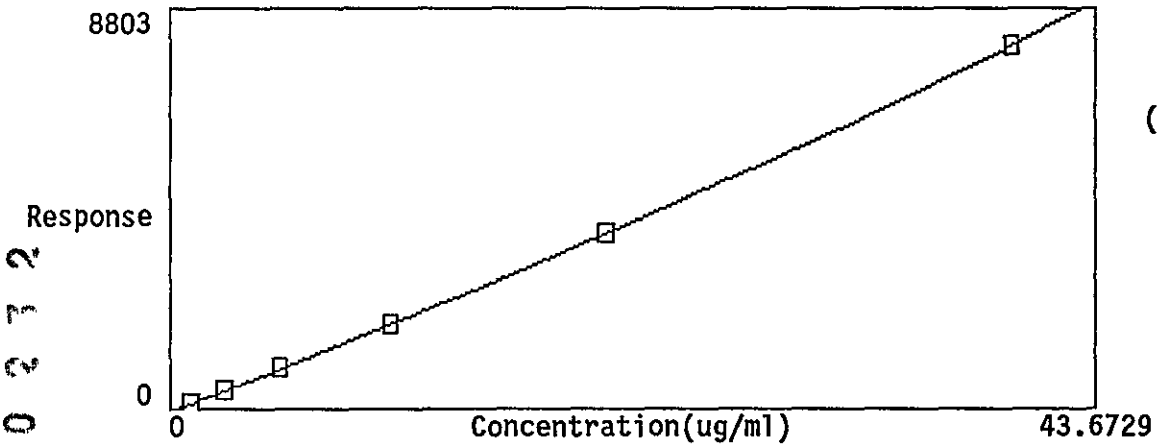
Component: NITRITE
Fit Type: Quadratic
Conc = (3.825193e-009 *
(6.036875e-004 * Resp)+



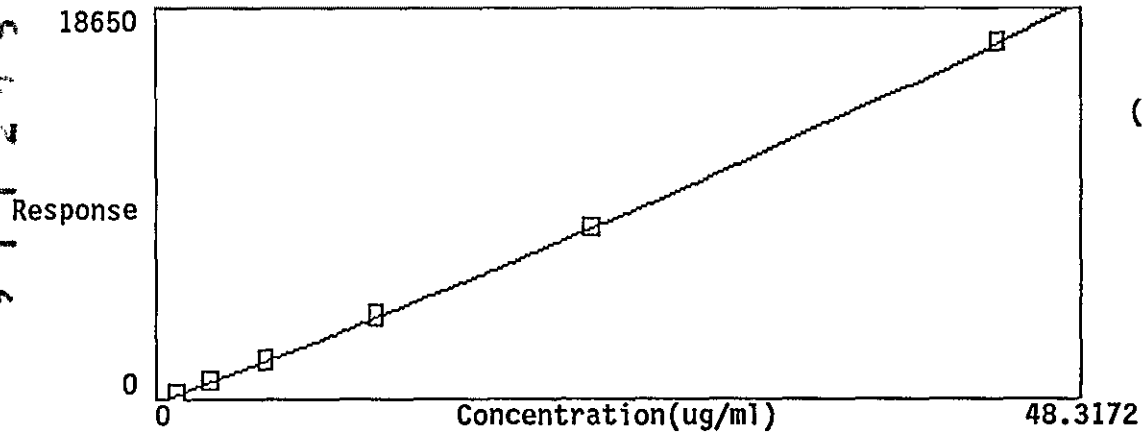
Component: BROMIDE
Fit Type: Quadratic
Conc = (-5.766983e-010
(1.669477e-003 * Resp)+



Component: NITRATE
Fit Type: Quadratic
Conc = (5.710807e-009 *
(2.284009e-003 * Resp)+



Component: PHOSPHATE
Fit Type: Quadratic
Conc = (-8.490584e-008
(5.623927e-003 * Resp)+



Component: SULFATE
Fit Type: Quadratic
Conc = (-2.144090e-008
(2.938890e-003 * Resp)+

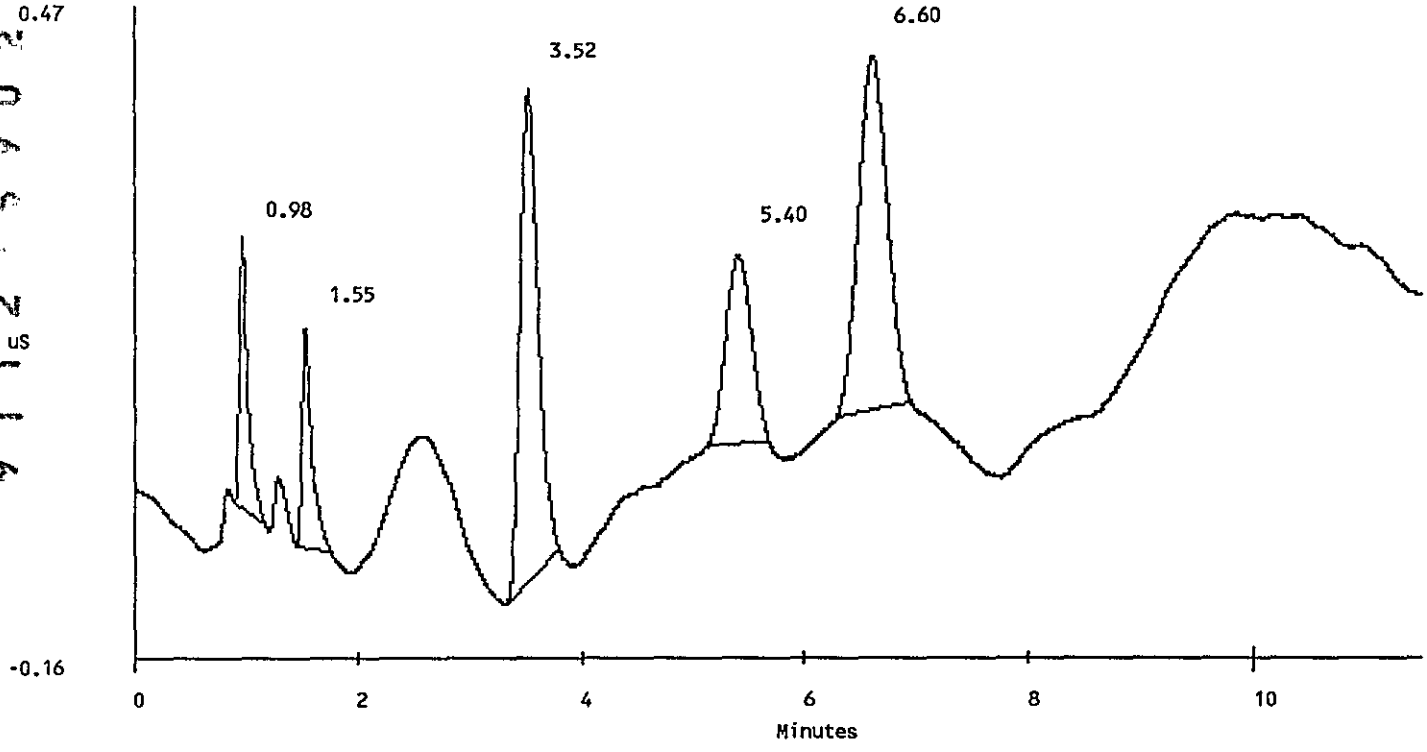
DATA REPROCESSED ON Thu Jun 28 15:54:30 1990

Sample Name: AUTOCAL1R Date: Wed Feb 14 14:51:13 1990
Data File : A:\90021401.D03
Method : C:\WINDOWS\AI400\METHOD\SST.MET
CIM Address: 1 System : 1 Cycle#: 3 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3450
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.98	FLUORIDE	1.417e-001	1.336e+003	246	1	0	0.00%
2	1.55	CHLORIDE	1.357e-001	1.267e+003	200	1	0	0.00%
3	3.52	NITRATE	1.122e+000	5.253e+003	468	1	0	0.00%
4	5.40	PHOSPHATE	1.070e+000	2.854e+003	180	1	0	0.00%
5	6.60	SULFATE	1.184e+000	6.077e+003	338	1	0	0.00%



DATA REPROCESSED ON Thu Apr 12 13:13:00 1990

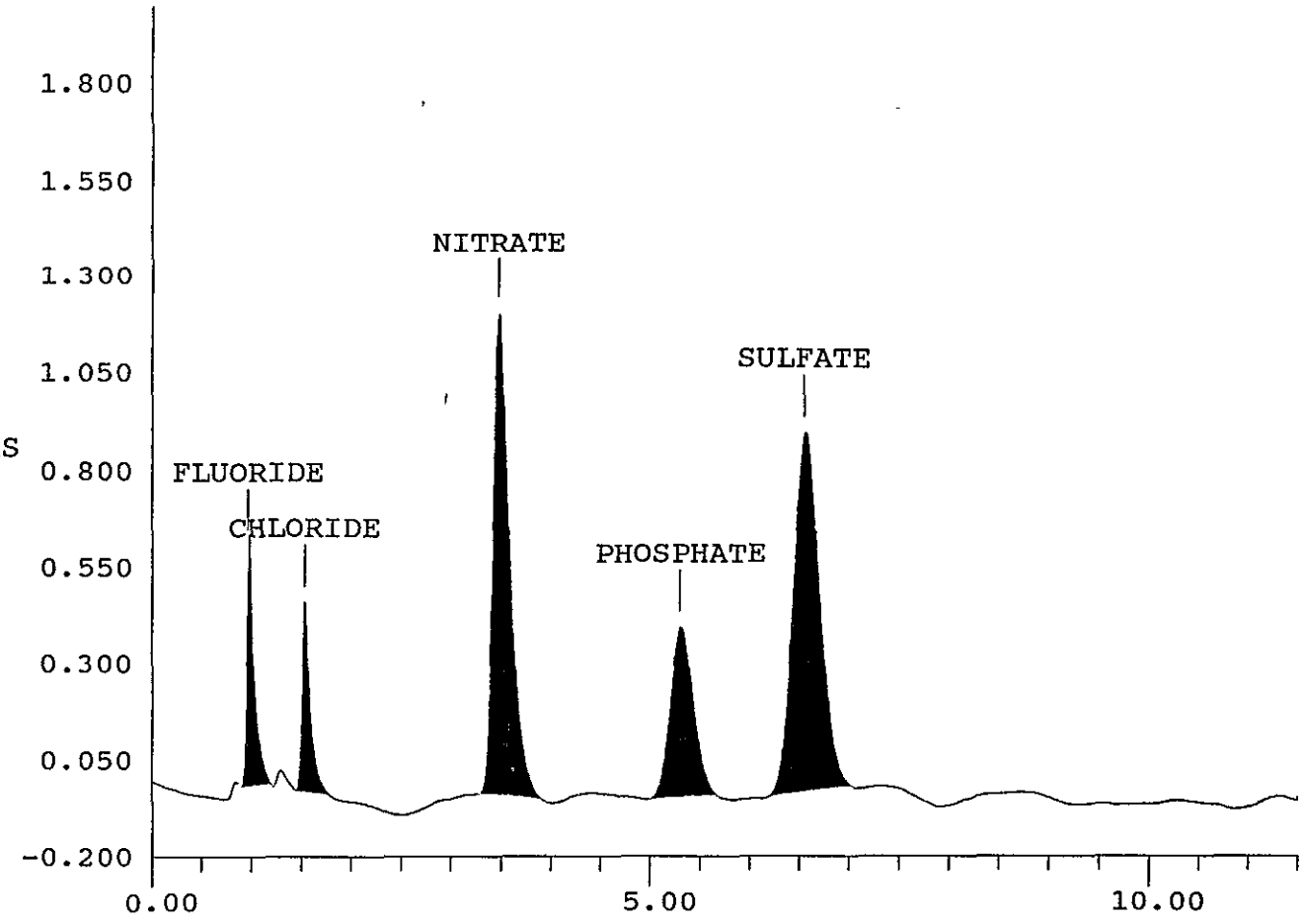
Sample Name: AUTOCAL2R Date: Wed Feb 14 15:03:32 1990
Data File : A:\90021401.D04
Method : c:\windows\ai400\method\SST.met
ACI Address: 1 System : 1 Inject#: 4 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	2.338e-001	3.478e+003	616	1	0	0.00%
2	1.53	CHLORIDE	2.985e-001	2.903e+003	489	1	0	0.00%
3	3.48	NITRATE	2.393e+000	1.508e+004	1234	1	0	0.00%
4	5.30	PHOSPHATE	2.448e+000	7.216e+003	437	1	0	0.00%
5	6.55	SULFATE	2.398e+000	1.748e+004	922	1	0	0.00%

File: A:\90021401.D04 Sample: AUTOCAL2R



DATA REPROCESSED ON Thu Apr 12 13:15:05 1990

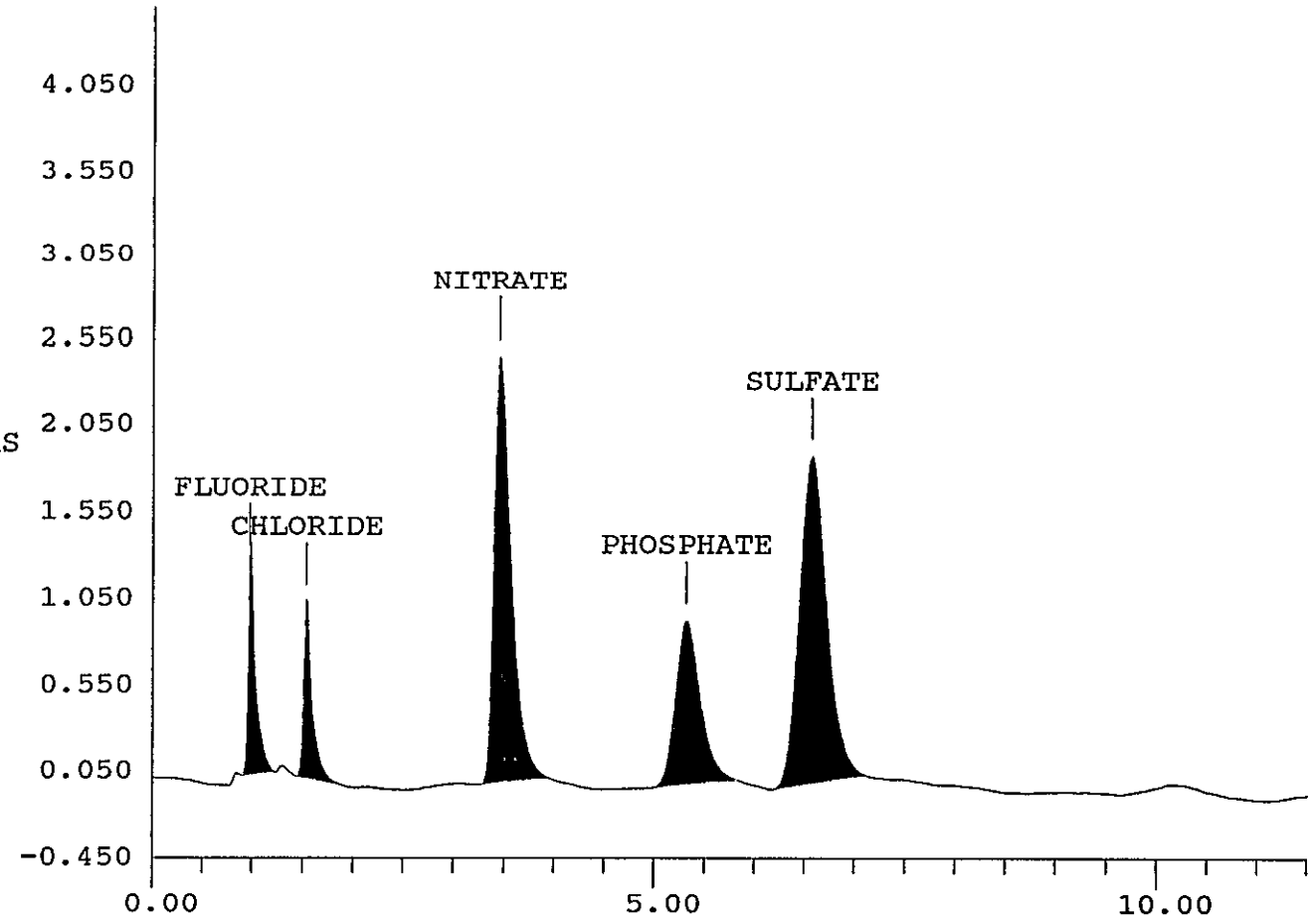
Sample Name: AUTOCAL3R Date: Wed Feb 14 15:15:50 1990
Data File : A:\90021401.D05
Method : c:\windows\ai400\method\SST.met
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	4.653e-001	7.271e+003	1226	1	0	0.00%
2	1.53	CHLORIDE	5.941e-001	6.430e+003	1017	1	0	0.00%
3	3.45	NITRATE	4.762e+000	3.077e+004	2460	1	0	0.00%
4	5.32	PHOSPHATE	4.871e+000	1.685e+004	948	1	0	0.00%
5	6.57	SULFATE	4.772e+000	3.686e+004	1890	1	0	0.00%

File: A:\90021401.D05 Sample: AUTOCAL3R



DATA REPROCESSED ON Thu Apr 12 13:17:29 1990

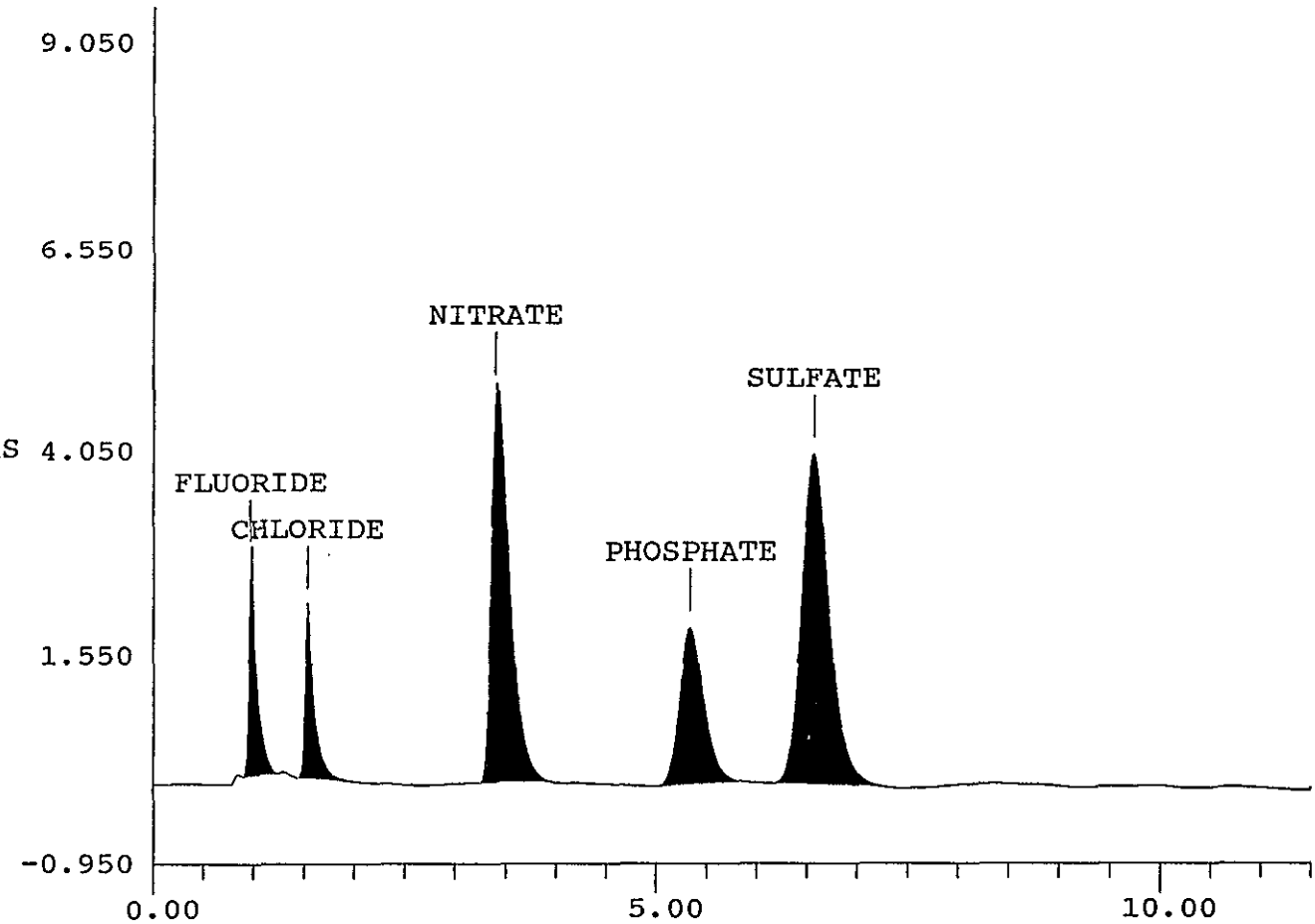
Sample Name: AUTOCAL4R	Date: Wed Feb 14 15:28:08 1990
Data File : A:\90021401.D06	
Method : c:\windows\ai400\method\SST.met	
ACI Address: 1 System : 1 Inject#: 6	Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	9.215e-001	1.562e+004	2625	1	0	0.00%
2	1.53	CHLORIDE	1.177e+000	1.371e+004	2088	1	0	0.00%
3	3.40	NITRATE	9.431e+000	6.396e+004	4753	1	0	0.00%
4	5.33	PHOSPHATE	9.647e+000	3.254e+004	1886	1	0	0.00%
5	6.57	SULFATE	9.451e+000	7.900e+004	4005	1	0	0.00%

File: A:\90021401.D06 Sample: AUTOCAL4R



DATA REPROCESSED ON Thu Apr 12 13:19:41 1990

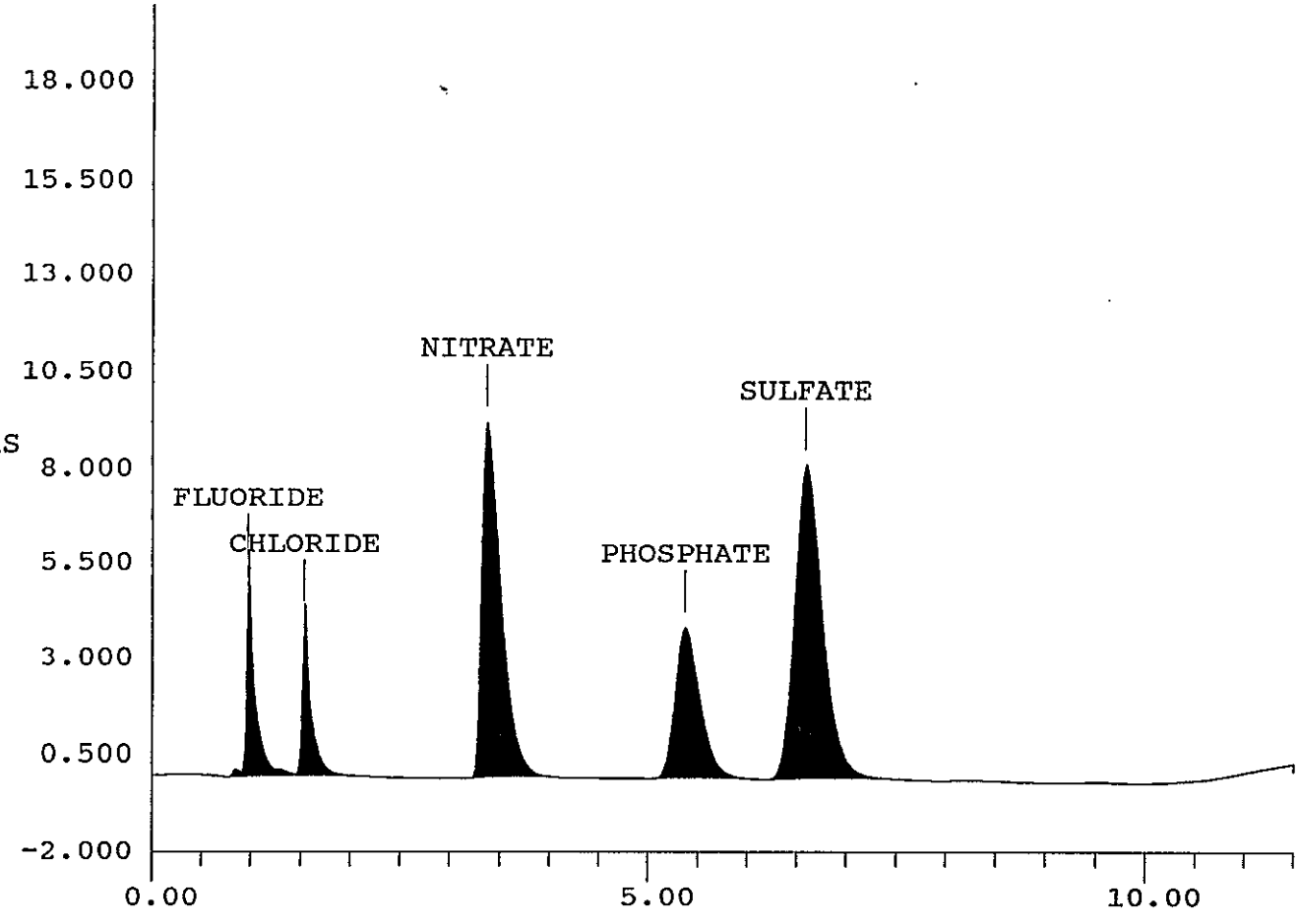
Sample Name: AUTOCAL5R Date: Wed Feb 14 15:40:27 1990
Data File : A:\90021401.D07
Method : c:\windows\ai400\method\SST.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	1.808e+000	3.718e+004	5315	2	0	0.00%
2	1.53	CHLORIDE	2.308e+000	2.837e+004	4066	2	0	0.00%
3	3.37	NITRATE	1.850e+001	1.322e+005	9250	1	0	0.00%
4	5.37	PHOSPHATE	1.892e+001	6.941e+004	3876	1	0	0.00%
5	6.58	SULFATE	1.854e+001	1.636e+005	8158	1	0	0.00%

File: A:\90021401.D07 Sample: AUTOCAL5R



DATA REPROCESSED ON Thu Apr 12 13:24:37 1990

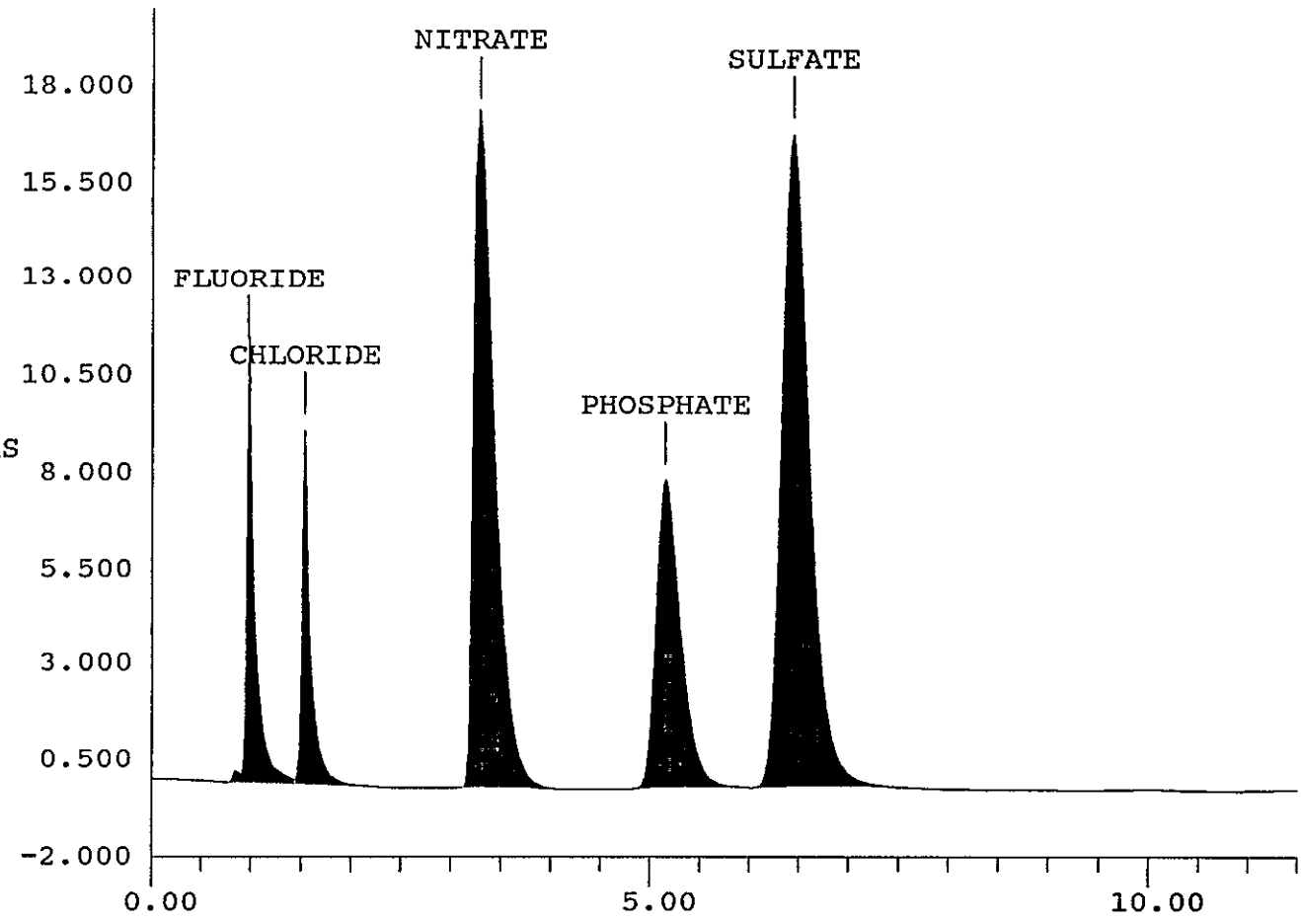
Sample Name: AUTOCAL6R Date: Wed Feb 14 15:52:46 1990
Data File : A:\90021401.D08
Method : c:\windows\ai400\method\SST.met
ACI Address: 1 System : 1 Inject#: 8 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	3.481e+000	7.412e+004	11092	2	0	0.00%
2	1.53	CHLORIDE	4.444e+000	5.927e+004	9183	2	0	0.00%
3	3.28	NITRATE	3.563e+001	2.741e+005	17468	1	0	0.00%
4	5.15	PHOSPHATE	3.644e+001	1.429e+005	8003	1	0	0.00%
5	6.43	SULFATE	3.570e+001	3.432e+005	16953	1	0	0.00%

File: A:\90021401.D08 Sample: AUTOCAL6R



DIONEX SCHEDULE - A:\90021900.SCH

Inject	Sample Name	Method Name	Data File	Volume	Dilution	Int Std
1	SETUP	c:\windows\ai	c:\windows\ai	1	1	0
2	BLANK	c:\windows\ai	c:\windows\ai	1	1	0
3	LMCS/6C11HI	c:\windows\ai	c:\windows\ai	1	101	0
4	LMCS/73C11J	c:\windows\ai	c:\windows\ai	1	101	0
5	904B	c:\windows\ai	c:\windows\ai	1	1	0
6	905	c:\windows\ai	c:\windows\ai	1	101	0
7	906D	c:\windows\ai	c:\windows\ai	1	101	0
8	907S	c:\windows\ai	c:\windows\ai	1	101	0
9	929	c:\windows\ai	c:\windows\ai	1	101	0
10	930D	c:\windows\ai	c:\windows\ai	1	101	0
11	983	c:\windows\ai	c:\windows\ai	1	101	0
12	984D	c:\windows\ai	c:\windows\ai	1	101	0
13	LMCS/6C11HI	c:\windows\ai	c:\windows\ai	1	101	0
14	LMCS/73C11J	c:\windows\ai	c:\windows\ai	1	101	0

DATA REPROCESSED ON Thu Apr 12 09:53:16 1990

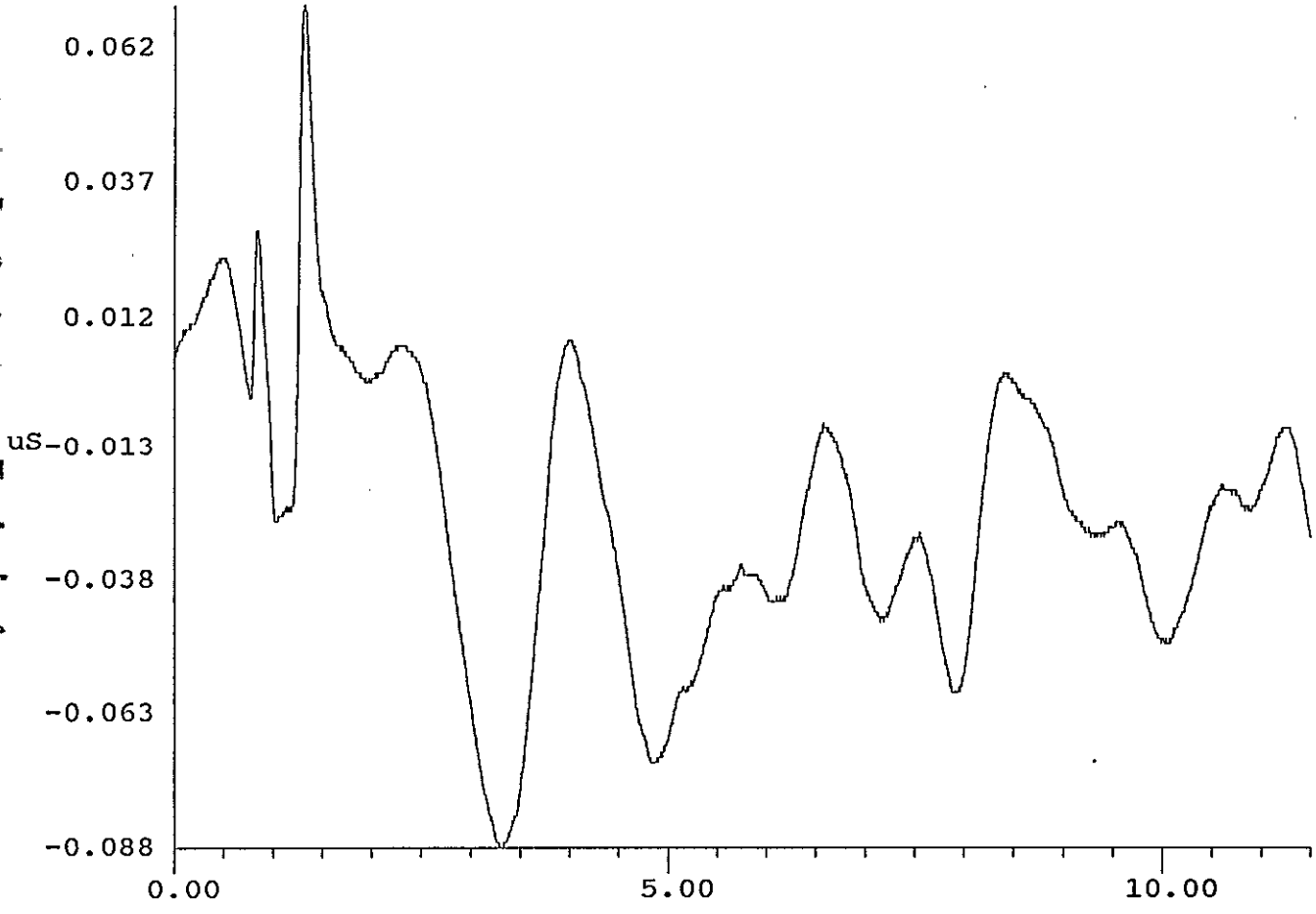
Sample Name: BLANK	Date: Tue Feb 20 11:53:57 1990
Data File : A:\90-24563.D02	
Method : c:\windows\ai400\method\sst.met	
ACI Address: 1 System : 1 Inject#: 2	Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME

File: A:\90-24563.D02 Sample: BLANK



DATA REPROCESSED ON Thu Apr 12 09:35:32 1990

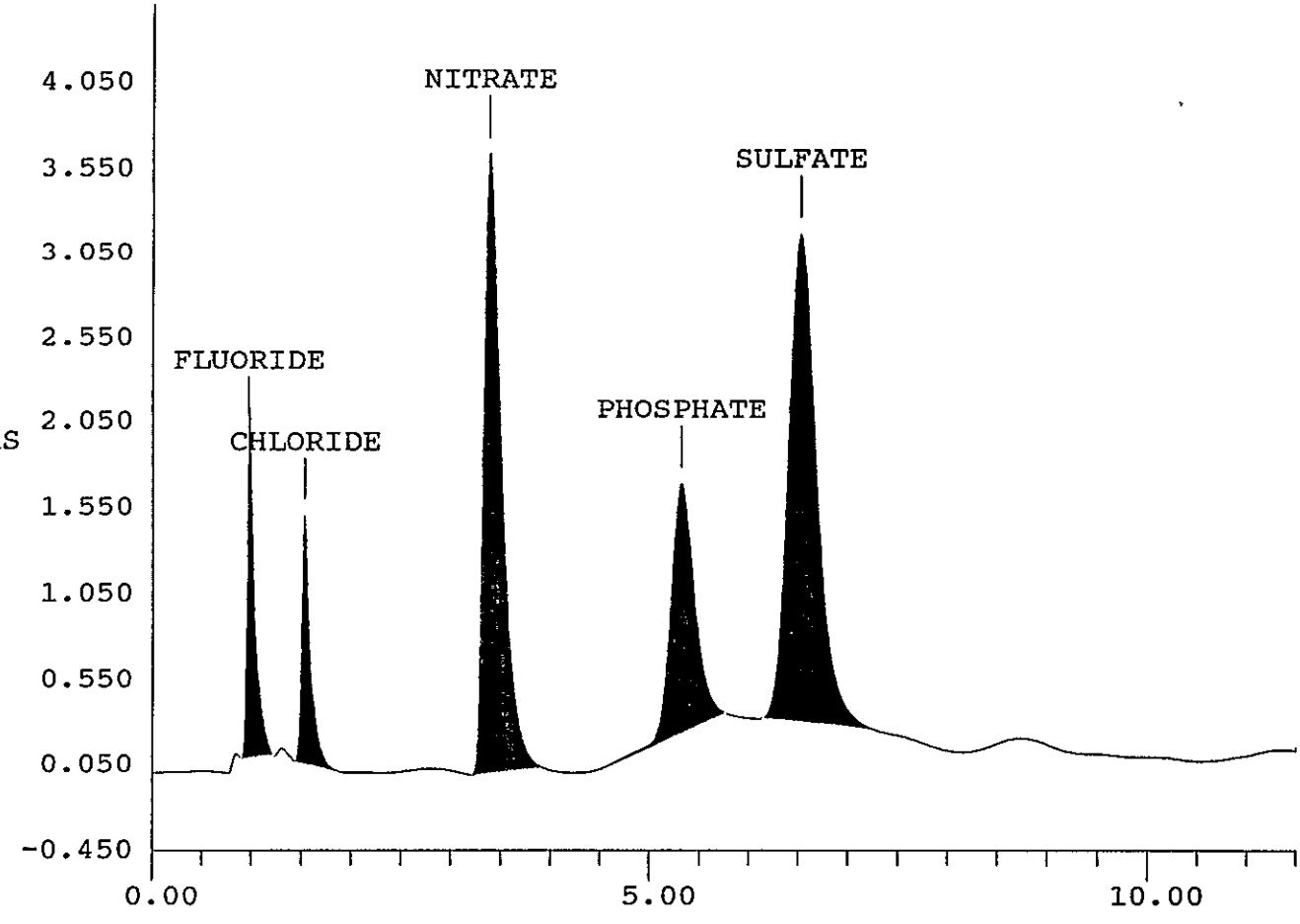
Sample Name: LMCS/6C11HI Date: Tue Feb 20 12:06:11 1990
Data File : C:\DX\DATA\90-24563.D03
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	6.846e+001	1.158e+004	1886	1	0	0.00%
2	1.53	CHLORIDE	8.602e+001	9.333e+003	1440	1	0	0.00%
3	3.38	NITRATE	7.220e+002	4.762e+004	3627	1	0	0.00%
4	5.32	PHOSPHATE	7.506e+002	2.515e+004	1448	1	0	0.00%
5	6.52	SULFATE	6.988e+002	5.803e+004	2867	1	0	0.00%

File: C:\DX\DATA\90-24563.D03 Sample: LMCS/6C11HI



DATA REPROCESSED ON Thu Apr 12 09:37:47 1990

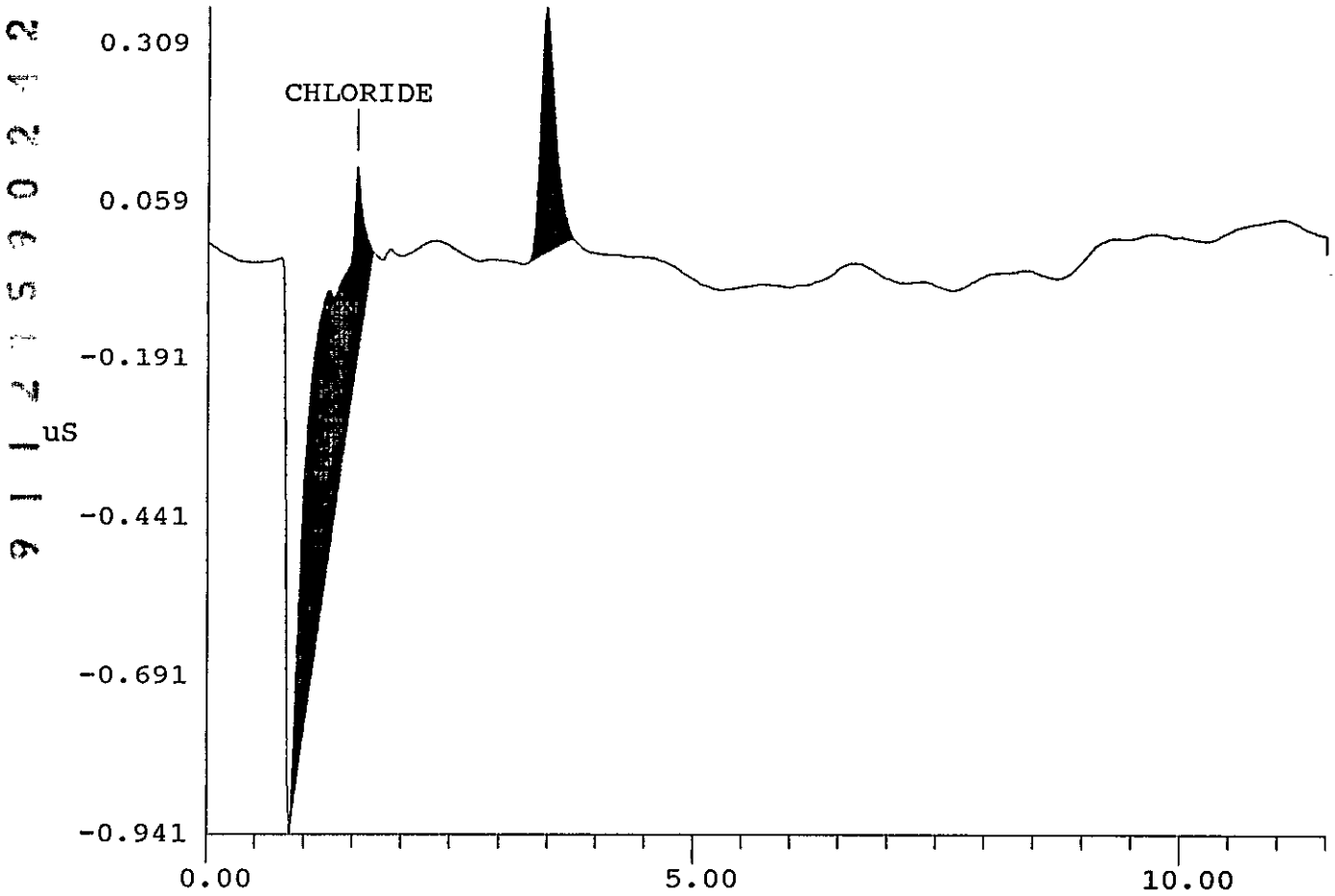
Sample Name: 904B Date: Tue Feb 20 12:30:41 1990
Data File : C:\DX\DATA\90021900.D05
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3450
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 1

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	1.53	CHLORIDE	1.776e-001	1.584e+004	314	1	0	0.00%
2	3.47	NITRATE	7.508e-001	4.380e+003	387	1	0	5.69%

File: C:\DX\DATA\90021900.D05 Sample: 904B



DATA REPROCESSED ON Thu Apr 12 09:41:04 1990

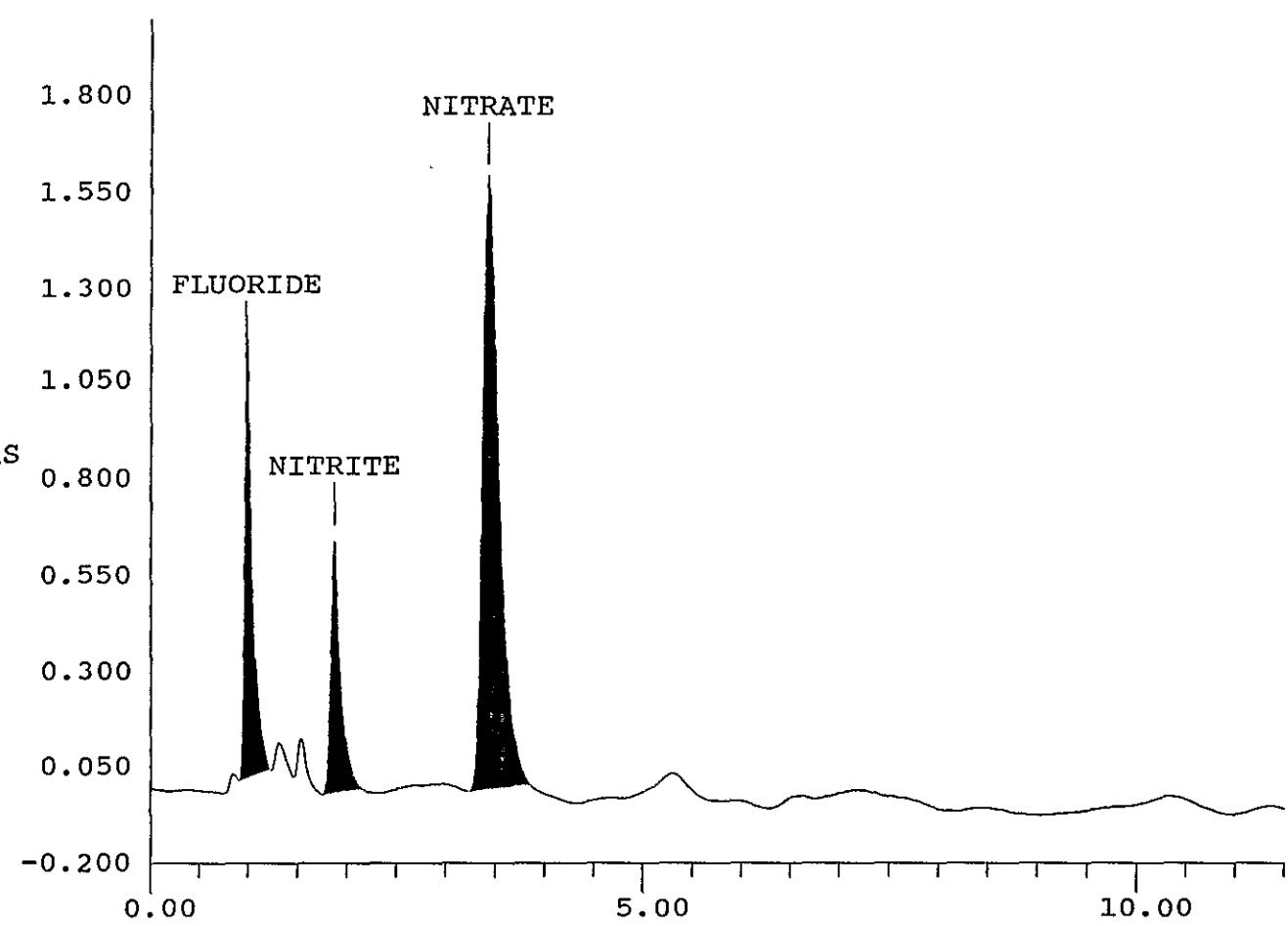
Sample Name: 905	Date: Tue Feb 20 12:42:54 1990
Data File : C:\DX\DATA\90021900.D06	
Method : c:\windows\ai400\method\sst.met	
ACI Address: 1 System : 1 Inject#: 6	Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	4.071e+001	6.963e+003	1095	1	0	0.00%
2	1.87	NITRITE	1.088e+002	4.755e+003	653	1	0	0.00%
3	3.42	NITRATE	3.137e+002	1.969e+004	1586	1	0	-0.00%

File: C:\DX\DATA\90021900.D06 Sample: 905



DATA REPROCESSED ON Thu Apr 12 09:42:30 1990

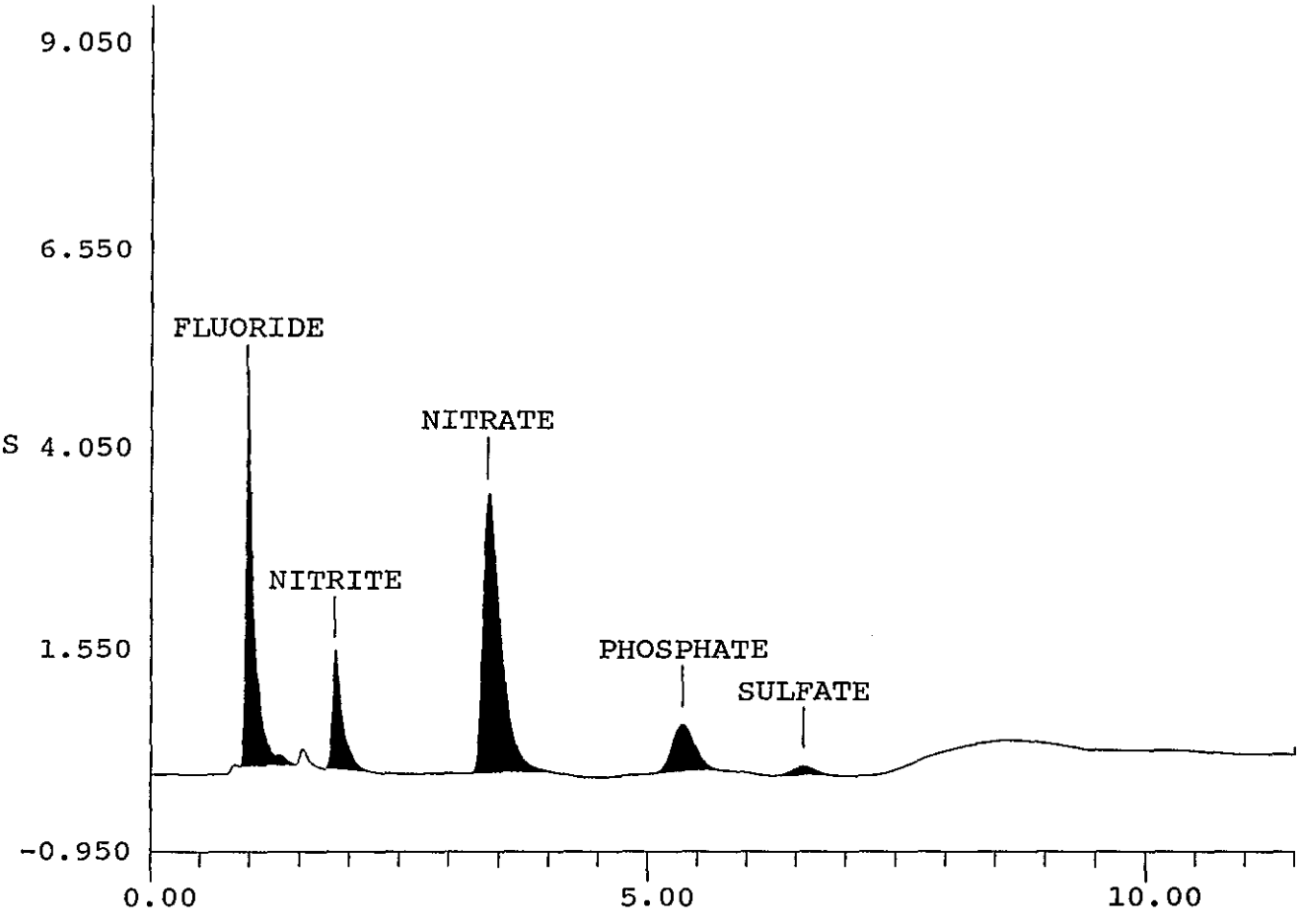
Sample Name: 906D	Date: Tue Feb 20 12:55:07 1990
Data File : C:\DX\DATA\90021900.D07	
Method : c:\windows\ai400\method\sst.met	
ACI Address: 1 System : 1 Inject#: 7	Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3451
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	1.553e+002	2.985e+004	4467	1	0	0.00%
2	1.85	NITRITE	1.756e+002	1.079e+004	1402	1	0	0.00%
3	3.38	NITRATE	6.829e+002	4.584e+004	3433	1	0	0.00%
4	5.35	PHOSPHATE	3.096e+002	9.518e+003	576	1	0	0.00%
5	6.57	SULFATE	4.727e+001	1.658e+003	107	1	0	0.00%

File: C:\DX\DATA\90021900.D07 Sample: 906D



DATA REPROCESSED ON Thu Apr 12 09:44:00 1990

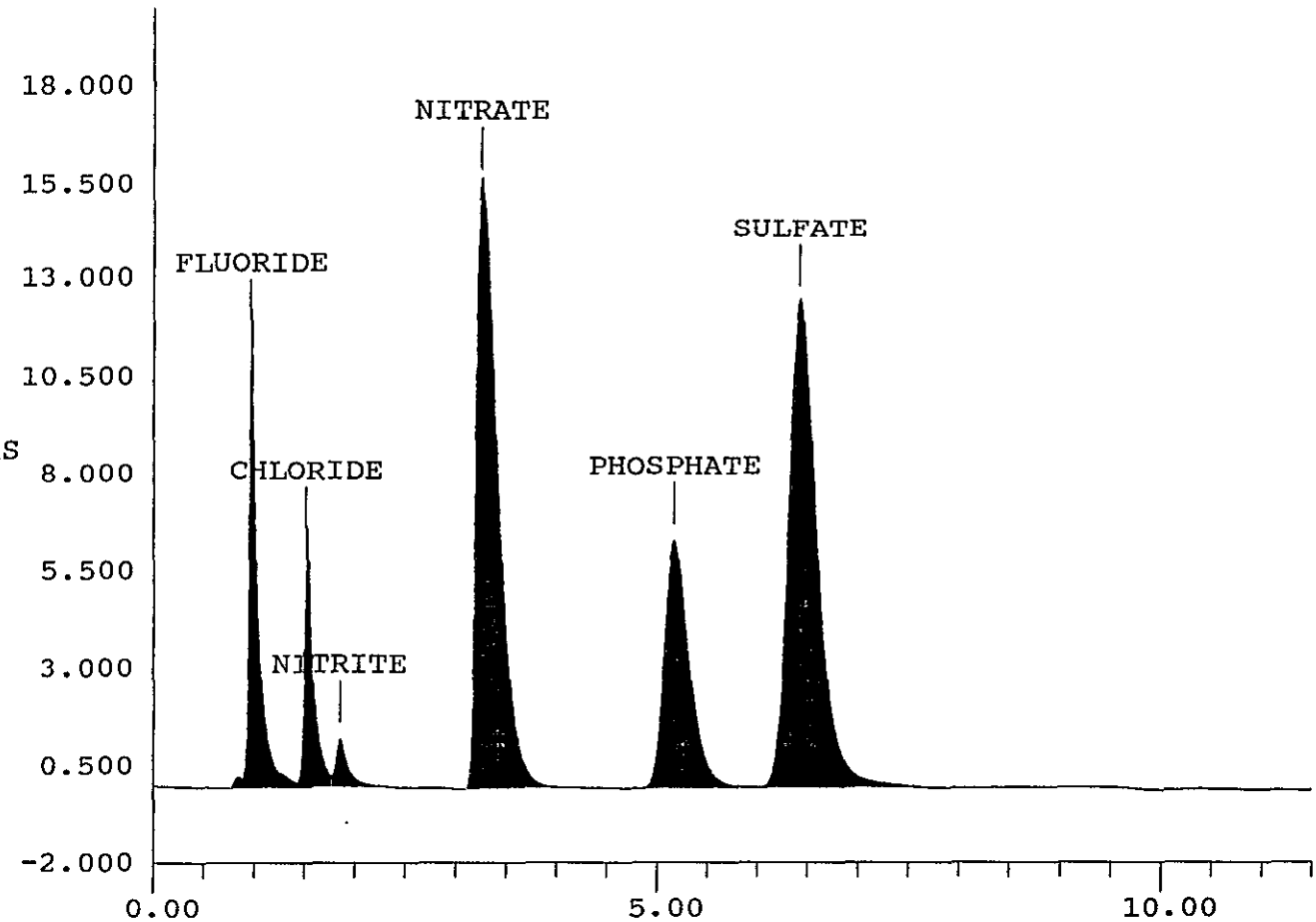
Sample Name: 907S Date: Tue Feb 20 13:07:21 1990
Data File : C:\DX\DATA\90021900.D08
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 8 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3450
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	3.621e+002	8.006e+004	11486	2	0	0.00%
2	1.52	CHLORIDE	3.295e+002	4.304e+004	6164	2	0	0.00%
3	1.85	NITRITE	1.575e+002	1.030e+004	1200	2	0	0.00%
4	3.25	NITRATE	3.185e+003	2.428e+005	15530	1	0	-0.00%
5	5.17	PHOSPHATE	2.994e+003	1.139e+005	6322	2	0	-6.06%
6	6.42	SULFATE	2.743e+003	2.562e+005	12402	2	0	0.00%

File: C:\DX\DATA\90021900.D08 Sample: 907S



DATA REPROCESSED ON Thu Apr 12 09:46:13 1990

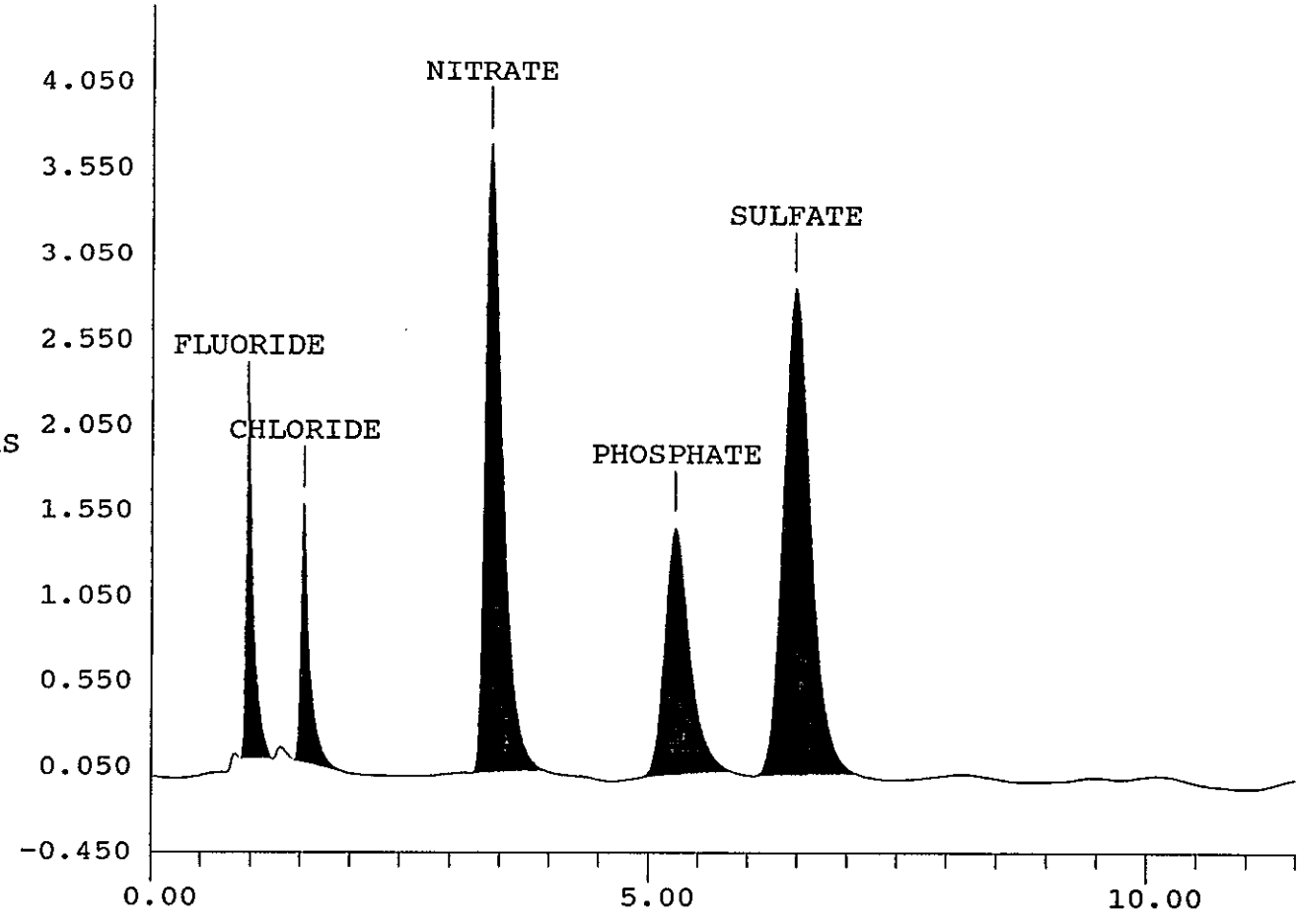
Sample Name: LMCS/6C11HI Date: Tue Feb 20 14:08:34 1990
Data File : C:\DX\DATA\90021900.D13
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 3450
Area reject = 1000 One Data Point per 0.2 seconds
Amount Injected = 1 Dilution factor = 101

PEAK NUM	RET TIME	PEAK NAME	CONC. in ug/ml	AREA	HEIGHT	BL	REF PEAK	% DELTA RET TIME
1	0.97	FLUORIDE	7.175e+001	1.149e+004	1980	1	0	0.00%
2	1.53	CHLORIDE	9.007e+001	9.595e+003	1509	1	0	0.00%
3	3.40	NITRATE	7.281e+002	4.735e+004	3658	1	0	0.00%
4	5.27	PHOSPHATE	7.454e+002	2.612e+004	1438	1	0	0.00%
5	6.47	SULFATE	6.913e+002	5.618e+004	2835	1	0	0.00%

File: C:\DX\DATA\90021900.D13 Sample: LMCS/6C11HI



Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Total Organic Carbon

Water Digestion

Instrument	WB39937
Procedure / Rev	LA-344-105/A-1
Technologist	E. Colvin
Date	05-31-90
Temperature	N/A
Starting Time	12:30
Ending Time	15:00
Chemist	R.E. Brandt

	Description	Lab. Id.
1	Reagent Blank	F0904
2	Initial LMCS Check Std	F0903
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Spike Composite 5	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	70C11D/200uL			2.2 uL
Spike	80C11/200 uL	F0905 / 200 uL		0.5 uL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 6-28-90

Verified by: Carry M Seidel (Signature) C.M. Seidel (Printed Name) Date: 6-28-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. E 4/04/90 SST-102

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9 1 1 2 1 5 1 0 2 1 7

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-904 Date: 05-31-1990 Time: 09:37:34

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.70	100.00
3	3.01	2.50	32.00
4	4.01	3.20	21.88
5	5.01	4.00	20.00
6	6.01	4.50	11.11
7	7.01	5.20	13.46

BLANK VALUE = 5.2 / 7.006653 = .7421518 ug/minute

Sample Run By: 80028

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-903 Date: 05-31-1990 Time: 09:47:06

Blank = .7421518 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading =====	Analysis Time =====	Coulometer =====	% Difference ==
1	1.01	8.80	40.91
2	2.01	42.60	29.34
3	3.01	50.70	15.98
4	4.01	54.60	7.14
5	5.01	56.70	3.70
6	6.01	58.00	2.24
7	7.01	59.10	1.86

(59.1 - 5.199366)(11)/(200) = 2.964535 g/L Carbon

(59.1 - 5.199366)(11)/(200)(12) = .2470446 Molar Carbon

Sample Run By: 80028

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0.

Sample: F-905 Date: 05-31-1990 Time: 09:55:27

Blank = .7421518 Sample Size = 200 Dilution Factor = 1.1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	3.00	33.33
4	4.01	3.60	16.67
5	5.01	4.40	18.18
6	6.01	5.30	16.98
7	7.01	5.90	10.17

(5.9 - 5.199366)(1.1)/(200) = 3.85349E-03 g/L Carbon

(5.9 - 5.199366)(1.1)/(200)(12) = 3.211242E-04 Molar Carbon

Sample Run By: 80028

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-906 Date: 05-31-1990 Time: 10:04:03

Blank = .7421518 Sample Size = 200 Dilution Factor = 1.1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	2.90	31.03
4	4.01	3.60	19.44
5	5.01	4.30	16.28
6	6.01	5.00	14.00
7	7.01	5.70	12.28

(5.7 - 5.199366)(1.1)/(200) = 2.753488E-03 g/L Carbon

(5.7 - 5.199366)(1.1)/(200)(12) = 2.294574E-04 Molar Carbon

Sample Run By: 80028

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-907 Date: 05-31-1990 Time: 10:12:00

Blank = .7421518 Sample Size = 200 Dilution Factor = 1.1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	90.20	100.00
3	3.01	108.30	16.71
4	4.01	115.90	6.56
5	5.01	119.40	2.93
6	6.01	121.40	1.65
7	7.01	122.60	0.98

(122.6 - 5.200045)(1.1)/(200) = .6456997 g/L Carbon

(122.6 - 5.200045)(1.1)/(200)(12) = 5.380831E-02 Molar Carbon

Sample Run By: 80028

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-908 Date: 05-31-1990 Time: 10:21:09

Blank = .7421518 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	43.30	100.00
3	3.01	50.90	14.93
4	4.01	54.60	6.78
5	5.01	56.60	3.53
6	6.01	57.80	2.08
7	7.01	58.70	1.53

(58.7 - 5.199411)(11)/(200) = 2.942532 g/L Carbon

(58.7 - 5.199411)(11)/(200)(12) = .245211 Molar Carbon

Sample Run By: 80028

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Ammonia Analysis

Water Digestion

Instrument	N/A
Procedure / Rev	LA-634-102
Technologist	S. Lai
Date	02/01/90
Temperature	N/A
Starting Time	07:30
Ending Time	10:00
Chemist	R. E. Brandt

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	4C110G/250 uL			30 mL
Spike	4C110G/250 uL	F0905/ 1 mL		30 mL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-21-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-21-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

9 1 1 2 5 9 0 2 5 4

Interim

Rev.E 4/04/90

SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Carbonate Analysis

Water Digestion

Instrument	WB39937
Procedure / Rev	LA-622-102/A-1
Technologist	E. Colvin
Date	02-06-90
Temperature	N/A
Starting Time	08:30
Ending Time	11:30
Chemist	R.E. Brandt

	Description	Lab. Id.
1	Initial Check Std	F0903
2	Reagent Blank	F0904
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Spike Composite 5	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	69C11C/50 uL			50 uL
Spike	69C11C/100uL	F0905 / 200 uL		300 uL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 7-10-90

Verified by: Carry M Seidel (Signature) C.M. Seidel (Printed Name) Date: 7-10-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

9 1 1 2 3 5 9 0 2 5

F903, -7527

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-903 Date: 02-06-1990 Time: 04:07:21

Blank = .7708053 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	82.10	100.00
3	3.01	105.40	22.11
4	4.01	116.70	9.68
5	5.01	122.10	4.42
6	6.01	125.00	2.32
7	7.01	126.60	1.26

(126.6 - 5.400789)(1)/(50) = 2.423984 g/L Carbon

(126.6 - 5.400789)(1)/(50)(12) = .2019987 Molar Carbon

Sample Run By: 80028_____

253.1

F904.-7327

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-904 Date: 02-06-1990 Time: 03:58:55

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.50	100.00
3	3.01	3.40	26.47
4	4.01	4.10	17.07
5	5.01	4.60	10.87
6	6.01	5.00	8.00
7	7.01	5.40	7.41

BLANK VALUE = 5.4 / 7.005661 = .7708053 ug/minute

Sample Run By: 80028_____

253.2

F905.7027

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-905 Date: 02-06-1990 Time: 04:22:30

Blank = .7708053 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	5.40	100.00
3	3.01	7.60	28.95
4	4.01	8.80	13.64
5	5.01	9.60	8.33
6	6.01	10.20	5.88
7	7.01	10.70	4.67

(10.7 - 5.400789)(1)/(200) = 2.649606E-02 g/L Carbon

(10.7 - 5.400789)(1)/(200)(12) = 2.208005E-03 Molar Carbon

Sample Run By: 80028_____

253.3

F906.-7127

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-906 Date: 02-06-1990 Time: 04:30:31

Blank = .7708053 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	5.80	100.00
3	3.01	8.10	28.40
4	4.01	9.40	13.83
5	5.01	10.10	6.93
6	6.01	10.70	5.61
7	7.01	11.10	3.60

(11.1 - 5.40013)(1)/(200) = 2.849935E-02 g/L Carbon

(11.1 - 5.40013)(1)/(200)(12) = 2.374946E-03 Molar Carbon

Sample Run By: 80028_____

253.4

F907-7227

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-907 Date: 02-06-1990 Time: 04:39:45

Blank = .7708053 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	===== % Difference ==
1	1.01	0.00	0.00
2	2.01	102.40	100.00
3	3.01	139.90	26.80
4	4.01	158.90	11.96
5	5.01	168.60	5.75
6	6.01	173.30	2.71
7	7.01	175.80	1.42

(175.8 - 5.40013)(1)/(200) = .8519993 g/L Carbon

(175.8 - 5.40013)(1)/(200)(12) = 7.099995E-02 Molar Carbon

Sample Run By: 80028_____

253.5

F908.-7527

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-908 Date: 02-06-1990 Time: 04:50:00

Blank = .7708053 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	73.90	100.00
3	3.01	99.70	25.88
4	4.01	113.70	12.31
5	5.01	121.50	6.42
6	6.01	125.60	3.26
7	7.01	127.90	1.80

(127.9 - 5.400789)(1)/(50) = 2.449984 g/L Carbon

(127.9 - 5.400789)(1)/(50)(12) = .2041654 Molar Carbon

Sample Run By: 80028_____

253.6

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	N/A
Procedure / Rev	LA-645-001
Technologist	M. Franz
Date	02-06-90
Temperature	22 C
Starting Time	10:00
Ending Time	13:45
Chemist	K. R. Fuller

Nitrite Analysis

Water Digestion

Note: 8C11AT is 0.502 Molar Sodium Nitrite.

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike Comp 5	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
Final LMCS Check Std	8C11AT/100 uL			10.05 mL
Spike (see note)	8C11AT/100 uL	F0905/100 uL		10.15 mL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-13-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-13-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev. E SST-102

9 1 1 2 5 9 0 2 5 2

Single Shell Tank
Calibration Record

ANALYTE:	NO_2		
PROCEDURE:	LA-645-001	REVISION:	A-2
INSTRUMENT:	Spectronic 1001	PROPERTY NUMBER:	WA93603
TECHNOLOGIST:	J. Winters	PAYROLL NUMBER:	80029
DATE:	February 22, 1989		

CALIBRATION STANDARD ID: 8C11AP

ANALYTE CONCENTRATION: 2×10^{-4}

TYPE OF CALIBRATION: Linear Regression

Dilution	Concentration	Instrument Reading Units=
0 ul	0	0
50 ul	9.95×10^{-7} M	0.054
100 ul	1.98×10^{-6} M	0.098
500 ul	9.52×10^{-6} M	0.460
1000 ul	1.82×10^{-5} M	0.841
1500 ul	2.61×10^{-5} M	1.185
2000 ul	3.33×10^{-5} M	1.494
2500 ul	4.00×10^{-5} M	1.775

COMMENTS: Curve fit (r^2) 0.99959

Y-intercept 0.02269

Slope 44182.30561

SST-103 Rev. B 9/27/90 Interim

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9 1 1 2 5 9 0 2 4

Analytical Batch

Lab Segment Serial No.: .F0893

Customer ID.: 000005

Instrument	WA57276
Procedure / Rev	LA-548-101/C-1
Technologist	R.D. Hale
Date	02-06-90
Temperature	24 C
Starting Time	11:00
Ending Time	13:30
Chemist	S.A. Catlow

Total Alpha and Total Beta

Water Digestion / Fusion Dissolution
Detector #14

Samples were prepared in batch, but counted randomly.

	Description		Lab. Id.
1	Initial LMCS Check Std		F0201
2	Reagent Blank	89-044	F0216
3	Sample	89-044	F0202
4	Duplicate	89-044	F0203
5	Sample	Comp 5	F0905
6	Duplicate	Comp 5	F0906
7	Sample	Comp 6	F0929
8	Duplicate	Comp 6	F0930
9	Sample	Comp 8	F0953
10	Duplicate	Comp 8	F0954
11	Spike		F0204

	Description	Lab. Id.
12	Final LMCS Check Std	F0205
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	102B44/10mL			N/A
Spike	102B44/10mL	Sample 100 uL		N/A

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 07-25-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 07-25-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Am 241		
Procedure	LO-508-002	Revision:	A-0
Instrument:	Detector #14	Property Number:	WA 93415
Technologist:	R. A. Jones	Payroll Number:	65801
Date:	11-28-88		

Calibration Standard ID: 36B40A3; 36B40B3; 36B40C3;

Analyte Concentration: 61800; 110700; 161400 cpm

Type of Calibration: Efficiency

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached	Sheets	
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 7-23-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 7-23-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev.(Draft) 1/18/89 SST-103

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9 1 1 2 1 5 7 0 2 5 6

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 14

TIME ZERO DATE (HD): 15897

RADIONUCLIDE: Am-241
HALF LIFE: 154497
COUNT TIME: 5
CPM BKG: 0.5

DATE COUNTED (HD): 16135

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
36B40A8	1	11/28/88	1115	83719	83089	83820	84087
36B40B7	1	11/28/88	1128	147778	147414	147378	147313
36B40C7	1	11/28/88	1142	212324	211727	211106	211442
36B40A3	2	11/28/88	1155	67029	66485	66532	66137
36B40B3	2	11/28/88	1207	116432	117580	116643	116507
36B40C3	2	11/28/88	1221	167025	166472	166682	166167
36B40A6	5	11/28/88	1234	64835	64744	63542	64860
36B40B6	5	11/28/88	1246	132366	127335	127267	127511
36B40C5	5	11/28/88	1300	176904	172226	170187	173840

STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
36B40A8	1"	60570	16775	1.00	16793	0.2773
36B40B7	1"	109900	29494	1.00	29525	0.2687
36B40C7	1"	159700	42329	1.00	42375	0.2653

AVERAGE, 1" = 0.2704 +/- @95% 0.0121 4.46 % ON 11/28/88

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
36B40A3	2"	61800	13309	1.00	13323	0.2156
36B40B3	2"	110700	23358	1.00	23383	0.2112
36B40C3	2"	161400	33317	1.00	33352	0.2066

AVERAGE, 2" = 0.2111 +/- @95% 0.0088 4.15 % ON 11/28/88

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
36B40A6	5"	59470	12899	1.00	12912	0.2171
36B40B6	5"	109800	25723	1.00	25751	0.2345
36B40C5	5"	160100	34657	1.00	34694	0.2167

AVERAGE, 5" = 0.2228 +/- @95% 0.0199 8.95 % ON 11/28/88

NEW EFFS FOR DET 14 Am-241 1" = 0.2704 2" = 0.2111

5" = 0.2228

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Co^{60}		
Procedure	LO-508-002	Revision:	A-2
Instrument:	Detector #14	Property Number:	WA93415
Technologist:	R. A. Jones	Payroll Number:	65801
Date:	11-28-88		

Calibration Standard ID:	32B40A4; 32B40B3; 32B40C4
Analyte Concentration:	70480; 153100; 202400
Type of Calibration:	Efficiency

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Sheets		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Sherley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 7-30-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 7-30-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev.(Draft) 1/18/89 SST-103

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9 1 1 2 3 5 7 0 2 1 9

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 14

RADIONUCLIDE: Co-60
HALF LIFE: 1925
COUNT TIME: 5
CPM BKG: 19
CPM 1" BKG: 19

2",5" STD TIME ZERO DATE (HD): 15883
1" STD TIME ZERO DATE (HD): 15883
DATE COUNTED (HD): 16135
DATE COUNTED 1" (HD) 16135

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
32B40A8	1	11/28/88	1313	94851	93909	94136	94073
32B40B7	1	11/28/88	1325	180320	178550	178878	179065
32B40C7	1	11/28/88	1338	260104	258654	259795	259469
32B40A4	2	11/28/88	1349	90411	89596	89705	90717
32B40B3	2	11/28/88	1527	170657	169556	169500	170301
32B40C4	2	11/28/88	1540	244082	244246	243016	249016
32B40A5	5	11/28/88	1551	83403	82448	82728	84312
32B40B6	5	11/28/88	1603	160402	163149	162823	159622
32B40C5	5	11/28/88	1616	237343	232578	231827	231790

STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
32B40A8	1"	69550	18829	1.09	20618	0.2964
32B40B7	1"	134700	35822	1.09	39224	0.2912
32B40C7	1"	201000	51882	1.09	56810	0.2826
AVERAGE, 1" =		0.2901	+/- @95%	0.0137	4.71 %	ON 11/28/88

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
32B40A4	2"	70480	18002	1.09	19712	0.2797
32B40B3	2"	135100	33982	1.09	37209	0.2754
32B40C4	2"	202400	48999	1.09	53653	0.2651
AVERAGE, 2" =		0.2734	+/- @95%	0.0147	5.38 %	ON 11/28/88

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
32B40A5	5"	70160	16626	1.09	18205	0.2595
32B40B6	5"	135700	32281	1.09	35347	0.2605
32B40C5	5"	201900	46658	1.09	51090	0.2530
AVERAGE, 5" =		0.2577	+/- @95%	0.0079	3.07 %	ON 11/28/88

NEW EFFS FOR DET 14 Co-60 1" = 0.2901 2" = 0.2734

5" = 0.2577

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	WA77228 / WA401934
Procedure / Rev	LA-548-121 / C-2
Technologist	S.A. Cervantes
Date	02-02-90
Temperature	25 C
Starting Time	13:00
Ending Time	14:00
Chemist	S. A. Catlow

GEA Analysis

Water Digestion

Samples are prepared in batch, but counted randomly.

	Description	Lab. Id.
1	Inital LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike of F0905	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	89B44 / 500 uL			22 mL
Spike	89B44/ 500 uL	F0905 / 100 uL		22 mL

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-05-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-05-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim

Rev. E 4/04/90

SST-102

9112150272

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Isotope, Mixed Gamma		
Procedure	LO-508-003	Revision:	A-0
Instrument:	GEA Detector #1	Property Number:	401934
Technologist:	JL Anderson	Payroll Number:	
Date:	2/14/89; 2/16/89		

Calibration Standard ID: Book number	56B40 D1
Analyte Concentration:	N/A
Type of Calibration:	Gamma Energy Analysis (Efficiency)

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-05-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-05-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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9 1 1 2 5 7 0 2 7 3

DETECTOR: 1
GEOMETRY CODE: 42
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 2
CALIBRATION DATE: 14-Feb-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	5.721347E-03
88.032	1.512568E-02
122.0614	2.041958E-02
165.853	1.856472E-02
279.1967	
391.668	1.042777E-02
513.99	7.856059E-03
661.65	6.838966E-03
898.021	5.300244E-03
1173.237	4.218416E-03
1332.501	3.785537E-03
1836.129	2.931033E-03

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.343694E+01
         +     2.034704E+01 *LOG(ENERGY)
         +    -2.088264E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =     8.372735E+00
         +    -7.762489E+00 *LOG(ENERGY)
         +     2.017698E+00 *LOG(ENERGY)^2
         +    -2.447560E-01 *LOG(ENERGY)^3
         +     1.067720E-02 *LOG(ENERGY)^4
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 1
GEOMETRY CODE: 43
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 3
CALIBRATION DATE: 16-Feb-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	1.397695E-03
88.032	3.641448E-03
122.0614	5.035820E-03
165.853	4.620516E-03
279.1967	
391.668	2.619018E-03
513.99	1.890740E-03
661.65	1.782478E-02
898.021	1.392563E-03
1173.237	1.117189E-03
1332.501	1.007670E-03
1836.129	7.782502E-04

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.354869E+01
```

```
                    +    1.975356E+01 *LOG(ENERGY)
                    +   -2.020858E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
          LOG(EFF) =     4.001880E+01
                    +   -2.857555E+01 *LOG(ENERGY)
                    +    6.748440E+00 *LOG(ENERGY)^2
                    +    7.173093E-01 *LOG(ENERGY)^3
                    +    2.821780E-02 *LOG(ENERGY)^4
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Mixed Isotope Standard		
Procedure	LQ-508-003	Revision:	A-3
Instrument:	GEA Detector #2	Property Number:	401934
Technologist:	J. L. Anderson	Payroll Number:	
Date:	9-28-88; 10-21-88		

Calibration Standard ID: Book number	56B40 D1
Analyte Concentration:	N/A
Type of Calibration:	Gamma Energy Analysis (Efficiency)

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-05-90

Verified by: Carry M. Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-05-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

9112150276

Interim Rev. (Draft) 1/18/89 SST-103

DETECTOR: 2
GEOMETRY CODE: 42
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 2
CALIBRATION DATE: 21-Oct-88
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	3.417000E-03
88.032	1.090000E-02
122.0614	1.408000E-02
165.853	1.516000E-02
279.1967	9.929000E-03
391.668	7.578000E-03
513.99	5.875000E-03
661.65	4.927000E-03
898.021	3.727000E-03
1173.237	3.085000E-03
1332.501	2.683000E-03
1836.129	2.102000E-03

EQUATION 0-122 KEV

```
LOG(EFF) =   -6.654070E+01
           +  2.583780E+01 *LOG(ENERGY)
           +  -2.677550E+00 *LOG(ENERGY)^2
```

EQUATION 122-1836 KEV

```
LOG(EFF) =   -1.050740E+02
           +  6.428950E+01 *LOG(ENERGY)
           +  -1.503170E+01 *LOG(ENERGY)^2
           +  1.533670E+00 *LOG(ENERGY)^3
           +  -5.838530E-02 *LOG(ENERGY)^4
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 2
GEOMETRY CODE: 43
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 3
CALIBRATION DATE: 28-Sep-88
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	1.476000E-03
88.032	4.721000E-03
122.0614	6.589000E-03
165.853	6.613000E-03
279.1967	4.692000E-03
391.668	3.542000E-03
513.99	2.810000E-03
661.65	2.327000E-03
898.021	1.790000E-03
1173.237	1.437000E-03
1332.501	1.277000E-03
1836.129	9.824000E-04

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.826830E+01
         +     2.165450E+01 *LOG(ENERGY)
         +    -2.198930E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =    -2.233890E+01
         +     1.174520E+01 *LOG(ENERGY)
         +    -2.739550E+00 *LOG(ENERGY)^2
         +     2.655450E-01 *LOG(ENERGY)^3
         +    -9.668420E-03 *LOG(ENERGY)^4
```

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Mixed Isotope Standards		
Procedure	LO-508-003	Revision:	A-3
Instrument:	GEA Detector #3	Property Number:	401934
Technologist:	J. L. Anderson	Payroll Number:	
Date:	07-02-89		

Calibration Standard ID: Book number	56B40 D1
Analyte Concentration:	N/A
Type of Calibration:	Gamma Energy Analysis (Efficiency)

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-29-90

Verified by: Carey M. Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-29-90

Approved by: [illegible]

Interim Rev. (Draft) 1/15/89 T-103

9112150279

DETECTOR: 3
GEOMETRY CODE: 41
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 1
CALIBRATION DATE: 2-Jul-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	2.833765E-02
88.032	2.881764E-02
122.0614	2.756557E-02
165.853	2.270614E-02
279.1967	
391.668	1.285730E-02
513.99	
661.65	7.841011E-03
898.021	5.779292E-03
1173.237	4.773005E-03
1332.501	4.278530E-03
1836.129	3.371238E-03

EQUATION 0-165 KEV

```
LOG(EFF) =   -1.113845E+01
         +    3.484260E+00 *LOG(ENERGY)
         +   -3.990659E-01 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =   -2.052334E+01
         +    9.121738E+00 *LOG(ENERGY)
         +   -1.553578E+00 *LOG(ENERGY)^2
         +    8.018036E-02 *LOG(ENERGY)^3
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 3
GEOMETRY CODE: 42
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 2
CALIBRATION DATE: 2-Jul-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	7.455306E-03
88.032	7.462748E-03
122.0614	7.578302E-03
165.853	6.965814E-03
279.1967	
391.668	3.596591E-03
513.99	
661.65	2.318396E-03
898.021	1.824191E-03
1173.237	1.461179E-03
1332.501	1.321243E-03
1836.129	1.011332E-03

EQUATION 0-165 KEV

```
LOG(EFF) =    -6.838496E+00
          +    8.819509E-01 *LOG(ENERGY)
          +   -9.970528E-02 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =     3.082260E-01
          +   -1.410839E+00 *LOG(ENERGY)
          +    1.042898E-01 *LOG(ENERGY)^2
          +   -5.874725E-03 *LOG(ENERGY)^3
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 3
GEOMETRY CODE: 43
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 3
CALIBRATION DATE: 2-Jul-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56B40 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	2.020462E-03
88.032	1.924344E-03
122.0614	2.027231E-03
165.853	1.712371E-03
279.1967	
391.668	1.056509E-03
513.99	
661.65	7.115743E-04
898.021	5.243928E-04
1173.237	4.551585E-04
1332.501	4.223636E-04
1836.129	3.139091E-04

EQUATION 0-165 KEV

```
LOG(EFF) =    -5.300788E+00
          +   -3.550643E-01 *LOG(ENERGY)
          +    3.272635E-02 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =    -9.815549E+00
          +    2.402920E+00 *LOG(ENERGY)
          +   -4.428877E-01 *LOG(ENERGY)^2
          +    2.059131E-02 *LOG(ENERGY)^3
```

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Mixed Isotope Standards		
Procedure	LQ-508-003	Revision:	A-3
Instrument:	GEA Detector #4	Property Number:	401934
Technologist:	J. L. Anderson	Payroll Number:	
Date:	09-01-89		

Calibration Standard ID: Book number	56B40 D1
Analyte Concentration:	N/A
Type of Calibration:	Gamma Energy Analysis (Efficiency)

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Sherley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-29-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-29-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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9 1 1 2 5 9 0 2 1 2

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

DETECTOR: 4
GEOMETRY CODE: 41
GEOMETRY DECSRIPTION: 22 ML LIQUID, POS 1
CALIBRATION DATE: 1-Sep-89
ANALYST(S): J. L. ANDERSON/M. R. DOWELL
STANDARD ID: 56840 D1

ENERGY (KEV)	EFFICIENCY (COUNTS/GAMMA)
59.536	2.682446E-02
88.032	8.210956E-02
122.0614	1.118411E-01
165.853	1.066653E-01
279.1967	
391.668	5.704220E-02
513.99	
661.65	3.685958E-02
898.021	2.541629E-02
1173.237	2.161710E-02
1332.501	1.973393E-02
1836.129	1.484468E-02

EQUATION 0-165 KEV

```
LOG(EFF) =   -5.844056E+01
         +    2.310700E+01 *LOG(ENERGY)
         +    2.371355E+00 *LOG(ENERGY)^2
```

EQUATION 165-1836 KEV

```
LOG(EFF) =   -1.718967E+01
         +    8.164155E+00 *LOG(ENERGY)
         +   -1.384196E+00 *LOG(ENERGY)^2
         +    7.025985E-02 *LOG(ENERGY)^3
```

GEA CALIBRATION RECORD PROCEDURE LQ-508-003

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                 05-SEP-90  10:00:21

                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   2     /     ADC UNIT NUMBER: 1.0
DETECTOR NUMBER:    1    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1720
ANALYZED BY:        LDT

SAMPLE DESCRIPTION: F903
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 5.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 31-JAN-90 AT 15:26:50

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3007. SECONDS
        DEAD TIME:     0.23 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 23-NOV-89
EFFICIENCY CALIBRATION PERFORMED  2-MAR-89
```

222-S COUNTING ROOM 05-SEP-90 10:00:21

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1126.90	562.92	1.33	563.	677.	13.8	CS-134, EU-152
2C	1139.02	568.98	1.33	601.	1257.	10.5	CS-134, BI-207
3	1209.75	604.33	1.44	618.	7999.	2.4	CS-134
4	1323.62	661.25	1.50	359.	11927.	1.9	CS-137
4B		661.82			35.	46.4	
5$	1591.95	795.40	1.51	282.	5652.	3.0	CS-134
6$	1604.29	801.57	1.51	249.	572.	7.6	CS-134
7	2346.44	1172.77	1.82	244.	5152.	2.9	CO-60
8	2664.86	1332.11	1.80	44.	4730.	2.9	CO-60
9	2729.92	1364.67	2.17	23.	148.	19.0	CS-134
10	2921.16	1460.39	1.70	21.	178.	16.8	K-40
10B		1461.77			182.	11.2	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
$ - MULTIPLET ANALYSIS CONVERGED DUE TO LACK OF CHI-SQ IMPROVEMENT
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0011
BACKGROUND DESCRIPTION: BK0011
BACKGROUND COLLECT STARTED ON 10-JAN-85 AT 12:00:00
BACKGROUND LIVE TIME: 6000. SECONDS

222-S COUNTING ROOM 05-SEP-90 10:00:21

SAMPLE: F903
DATA COLLECTED ON 31-JAN-90 AT 15:26:50
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<8.39E-01		LLD<8.39E-01		911.07	
AG-108M	LLD<2.14E-01		LLD<2.14E-01		433.94	
AG-110M	LLD<1.04E+00		LLD<1.04E+00		657.76	
AM-241	LLD<9.24E-01		LLD<9.24E-01		59.54	
AM-243	LLD<2.41E-01		LLD<2.41E-01		74.67	
AR-41	LLD<1.41E-01		LLD<1.41E-01		1293.64	
AU-198	LLD<2.02E-01		LLD<2.02E-01		411.80	
BA-133	LLD<2.86E-01		LLD<2.86E-01		356.02	
BA-139	LLD<5.82E-01		LLD<5.82E-01		165.85	
BA-140	LLD<7.57E-01		LLD<7.57E-01		537.27	
BA-141	LLD<5.82E-01		LLD<5.82E-01		190.23	
BE-7	LLD<1.98E+00		LLD<1.98E+00		477.59	
BI-207	LLD<1.94E-01		LLD<1.94E-01		569.70	
BI-212	LLD<2.66E+00		LLD<2.66E+00		727.27	
BI-214	LLD<9.96E-01		LLD<9.96E-01		609.32	
CD-109	LLD<3.45E+00		LLD<3.45E+00		88.03	
CE-139	LLD<1.32E-01		LLD<1.32E-01		165.85	
CE-141	LLD<2.02E-01		LLD<2.02E-01		145.44	
CEPR144	LLD<1.70E+00		LLD<1.70E+00		133.51	
CO-56	LLD<1.83E-01		LLD<1.83E-01		846.76	
CO-57	LLD<1.11E-01		LLD<1.11E-01		122.06	
CO-58	LLD<1.78E-01		LLD<1.78E-01		810.75	
CO-60	2.25E+01	+-6.92E-01	2.25E+01	+-6.92E-01	1332.50	-0.39
					1173.24	-0.46
CR-51	LLD<1.52E+00		LLD<1.52E+00		320.09	
CS-134	2.04E+01	+-6.58E-01	2.04E+01	+-6.58E-01	795.84	-0.44
					604.70	-0.37
CS-136	LLD<1.88E-01		LLD<1.88E-01		818.51	
CS-137	3.69E+01	+-8.22E-01	3.69E+01	+-8.22E-01	661.65	-0.40
CS-138	LLD<1.70E-01		LLD<1.70E-01		1435.86	
EU-152	LLD<3.04E-01		LLD<3.04E-01		1408.01	
EU-154	LLD<2.74E-01		LLD<2.74E-01		1274.45	
EU-155	LLD<4.17E-01		LLD<4.17E-01		105.31	
FE-59	LLD<3.83E-01		LLD<3.83E-01		1099.25	
HF-181	LLD<2.24E-01		LLD<2.24E-01		482.20	
HG-203	LLD<1.76E-01		LLD<1.76E-01		279.20	
I-131	LLD<2.30E-01		LLD<2.30E-01		364.48	
I-132	LLD<2.20E-01		LLD<2.20E-01		667.69	
I-133	LLD<2.17E-01		LLD<2.17E-01		529.69	
I-134	LLD<2.67E-01		LLD<2.67E-01		847.03	
I-135	LLD<4.13E-01		LLD<4.13E-01		1260.41	
K-40	LLD<1.97E+00		LLD<1.97E+00		1460.75	
KR-85	LLD<4.52E+01		LLD<4.52E+01		513.99	
KR-85M	LLD<1.31E-01		LLD<1.31E-01		151.17	
KR-87	LLD<5.04E-01		LLD<5.04E-01		402.58	
KR-89	LLD<7.30E+00		LLD<7.30E+00		220.90	
LA-140	LLD<7.35E-02		LLD<7.35E-02		1596.20	

LA-142	LLD<4.01E-01	LLD<4.01E-01	641.83
MN-54	LLD<1.94E-01	LLD<1.94E-01	834.83
MN-56	LLD<2.06E-01	LLD<2.06E-01	846.76
NA-22	LLD<9.56E-02	LLD<9.56E-02	1274.55
NA-24	LLD<2.15E-01	LLD<2.15E-01	1368.60
NB-94	LLD<1.71E-01	LLD<1.71E-01	702.63
NB-95	LLD<1.73E-01	LLD<1.73E-01	765.78
NB-97	LLD<1.27E+00	LLD<1.27E+00	657.92
NP-238	LLD<8.49E-01	LLD<8.49E-01	984.45
NP-239	LLD<1.01E+00	LLD<1.01E+00	277.60
PA-233	LLD<4.49E-01	LLD<4.49E-01	311.98
PA-234M	LLD<3.74E+01	LLD<3.74E+01	1001.03
PB-210	LLD<5.28E+00	LLD<5.28E+00	465.03
PB-212	LLD<3.34E-01	LLD<3.34E-01	239.00
PB-214	LLD<5.08E-01	LLD<5.08E-01	351.92
PO-210	LLD<1.90E+04	LLD<1.90E+04	804.00
PO-214	LLD<8.20E+03	LLD<8.20E+03	799.70
PO-216	LLD<1.67E+04	LLD<1.67E+04	804.90
PU-239	LLD<1.46E+03	LLD<1.46E+03	129.30
PU-241	LLD<5.24E+04	LLD<5.24E+04	148.57
RA-224	LLD<3.46E+00	LLD<3.46E+00	240.99
RA-226	LLD<3.13E+00	LLD<3.13E+00	186.10
RB-88	LLD<8.64E-01	LLD<8.64E-01	1836.00
RB-89	LLD<9.49E-01	LLD<9.49E-01	1031.88
RN-220	LLD<1.61E+02	LLD<1.61E+02	549.73
RU-103	LLD<2.02E-01	LLD<2.02E-01	497.08
RURH106	LLD<3.41E+00	LLD<3.41E+00	621.80
SB-124	LLD<2.85E-01	LLD<2.85E-01	602.72
SB-125	LLD<1.70E+00	LLD<1.70E+00	176.33
SC-46	LLD<2.26E-01	LLD<2.26E-01	1120.45
SE-75	LLD<2.34E-01	LLD<2.34E-01	264.66
SN-113	LLD<2.76E-01	LLD<2.76E-01	391.67
SR-85	LLD<1.98E-01	LLD<1.98E-01	513.99
SR-91	LLD<3.46E-01	LLD<3.46E-01	555.60
SR-92	LLD<1.03E-01	LLD<1.03E-01	1383.94
TA-182	LLD<6.07E-01	LLD<6.07E-01	1121.30
TC-99M	LLD<1.12E-01	LLD<1.12E-01	140.51
TE-123M	LLD<1.21E-01	LLD<1.21E-01	159.00
TE-125M	LLD<3.16E+01	LLD<3.16E+01	109.27
TE-132	LLD<1.55E-01	LLD<1.55E-01	228.16
TH-228	LLD<1.06E+01	LLD<1.06E+01	84.37
TL-208	LLD<2.49E-01	LLD<2.49E-01	583.14
U-235	LLD<2.10E-01	LLD<2.10E-01	185.71
U-237	LLD<6.17E-01	LLD<6.17E-01	208.00
W-187	LLD<6.13E-01	LLD<6.13E-01	685.74
XE-131M	LLD<5.53E+00	LLD<5.53E+00	163.98
XE-133	LLD<3.81E-01	LLD<3.81E-01	81.00
XE-133M	LLD<1.37E+00	LLD<1.37E+00	233.21
XE-135	LLD<1.59E-01	LLD<1.59E-01	249.79
XE-138	LLD<1.20E+00	LLD<1.20E+00	258.41
Y-88	LLD<8.19E-02	LLD<8.19E-02	1836.06
Y-91	LLD<4.09E+01	LLD<4.09E+01	1204.90
Y-91M	LLD<2.62E-01	LLD<2.62E-01	555.60
ZN-65	LLD<5.04E-01	LLD<5.04E-01	1115.55
ZR-95	LLD<3.11E-01	LLD<3.11E-01	756.73
ZR-97	LLD<1.67E-01	LLD<1.67E-01	743.33
TOTAL	7.98E+01 +-1.26E+00	7.98E+01 +-1.26E+00	

STANDARD DEVIATION = 0.04

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.45E-09 UC/LI
TOTAL MEASURED ACTIVITY = 7.98E+01 (+-1.26E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.90	562.92	677.	13.8	2.90E+01
1139.02	568.98	1257.	10.5	5.43E+01
1604.29	801.57	572.	7.6	3.28E+01
2729.92	1364.67	148.	19.0	1.32E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.16	1460.39	178.	16.8	1.69E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
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CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                 05-SEP-90  10:24:16

                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   1     /     ADC UNIT NUMBER: 2.0
DETECTOR NUMBER:    2    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2907
ANALYZED BY:        LDT

SAMPLE DESCRIPTION: F904
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 31-JAN-90 AT 15:27:58

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3000. SECONDS
        DEAD TIME:    00.00 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 21-OCT-88
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222-S COUNTING ROOM 05-SEP-90 10:24:16

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	2922.23	1460.66	3.17	11.	151.	17.6	K-40
1B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM 05-SEP-90 10:24:16

SAMPLE: F904
DATA COLLECTED ON 31-JAN-90 AT 15:27:58
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<1.80E-01		LLD<1.80E-01		911.07	
AG-108M	LLD<4.05E-02		LLD<4.05E-02		433.94	
AG-110M	LLD<5.89E-02		LLD<5.89E-02		657.76	
AM-241	LLD<2.74E-01		LLD<2.74E-01		59.54	
AM-243	LLD<7.24E-02		LLD<7.24E-02		74.67	
AR-41	LLD<5.68E-02		LLD<5.68E-02		1293.64	
AU-198	LLD<3.38E-02		LLD<3.38E-02		411.80	
BA-133	LLD<5.68E-02		LLD<5.68E-02		356.02	
BA-139	LLD<1.31E-01		LLD<1.31E-01		165.85	
BA-140	LLD<1.45E-01		LLD<1.45E-01		537.27	
BA-141	LLD<1.27E-01		LLD<1.27E-01		190.23	
BE-7	LLD<3.14E-01		LLD<3.14E-01		477.59	
BI-207	LLD<3.76E-02		LLD<3.76E-02		569.70	
BI-212	LLD<6.74E-01		LLD<6.74E-01		727.27	
BI-214	LLD<9.75E-02		LLD<9.75E-02		609.32	
CD-109	LLD<8.98E-01		LLD<8.98E-01		88.03	
CE-139	LLD<2.96E-02		LLD<2.96E-02		165.85	
CE-141	LLD<4.94E-02		LLD<4.94E-02		145.44	
CEPR144	LLD<4.05E-01		LLD<4.05E-01		133.51	
CO-56	LLD<4.21E-02		LLD<4.21E-02		846.76	
CO-57	LLD<2.63E-02		LLD<2.63E-02		122.06	
CO-58	LLD<4.39E-02		LLD<4.39E-02		810.75	
CO-60	LLD<4.67E-02		LLD<4.67E-02		1332.50	
CR-51	LLD<3.15E-01		LLD<3.15E-01		320.09	
CS-134	LLD<5.25E-02		LLD<5.25E-02		795.84	
CS-136	LLD<3.15E-02		LLD<3.15E-02		818.51	
CS-137	LLD<5.45E-02		LLD<5.45E-02		661.65	
CS-138	LLD<1.31E-01		LLD<1.31E-01		1435.86	
EU-152	LLD<1.67E-01		LLD<1.67E-01		1408.01	
EU-154	LLD<2.01E-01		LLD<2.01E-01		1274.45	
EU-155	LLD<1.12E-01		LLD<1.12E-01		105.31	
FE-59	LLD<8.90E-02		LLD<8.90E-02		1099.25	
HF-181	LLD<4.35E-02		LLD<4.35E-02		482.20	
HG-203	LLD<3.27E-02		LLD<3.27E-02		279.20	
I-131	LLD<3.60E-02		LLD<3.60E-02		364.48	
I-132	LLD<4.94E-02		LLD<4.94E-02		667.69	
I-133	LLD<3.90E-02		LLD<3.90E-02		529.69	
I-134	LLD<6.23E-02		LLD<6.23E-02		847.03	
I-135	LLD<2.06E-01		LLD<2.06E-01		1260.41	
K-40	LLD<1.05E+00		LLD<1.05E+00		1460.75	
KR-85	LLD<1.05E+01		LLD<1.05E+01		513.99	
KR-85M	LLD<3.10E-02		LLD<3.10E-02		151.17	
KR-87	LLD<7.26E-02		LLD<7.26E-02		402.58	
KR-89	LLD<1.33E+00		LLD<1.33E+00		220.90	
LA-140	LLD<4.24E-02		LLD<4.24E-02		1596.20	
LA-142	LLD<9.37E-02		LLD<9.37E-02		641.83	
MN-54	LLD<4.27E-02		LLD<4.27E-02		834.83	

MN-56	LLD<4.75E-02	LLD<4.75E-02	846.76
NA-22	LLD<7.16E-02	LLD<7.16E-02	1274.55
NA-24	LLD<5.44E-02	LLD<5.44E-02	1368.60
NB-94	LLD<4.67E-02	LLD<4.67E-02	702.63
NB-95	LLD<4.26E-02	LLD<4.26E-02	765.78
NB-97	LLD<6.55E-02	LLD<6.55E-02	657.92
NP-238	LLD<1.51E-01	LLD<1.51E-01	984.45
NP-239	LLD<2.01E-01	LLD<2.01E-01	277.60
PA-233	LLD<7.53E-02	LLD<7.53E-02	311.98
PA-234M	LLD<6.90E+00	LLD<6.90E+00	1001.03
PB-210	LLD<9.05E-01	LLD<9.05E-01	465.03
PB-212	LLD<7.44E-02	LLD<7.44E-02	239.00
PB-214	LLD<8.83E-02	LLD<8.83E-02	351.92
PO-210	LLD<3.69E+03	LLD<3.69E+03	804.00
PO-214	LLD<4.05E+02	LLD<4.05E+02	799.70
PO-216	LLD<2.37E+03	LLD<2.37E+03	804.90
PU-239	LLD<3.90E+02	LLD<3.90E+02	129.30
PU-241	LLD<1.24E+04	LLD<1.24E+04	148.57
RA-224	LLD<6.03E-01	LLD<6.03E-01	240.99
RA-226	LLD<6.52E-01	LLD<6.52E-01	186.10
RB-88	LLD<4.24E-01	LLD<4.24E-01	1836.00
RB-89	LLD<1.94E-01	LLD<1.94E-01	1031.88
RN-220	LLD<3.19E+01	LLD<3.19E+01	549.73
RU-103	LLD<3.71E-02	LLD<3.71E-02	497.08
RURH106	LLD<7.07E-01	LLD<7.07E-01	621.80
SB-124	LLD<4.18E-02	LLD<4.18E-02	602.72
SB-125	LLD<3.59E-01	LLD<3.59E-01	176.33
SC-46	LLD<7.27E-02	LLD<7.27E-02	1120.45
SE-75	LLD<4.59E-02	LLD<4.59E-02	264.66
SN-113	LLD<4.59E-02	LLD<4.59E-02	391.67
SR-85	LLD<4.62E-02	LLD<4.62E-02	513.99
SR-91	LLD<6.20E-02	LLD<6.20E-02	555.60
SR-92	LLD<5.79E-02	LLD<5.79E-02	1383.94
TA-182	LLD<2.05E-01	LLD<2.05E-01	1121.30
TC-99M	LLD<2.60E-02	LLD<2.60E-02	140.51
TE-123M	LLD<2.81E-02	LLD<2.81E-02	159.00
TE-125M	LLD<7.75E+00	LLD<7.75E+00	109.27
TE-132	LLD<2.60E-02	LLD<2.60E-02	228.16
TH-228	LLD<2.82E+00	LLD<2.82E+00	84.37
TL-208	LLD<4.69E-02	LLD<4.69E-02	583.14
U-235	LLD<4.29E-02	LLD<4.29E-02	185.71
U-237	LLD<1.29E-01	LLD<1.29E-01	208.00
W-187	LLD<1.63E-01	LLD<1.63E-01	685.74
XE-131M	LLD<1.32E+00	LLD<1.32E+00	163.98
XE-133	LLD<1.07E-01	LLD<1.07E-01	81.00
XE-133M	LLD<2.77E-01	LLD<2.77E-01	233.21
XE-135	LLD<2.97E-02	LLD<2.97E-02	249.79
XE-138	LLD<2.10E-01	LLD<2.10E-01	258.41
Y-88	LLD<4.02E-02	LLD<4.02E-02	1836.06
Y-91	LLD<1.67E+01	LLD<1.67E+01	1204.90
Y-91M	LLD<4.69E-02	LLD<4.69E-02	555.60
ZN-65	LLD<1.62E-01	LLD<1.62E-01	1115.55
ZR-95	LLD<8.20E-02	LLD<8.20E-02	756.73
ZR-97	LLD<4.05E-02	LLD<4.05E-02	743.33
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TOTAL	0.00E-01 +-0.00E-01	0.00E-01 +-0.00E-01	

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2922.23	1460.66	151.	17.6	1.98E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S     '        *
*                                                                     *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                  05-SEP-90  10:31:06


                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   1     /     ADC UNIT NUMBER: 2.0
DETECTOR NUMBER:    2    /     GEOMETRY NUMBER:  42
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2908
ANALYZED BY:        VR

SAMPLE DESCRIPTION: F905 SEG/COMP/#15
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 31-JAN-90 AT 18:46:58

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3001. SECONDS
        DEAD TIME:     0.03 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 21-OCT-88
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222-S COUNTING ROOM 05-SEP-90 10:31:06

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1323.93	661.58	1.59	65.	6035.	2.6	CS-137
1B		661.85			36.	13.9	
2	2921.24	1460.16	2.21	11.	145.	18.0	K-40
2B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0012
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 30-AUG-88 AT 16:46:00
BACKGROUND LIVE TIME: 60000. SECONDS

222-S COUNTING ROOM 05-SEP-90 10:31:06

SAMPLE: F905 SEG/COMP/#15
DATA COLLECTED ON 31-JAN-90 AT 18:46:58
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<1.71E+00		LLD<1.71E+00		911.07	
AG-108M	LLD<8.37E-01		LLD<8.37E-01		433.94	
AG-110M	LLD<5.72E+00		LLD<5.72E+00		657.76	
AM-241	LLD<3.89E+00		LLD<3.89E+00		59.54	
AM-243	LLD<1.02E+00		LLD<1.02E+00		74.67	
AR-41	LLD<5.99E-01		LLD<5.99E-01		1293.64	
AU-198	LLD<7.12E-01		LLD<7.12E-01		411.80	
BA-133	LLD<9.22E-01		LLD<9.22E-01		356.02	
BA-139	LLD<2.03E+00		LLD<2.03E+00		165.85	
BA-140	LLD<2.44E+00		LLD<2.44E+00		537.27	
BA-141	LLD<2.04E+00		LLD<2.04E+00		190.23	
BE-7	LLD<7.32E+00		LLD<7.32E+00		477.59	
BI-207	LLD<5.08E-01		LLD<5.08E-01		569.70	
BI-212	LLD<5.97E+00		LLD<5.97E+00		727.27	
BI-214	LLD<1.21E+00		LLD<1.21E+00		609.32	
CD-109	LLD<1.28E+01		LLD<1.28E+01		88.03	
CE-139	LLD<4.59E-01		LLD<4.59E-01		165.85	
CE-141	LLD<7.40E-01		LLD<7.40E-01		145.44	
CEPR144	LLD<5.66E+00		LLD<5.66E+00		133.51	
CO-56	LLD<4.42E-01		LLD<4.42E-01		846.76	
CO-57	LLD<3.93E-01		LLD<3.93E-01		122.06	
CO-58	LLD<3.50E-01		LLD<3.50E-01		810.75	
CO-60	LLD<5.50E-01		LLD<5.50E-01		1332.50	
CR-51	LLD<5.30E+00		LLD<5.30E+00		320.09	
CS-134	LLD<4.55E-01		LLD<4.55E-01		795.84	
CS-136	LLD<3.31E-01		LLD<3.31E-01		818.51	
CS-137	1.30E+02	+-3.70E+00	1.30E+02	+-3.70E+00	661.65	-0.07
CS-138	LLD<7.57E-01		LLD<7.57E-01		1435.86	
EU-152	LLD<2.61E+00		LLD<2.61E+00		1408.01	
EU-154	LLD<1.62E+00		LLD<1.62E+00		1274.45	
EU-155	LLD<1.76E+00		LLD<1.76E+00		105.31	
FE-59	LLD<1.04E+00		LLD<1.04E+00		1099.25	
HF-181	LLD<8.71E-01		LLD<8.71E-01		482.20	
HG-203	LLD<5.65E-01		LLD<5.65E-01		279.20	
I-131	LLD<6.75E-01		LLD<6.75E-01		364.48	
I-132	LLD<2.32E+00		LLD<2.32E+00		667.69	
I-133	LLD<6.40E-01		LLD<6.40E-01		529.69	
I-134	LLD<6.73E-01		LLD<6.73E-01		847.03	
I-135	LLD<1.80E+00		LLD<1.80E+00		1260.41	
K-40	LLD<1.00E+01		LLD<1.00E+01		1460.75	
KR-85	LLD<1.67E+02		LLD<1.67E+02		513.99	
KR-85M	LLD<4.63E-01		LLD<4.63E-01		151.17	
KR-87	LLD<1.57E+00		LLD<1.57E+00		402.58	
KR-89	LLD<2.36E+01		LLD<2.36E+01		220.90	
LA-140	LLD<4.83E-01		LLD<4.83E-01		1596.20	
LA-142	LLD<1.49E+00		LLD<1.49E+00		641.83	
MN-54	LLD<4.77E-01		LLD<4.77E-01		834.83	

MN-56	LLD<4.99E-01	LLD<4.99E-01	846.76
NA-22	LLD<5.76E-01	LLD<5.76E-01	1274.55
NA-24	LLD<4.84E-01	LLD<4.84E-01	1368.60
NB-94	LLD<4.03E-01	LLD<4.03E-01	702.63
NB-95	LLD<4.17E-01	LLD<4.17E-01	765.78
NB-97	LLD<6.47E+00	LLD<6.47E+00	657.92
NP-238	LLD<1.91E+00	LLD<1.91E+00	984.45
NP-239	LLD<3.44E+00	LLD<3.44E+00	277.60
PA-233	LLD<1.29E+00	LLD<1.29E+00	311.98
PA-234M	LLD<6.90E+01	LLD<6.90E+01	1001.03
PB-210	LLD<1.95E+01	LLD<1.95E+01	465.03
PB-212	LLD<1.10E+00	LLD<1.10E+00	239.00
PB-214	LLD<1.40E+00	LLD<1.40E+00	351.92
PO-210	LLD<3.22E+04	LLD<3.22E+04	804.00
PO-214	LLD<3.75E+03	LLD<3.75E+03	799.70
PO-216	LLD<2.31E+04	LLD<2.31E+04	804.90
PU-239	LLD<5.49E+03	LLD<5.49E+03	129.30
PU-241	LLD<1.82E+05	LLD<1.82E+05	148.57
RA-224	LLD<1.08E+01	LLD<1.08E+01	240.99
RA-226	LLD<1.05E+01	LLD<1.05E+01	186.10
RB-88	LLD<3.15E+00	LLD<3.15E+00	1836.00
RB-89	LLD<2.31E+00	LLD<2.31E+00	1031.88
RN-220	LLD<5.46E+02	LLD<5.46E+02	549.73
RU-103	LLD<6.69E-01	LLD<6.69E-01	497.08
RURH106	LLD<1.07E+01	LLD<1.07E+01	621.80
SB-124	LLD<5.79E-01	LLD<5.79E-01	602.72
SB-125	LLD<5.20E+00	LLD<5.20E+00	176.33
SC-46	LLD<6.02E-01	LLD<6.02E-01	1120.45
SE-75	LLD<8.22E-01	LLD<8.22E-01	264.66
SN-113	LLD<9.20E-01	LLD<9.20E-01	391.67
SR-85	LLD<7.31E-01	LLD<7.31E-01	513.99
SR-91	LLD<9.68E-01	LLD<9.68E-01	555.60
SR-92	LLD<5.79E-01	LLD<5.79E-01	1383.94
TA-182	LLD<1.73E+00	LLD<1.73E+00	1121.30
TC-99M	LLD<3.91E-01	LLD<3.91E-01	140.51
TE-123M	LLD<4.39E-01	LLD<4.39E-01	159.00
TE-125M	LLD<1.19E+02	LLD<1.19E+02	109.27
TE-132	LLD<4.87E-01	LLD<4.87E-01	228.16
TH-228	LLD<4.11E+01	LLD<4.11E+01	84.37
TL-208	LLD<6.93E-01	LLD<6.93E-01	583.14
U-235	LLD<6.92E-01	LLD<6.92E-01	185.71
U-237	LLD<2.00E+00	LLD<2.00E+00	208.00
W-187	LLD<1.66E+00	LLD<1.66E+00	685.74
XE-131M	LLD<1.95E+01	LLD<1.95E+01	163.98
XE-133	LLD<1.39E+00	LLD<1.39E+00	81.00
XE-133M	LLD<4.41E+00	LLD<4.41E+00	233.21
XE-135	LLD<4.94E-01	LLD<4.94E-01	249.79
XE-138	LLD<3.75E+00	LLD<3.75E+00	258.41
Y-88	LLD<2.99E-01	LLD<2.99E-01	1836.06
Y-91	LLD<2.21E+02	LLD<2.21E+02	1204.90
Y-91M	LLD<7.32E-01	LLD<7.32E-01	555.60
ZN-65	LLD<1.27E+00	LLD<1.27E+00	1115.55
ZR-95	LLD<8.04E-01	LLD<8.04E-01	756.73
ZR-97	LLD<4.64E-01	LLD<4.64E-01	743.33
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TOTAL	1.30E+02 +-3.70E+00	1.30E+02 +-3.70E+00	

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 1.30E+02 (+-3.70E+00) UC/LI

% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.24	1460.16	145.	18.0	1.90E+01

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* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
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CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM WESTINGHOUSE HANFORD          05-SEP-90  12:56:42

                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   2     /     ADC UNIT NUMBER: 3.0
DETECTOR NUMBER:    3    /     GEOMETRY NUMBER:  41
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 95.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD3024
ANALYZED BY:        VR

SAMPLE DESCRIPTION: F906 SEG/COMP/#16
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 31-JAN-90 AT 18:45:41

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3005. SECONDS
        DEAD TIME:     0.17 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 17-OCT-89
EFFICIENCY CALIBRATION PERFORMED 31-JUL-89
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222-S COUNTING ROOM WESTINGHOUSE HANFORD 05-SEP-90 12:56:42

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1?	63.84	32.50	1.02	1114.	1871.	12.0	CE-144
2?	72.78	36.97	1.02	712.	457.	37.0	
3	1322.89	661.45	1.50	210.	11088.	1.9	CS-137
3B		661.41			81.	28.8	
4	2920.48	1460.34	2.06	36.	639.	8.4	K-40
4B		1460.58			611.	5.5	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 95.0%

? - MULTIPLET ANALYSIS CONVERGED BUT GFIT > 4
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0013
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 15-JAN-90 AT 11:00:00
BACKGROUND LIVE TIME: 7000. SECONDS

222-S COUNTING ROOM WESTINGHOUSE HANFORD 05-SEP-90 12:56:42

SAMPLE: F906 SEG/COMP/#16
DATA COLLECTED ON 31-JAN-90 AT 18:45:41
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<3.50E+00		LLD<3.50E+00		911.07	
AG-108M	LLD<1.00E+00		LLD<1.00E+00		433.94	
AG-110M	LLD<7.10E+00		LLD<7.10E+00		657.76	
AM-241	LLD<1.03E+00		LLD<1.03E+00		59.54	
AM-243	LLD<6.93E-01		LLD<6.93E-01		74.67	
AR-41	LLD<9.35E-01		LLD<9.35E-01		1293.64	
AU-198	LLD<8.96E-01		LLD<8.96E-01		411.80	
BA-133	LLD<1.18E+00		LLD<1.18E+00		356.02	
BA-139	LLD<2.81E+00		LLD<2.81E+00		165.85	
BA-140	LLD<3.46E+00		LLD<3.46E+00		537.27	
BA-141	LLD<2.97E+00		LLD<2.97E+00		190.23	
BE-7	LLD<9.66E+00		LLD<9.66E+00		477.59	
BI-207	LLD<7.80E-01		LLD<7.80E-01		569.70	
BI-212	LLD<1.02E+01		LLD<1.02E+01		727.27	
BI-214	LLD<2.16E+00		LLD<2.16E+00		609.32	
CD-109	LLD<1.17E+01		LLD<1.17E+01		88.03	
CE-139	LLD<6.37E-01		LLD<6.37E-01		165.85	
CE-141	LLD<1.04E+00		LLD<1.04E+00		145.44	
CEPR144	LLD<8.75E+00		LLD<8.75E+00		133.51	
CO-56	LLD<5.72E-01		LLD<5.72E-01		846.76	
CO-57	LLD<5.42E-01		LLD<5.42E-01		122.06	
CO-58	LLD<6.43E-01		LLD<6.43E-01		810.75	
CO-60	LLD<7.48E-01		LLD<7.48E-01		1332.50	
CR-51	LLD<6.64E+00		LLD<6.64E+00		320.09	
CS-134	LLD<8.28E-01		LLD<8.28E-01		795.84	
CS-136	LLD<6.07E-01		LLD<6.07E-01		818.51	
CS-137	1.48E+02	+-3.55E+00	1.48E+02	+-3.55E+00	661.65	-0.20
CS-138	LLD<1.53E+00		LLD<1.53E+00		1435.86	
EU-152	LLD<4.47E+00		LLD<4.47E+00		1408.01	
EU-154	LLD<2.37E+00		LLD<2.37E+00		1274.45	
EU-155	LLD<2.00E+00		LLD<2.00E+00		105.31	
FE-59	LLD<1.50E+00		LLD<1.50E+00		1099.25	
HF-181	LLD<1.20E+00		LLD<1.20E+00		482.20	
HG-203	LLD<7.60E-01		LLD<7.60E-01		279.20	
I-131	LLD<9.60E-01		LLD<9.60E-01		364.48	
I-132	LLD<1.25E+00		LLD<1.25E+00		667.69	
I-133	LLD<9.08E-01		LLD<9.08E-01		529.69	
I-134	LLD<8.93E-01		LLD<8.93E-01		847.03	
I-135	LLD<3.72E+00		LLD<3.72E+00		1260.41	
K-40	LLD<2.25E+01		LLD<2.25E+01		1460.75	
KR-85	LLD<2.28E+02		LLD<2.28E+02		513.99	
KR-85M	LLD<7.92E-01		LLD<7.92E-01		151.17	
KR-87	LLD<2.10E+00		LLD<2.10E+00		402.58	
KR-89	LLD<3.13E+01		LLD<3.13E+01		220.90	
LA-140	LLD<8.82E-01		LLD<8.82E-01		1596.20	
LA-142	LLD<2.08E+00		LLD<2.08E+00		641.83	
MN-54	LLD<7.60E-01		LLD<7.60E-01		834.83	

MN-56	LLD<6.45E-01	LLD<6.45E-01	846.76
NA-22	LLD<8.81E-01	LLD<8.81E-01	1274.55
NA-24	LLD<8.02E-01	LLD<8.02E-01	1368.60
NB-94	LLD<7.20E-01	LLD<7.20E-01	702.63
NB-95	LLD<7.69E-01	LLD<7.69E-01	765.78
NB-97	LLD<8.61E+00	LLD<8.61E+00	657.92
NP-238	LLD<2.95E+00	LLD<2.95E+00	984.45
NP-239	LLD<4.55E+00	LLD<4.55E+00	277.60
PA-233	LLD<1.80E+00	LLD<1.80E+00	311.98
PA-234M	LLD<1.11E+02	LLD<1.11E+02	1001.03
PB-210	LLD<2.80E+01	LLD<2.80E+01	465.03
PB-212	LLD<1.52E+00	LLD<1.52E+00	239.00
PB-214	LLD<2.38E+00	LLD<2.38E+00	351.92
PO-210	LLD<5.46E+04	LLD<5.46E+04	804.00
PO-214	LLD<7.13E+03	LLD<7.13E+03	799.70
PO-216	LLD<3.73E+04	LLD<3.73E+04	804.90
PU-239	LLD<7.54E+03	LLD<7.54E+03	129.30
PU-241	LLD<2.65E+05	LLD<2.65E+05	148.57
RA-224	LLD<1.67E+01	LLD<1.67E+01	240.99
RA-226	LLD<1.77E+01	LLD<1.77E+01	186.10
RB-88	LLD<6.47E+00	LLD<6.47E+00	1836.00
RB-89	LLD<3.26E+00	LLD<3.26E+00	1031.88
RN-220	LLD<7.38E+02	LLD<7.38E+02	549.73
RU-103	LLD<9.34E-01	LLD<9.34E-01	497.08
RURH106	LLD<1.52E+01	LLD<1.52E+01	621.80
SB-124	LLD<7.65E-01	LLD<7.65E-01	602.72
SB-125	LLD<7.91E+00	LLD<7.91E+00	176.33
SC-46	LLD<1.18E+00	LLD<1.18E+00	1120.45
SE-75	LLD<1.06E+00	LLD<1.06E+00	264.66
SN-113	LLD<1.25E+00	LLD<1.25E+00	391.67
SR-85	LLD<1.00E+00	LLD<1.00E+00	513.99
SR-91	LLD<1.37E+00	LLD<1.37E+00	555.60
SR-92	LLD<1.13E+00	LLD<1.13E+00	1383.94
TA-182	LLD<2.77E+00	LLD<2.77E+00	1121.30
TC-99M	LLD<5.83E-01	LLD<5.83E-01	140.51
TE-123M	LLD<6.07E-01	LLD<6.07E-01	159.00
TE-125M	LLD<1.55E+02	LLD<1.55E+02	109.27
TE-132	LLD<7.17E-01	LLD<7.17E-01	228.16
TH-228	LLD<3.10E+01	LLD<3.10E+01	84.37
TL-208	LLD<1.09E+00	LLD<1.09E+00	583.14
U-235	LLD<1.08E+00	LLD<1.08E+00	185.71
U-237	LLD<3.01E+00	LLD<3.01E+00	208.00
W-187	LLD<2.32E+00	LLD<2.32E+00	685.74
XE-131M	LLD<2.69E+01	LLD<2.69E+01	163.98
XE-133	LLD<1.08E+00	LLD<1.08E+00	81.00
XE-133M	LLD<6.32E+00	LLD<6.32E+00	233.21
XE-135	LLD<7.52E-01	LLD<7.52E-01	249.79
XE-138	LLD<5.44E+00	LLD<5.44E+00	258.41
Y-88	LLD<6.14E-01	LLD<6.14E-01	1836.06
Y-91	LLD<3.26E+02	LLD<3.26E+02	1204.90
Y-91M	LLD<1.04E+00	LLD<1.04E+00	555.60
ZN-65	LLD<2.42E+00	LLD<2.42E+00	1115.55
ZR-95	LLD<1.14E+00	LLD<1.14E+00	756.73
ZR-97	LLD<6.73E-01	LLD<6.73E-01	743.33
	---	---	
TOTAL	1.48E+02 +-3.55E+00	1.48E+02 +-3.55E+00	

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 1.48E+02 (+-3.55E+00) UC/LI

% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 95.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
63.84	32.50	1871.	12.0	2.92E+01
72.78	36.97	457.	37.0	6.55E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2920.48	1460.34	639.	8.4	5.33E+01

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* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                   *
*          G A M M A   S P E C T R U M   A N A L Y S I S            *
*                                                                   *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM WESTINGHOUSE HANFORD          05-SEP-90  10:42:03

                A N A L Y S I S   P A R A M E T E R S

MCA UNIT NUMBER:   1     /     ADC UNIT NUMBER: 1.0
DETECTOR NUMBER:    4    /     GEOMETRY NUMBER:  41
SPECTRUM SIZE:  4096 CHANNELS
ORDER OF SMOOTHING FUNCTION:     5
NUMBER OF BACKGROUND CHANNELS:  4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD4035
ANALYZED BY:        VR

SAMPLE DESCRIPTION: F907 SEG/COMP/#17
GEOMETRY DESCRIPTION:
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 31-JAN-90 AT 19:30:31

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3038. SECONDS
        DEAD TIME:     1.25 %

 DECAYED TO      0. DAYS,  0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 26-DEC-89
EFFICIENCY CALIBRATION PERFORMED  1-SEP-89
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222-S COUNTING ROOM WESTINGHOUSE HANFORD 05-SEP-90 10:42:03

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	53.52	26.94	1.09	3422.	1745.	10.4	
1B		27.06			123.	34.3	
2	951.17	475.51	1.64	6371.	1040.	22.8	CS-134
3C	1126.65	563.23	1.54	3521.	3715.	5.6	CS-134, EU-152
4C	1138.82	569.31	1.54	3522.	6606.	4.4	CS-134, BI-207
5	1209.63	604.71	1.60	3465.	41649.	1.0	CS-134
6	1323.48	661.63	1.72	2481.	112941.	0.6	CS-137
6B		661.35			379.	12.7	
7?	1591.72	795.74	1.73	1786.	30802.	1.6	CS-134
8?	1603.91	801.84	1.73	1620.	2895.	10.3	CS-134
9	2076.86	1038.36	2.18	1723.	366.	37.5	CS-134
10?	2335.61	1167.79	2.05	1088.	582.	25.6	CS-134
11?	2346.20	1173.09	2.05	956.	28053.	1.4	CO-60
12	2664.67	1332.42	2.29	304.	25128.	1.3	CO-60
13	2730.05	1365.13	2.55	96.	802.	8.0	CS-134
14	2800.46	1400.36	2.18	124.	371.	14.4	BI-214
15	2921.35	1460.86	2.41	80.	875.	7.5	K-40
15B		1460.80			854.	7.1	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
? - MULTIPLET ANALYSIS CONVERGED BUT GFIT > 4
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 8-SEP-89 AT 12:00:00
BACKGROUND LIVE TIME: 3000. SECONDS

222-S COUNTING ROOM WESTINGHOUSE HANFORD 05-SEP-90 10:42:03

SAMPLE: F907 SEG/COMP/#17
DATA COLLECTED ON 31-JAN-90 AT 19:30:31
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI				ENERGY COMPARISON (KEV)	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	EXPECT	DIFF
AC-228	LLD<1.97E+00		LLD<1.97E+00		911.07	
AG-108M	LLD<4.72E-01		LLD<4.72E-01		433.94	
AG-110M	LLD<2.74E+00		LLD<2.74E+00		657.76	
AM-241	LLD<2.16E+00		LLD<2.16E+00		59.54	
AM-243	LLD<5.20E-01		LLD<5.20E-01		74.67	
AR-41	LLD<3.16E-01		LLD<3.16E-01		1293.64	
AU-198	LLD<4.74E-01		LLD<4.74E-01		411.80	
BA-133	LLD<5.82E-01		LLD<5.82E-01		356.02	
BA-139	LLD<1.18E+00		LLD<1.18E+00		165.85	
BA-140	LLD<1.69E+00		LLD<1.69E+00		537.27	
BA-141	LLD<1.17E+00		LLD<1.17E+00		190.23	
BE-7	LLD<4.76E+00		LLD<4.76E+00		477.59	
BI-207	LLD<4.18E-01		LLD<4.18E-01		569.70	
BI-212	LLD<5.42E+00		LLD<5.42E+00		727.27	
BI-214	LLD<2.86E+00		LLD<2.86E+00		609.32	
CD-109	LLD<7.13E+00		LLD<7.13E+00		88.03	
CE-139	LLD<2.67E-01		LLD<2.67E-01		165.85	
CE-141	LLD<3.94E-01		LLD<3.94E-01		145.44	
CEPR144	LLD<3.35E+00		LLD<3.35E+00		133.51	
CO-56	LLD<4.39E-01		LLD<4.39E-01		846.76	
CO-57	LLD<2.16E-01		LLD<2.16E-01		122.06	
CO-58	LLD<4.20E-01		LLD<4.20E-01		810.75	
CO-60	1.16E+02	+-1.67E+00	1.16E+02	+-1.67E+00	1332.50	-0.09
					1173.24	-0.15
CR-51	LLD<3.25E+00		LLD<3.25E+00		320.09	
CS-134	1.05E+02	+-1.85E+00	1.05E+02	+-1.85E+00	795.84	-0.10
					604.70	0.01
CS-136	LLD<4.02E-01		LLD<4.02E-01		818.51	
CS-137	3.25E+02	+-3.14E+00	3.25E+02	+-3.14E+00	661.65	-0.02
CS-138	LLD<3.81E-01		LLD<3.81E-01		1435.86	
EU-152	LLD<1.05E+00		LLD<1.05E+00		1408.01	
EU-154	LLD<8.51E-01		LLD<8.51E-01		1274.45	
EU-155	LLD<9.21E-01		LLD<9.21E-01		105.31	
FE-59	LLD<9.80E-01		LLD<9.80E-01		1099.25	
HF-181	LLD<5.64E-01		LLD<5.64E-01		482.20	
HG-203	LLD<3.67E-01		LLD<3.67E-01		279.20	
I-131	LLD<4.57E-01		LLD<4.57E-01		364.48	
I-132	LLD<4.90E-01		LLD<4.90E-01		667.69	
I-133	LLD<4.80E-01		LLD<4.80E-01		529.69	
I-134	LLD<5.90E-01		LLD<5.90E-01		847.03	
I-135	LLD<1.00E+00		LLD<1.00E+00		1260.41	
K-40	LLD<4.49E+00		LLD<4.49E+00		1460.75	
KR-85	LLD<9.34E+01		LLD<9.34E+01		513.99	
KR-85M	LLD<2.73E-01		LLD<2.73E-01		151.17	
KR-87	LLD<1.03E+00		LLD<1.03E+00		402.58	
KR-89	LLD<1.42E+01		LLD<1.42E+01		220.90	
LA-140	LLD<1.97E-01		LLD<1.97E-01		1596.20	

LA-142	LLD<9.83E-01	LLD<9.83E-01	641.83
MN-54	LLD<4.37E-01	LLD<4.37E-01	834.83
MN-56	LLD<4.96E-01	LLD<4.96E-01	846.76
NA-22	LLD<2.86E-01	LLD<2.86E-01	1274.55
NA-24	LLD<3.86E-01	LLD<3.86E-01	1368.60
NB-94	LLD<3.57E-01	LLD<3.57E-01	702.63
NB-95	LLD<4.06E-01	LLD<4.06E-01	765.78
NB-97	LLD<3.79E+00	LLD<3.79E+00	657.92
NP-238	LLD<1.82E+00	LLD<1.82E+00	984.45
NP-239	LLD<2.13E+00	LLD<2.13E+00	277.60
PA-233	LLD<8.91E-01	LLD<8.91E-01	311.98
PA-234M	LLD<9.00E+01	LLD<9.00E+01	1001.03
PB-210	LLD<1.15E+01	LLD<1.15E+01	465.03
PB-212	LLD<7.23E-01	LLD<7.23E-01	239.00
PB-214	LLD<9.98E-01	LLD<9.98E-01	351.92
PO-210	LLD<3.83E+04	LLD<3.83E+04	804.00
PO-214	LLD<1.90E+04	LLD<1.90E+04	799.70
PO-216	LLD<3.29E+04	LLD<3.29E+04	804.90
PU-239	LLD<2.86E+03	LLD<2.86E+03	129.30
PU-241	LLD<1.03E+05	LLD<1.03E+05	148.57
RA-224	LLD<7.28E+00	LLD<7.28E+00	240.99
RA-226	LLD<7.37E+00	LLD<7.37E+00	186.10
RB-88	LLD<2.07E+00	LLD<2.07E+00	1836.00
RB-89	LLD<2.22E+00	LLD<2.22E+00	1031.88
RN-220	LLD<3.74E+02	LLD<3.74E+02	549.73
RU-103	LLD<4.73E-01	LLD<4.73E-01	497.08
RURH106	LLD<7.94E+00	LLD<7.94E+00	621.80
SB-124	LLD<9.24E-01	LLD<9.24E-01	602.72
SB-125	LLD<3.16E+00	LLD<3.16E+00	176.33
SC-46	LLD<5.51E-01	LLD<5.51E-01	1120.45
SE-75	LLD<5.01E-01	LLD<5.01E-01	264.66
SN-113	LLD<6.25E-01	LLD<6.25E-01	391.67
SR-85	LLD<4.10E-01	LLD<4.10E-01	513.99
SR-91	LLD<7.50E-01	LLD<7.50E-01	555.60
SR-92	LLD<1.90E-01	LLD<1.90E-01	1383.94
TA-182	LLD<1.48E+00	LLD<1.48E+00	1121.30
TC-99M	LLD<2.24E-01	LLD<2.24E-01	140.51
TE-123M	LLD<2.41E-01	LLD<2.41E-01	159.00
TE-125M	LLD<6.82E+01	LLD<6.82E+01	109.27
TE-132	LLD<3.23E-01	LLD<3.23E-01	228.16
TH-228	LLD<2.20E+01	LLD<2.20E+01	84.37
TL-208	LLD<5.27E-01	LLD<5.27E-01	583.14
U-235	LLD<4.10E-01	LLD<4.10E-01	185.71
U-237	LLD<1.30E+00	LLD<1.30E+00	208.00
W-187	LLD<1.21E+00	LLD<1.21E+00	685.74
XE-131M	LLD<1.10E+01	LLD<1.10E+01	163.98
XE-133	LLD<8.08E-01	LLD<8.08E-01	81.00
XE-133M	LLD<2.63E+00	LLD<2.63E+00	233.21
XE-135	LLD<3.03E-01	LLD<3.03E-01	249.79
XE-138	LLD<2.54E+00	LLD<2.54E+00	258.41
Y-88	LLD<1.95E-01	LLD<1.95E-01	1836.06
Y-91	LLD<1.32E+02	LLD<1.32E+02	1204.90
Y-91M	LLD<5.69E-01	LLD<5.69E-01	555.60
ZN-65	LLD<1.15E+00	LLD<1.15E+00	1115.55
ZR-95	LLD<6.72E-01	LLD<6.72E-01	756.73
ZR-97	LLD<3.94E-01	LLD<3.94E-01	743.33
	---	---	
TOTAL	5.46E+02 +-4.00E+00	5.46E+02 +-4.00E+00	

299 STANDARD DEVIATION = 0.06

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.85E-09 UC/LI
TOTAL MEASURED ACTIVITY = 5.46E+02 (+-4.00E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
53.52	26.94	1622.	11.5	1.71E+03
951.17	475.51	1040.	22.8	6.99E+00
1126.65	563.23	3715.	5.6	2.91E+01
1138.82	569.31	6606.	4.4	5.22E+01
1603.91	801.84	2895.	10.3	3.14E+01
2076.86	1038.36	366.	37.5	5.02E+00
2335.61	1167.79	582.	25.6	8.86E+00
2730.05	1365.13	802.	8.0	1.40E+01
2800.46	1400.36	371.	14.4	6.60E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.35	1460.86	875.	7.5	1.61E+01

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*                                                                     *
*          G A M M A   S P E C T R U M   A N A L Y S I S              *
*                                                                     *
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CANBERRA SPECTRAN-F V2.06 SOFTWARE

222-S COUNTING ROOM 05-SEP-90 10:04:36

A N A L Y S I S P A R A M E T E R S

MCA UNIT NUMBER: 2 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 1 / GEOMETRY NUMBER: 42
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LLD CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1722
ANALYZED BY: VR

SAMPLE DESCRIPTION: F908/SEG/COMP/#18
GEOMETRY DESCRIPTION:
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 5.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 31-JAN-90 AT 19:33:04

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3006. SECONDS
DEAD TIME: 0.20 %

DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT

ENERGY CALIBRATION PERFORMED 23-NOV-89
EFFICIENCY CALIBRATION PERFORMED 2-MAR-89

222-S COUNTING ROOM 05-SEP-90 10:04:36

P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	950.89	474.96	1.64	1029.	140.	69.2	CS-134
2C	1126.87	562.91	1.38	563.	692.	10.6	CS-134, EU-152
3C	1139.05	568.99	1.38	580.	1324.	9.0	CS-134, BI-207
4	1209.78	604.34	1.47	562.	7943.	2.4	CS-134
5	1323.63	661.25	1.49	368.	11685.	1.9	CS-137
5B		661.82			35.	46.4	
6C	1591.95	795.40	1.56	291.	5537.	3.1	CS-134
7C	1604.17	801.51	1.56	239.	546.	7.1	CS-134
8	2346.39	1172.74	1.87	241.	5169.	2.9	CO-60
9	2664.85	1332.10	1.80	35.	4802.	2.9	CO-60
10	2730.11	1364.76	1.74	13.	160.	17.1	CS-134
11	2921.69	1460.66	1.78	11.	179.	15.8	K-40
11B		1461.77			182.	11.2	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0011
BACKGROUND DESCRIPTION: BK0011
BACKGROUND COLLECT STARTED ON 10-JAN-85 AT 12:00:00
BACKGROUND LIVE TIME: 6000. SECONDS

222-S COUNTING ROOM 05-SEP-90 10:04:36

SAMPLE: F908/SEG/COMP/#18
DATA COLLECTED ON 31-JAN-90 AT 19:33:04
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<7.69E-01		LLD<7.69E-01		911.07	
AG-108M	LLD<2.25E-01		LLD<2.25E-01		433.94	
AG-110M	LLD<1.03E+00		LLD<1.03E+00		657.76	
AM-241	LLD<9.28E-01		LLD<9.28E-01		59.54	
AM-243	LLD<2.45E-01		LLD<2.45E-01		74.67	
AR-41	LLD<1.65E-01		LLD<1.65E-01		1293.64	
AU-198	LLD<1.99E-01		LLD<1.99E-01		411.80	
BA-133	LLD<2.89E-01		LLD<2.89E-01		356.02	
BA-139	LLD<5.96E-01		LLD<5.96E-01		165.85	
BA-140	LLD<7.60E-01		LLD<7.60E-01		537.27	
BA-141	LLD<5.76E-01		LLD<5.76E-01		190.23	
BE-7	LLD<2.01E+00		LLD<2.01E+00		477.59	
BI-207	LLD<1.96E-01		LLD<1.96E-01		569.70	
BI-212	LLD<2.56E+00		LLD<2.56E+00		727.27	
BI-214	LLD<1.01E+00		LLD<1.01E+00		609.32	
CD-109	LLD<3.52E+00		LLD<3.52E+00		88.03	
CE-139	LLD<1.35E-01		LLD<1.35E-01		165.85	
CE-141	LLD<1.97E-01		LLD<1.97E-01		145.44	
CEPR144	LLD<1.66E+00		LLD<1.66E+00		133.51	
CO-56	LLD<1.91E-01		LLD<1.91E-01		846.76	
CO-57	LLD<1.09E-01		LLD<1.09E-01		122.06	
CO-58	LLD<1.78E-01		LLD<1.78E-01		810.75	
CO-60	2.28E+01	+-6.96E-01	2.28E+01	+-6.96E-01	1332.50	-0.40
					1173.24	-0.49
CR-51	LLD<1.55E+00		LLD<1.55E+00		320.09	
CS-134	2.00E+01	+-6.50E-01	2.00E+01	+-6.50E-01	795.84	-0.44
					604.70	-0.35
CS-136	LLD<1.87E-01		LLD<1.87E-01		818.51	
CS-137	3.62E+01	+-8.12E-01	3.62E+01	+-8.12E-01	661.65	-0.40
CS-138	LLD<1.29E-01		LLD<1.29E-01		1435.86	
EU-152	LLD<2.36E-01		LLD<2.36E-01		1408.01	
EU-154	LLD<3.14E-01		LLD<3.14E-01		1274.45	
EU-155	LLD<4.09E-01		LLD<4.09E-01		105.31	
FE-59	LLD<4.49E-01		LLD<4.49E-01		1099.25	
HF-181	LLD<2.26E-01		LLD<2.26E-01		482.20	
HG-203	LLD<1.76E-01		LLD<1.76E-01		279.20	
I-131	LLD<2.27E-01		LLD<2.27E-01		364.48	
I-132	LLD<2.15E-01		LLD<2.15E-01		667.69	
I-133	LLD<2.20E-01		LLD<2.20E-01		529.69	
I-134	LLD<2.68E-01		LLD<2.68E-01		847.03	
I-135	LLD<5.01E-01		LLD<5.01E-01		1260.41	
K-40	LLD<1.90E+00		LLD<1.90E+00		1460.75	
KR-85	LLD<4.48E+01		LLD<4.48E+01		513.99	
KR-85M	LLD<1.29E-01		LLD<1.29E-01		151.17	
KR-87	LLD<4.85E-01		LLD<4.85E-01		402.58	
KR-89	LLD<7.20E+00		LLD<7.20E+00		220.90	
LA-140	LLD<9.05E-02		LLD<9.05E-02		1596.20	

LA-142	LLD<4.29E-01	LLD<4.29E-01	641.83
MN-54	LLD<1.78E-01	LLD<1.78E-01	834.83
MN-56	LLD<2.16E-01	LLD<2.16E-01	846.76
NA-22	LLD<1.08E-01	LLD<1.08E-01	1274.55
NA-24	LLD<2.23E-01	LLD<2.23E-01	1368.60
NB-94	LLD<1.65E-01	LLD<1.65E-01	702.63
NB-95	LLD<1.69E-01	LLD<1.69E-01	765.78
NB-97	LLD<1.25E+00	LLD<1.25E+00	657.92
NP-238	LLD<8.22E-01	LLD<8.22E-01	984.45
NP-239	LLD<1.02E+00	LLD<1.02E+00	277.60
PA-233	LLD<4.57E-01	LLD<4.57E-01	311.98
PA-234M	LLD<3.92E+01	LLD<3.92E+01	1001.03
PB-210	LLD<5.11E+00	LLD<5.11E+00	465.03
PB-212	LLD<3.30E-01	LLD<3.30E-01	239.00
PB-214	LLD<4.89E-01	LLD<4.89E-01	351.92
PO-210	LLD<1.91E+04	LLD<1.91E+04	804.00
PO-214	LLD<8.06E+03	LLD<8.06E+03	799.70
PO-216	LLD<1.62E+04	LLD<1.62E+04	804.90
PU-239	LLD<1.46E+03	LLD<1.46E+03	129.30
PU-241	LLD<5.21E+04	LLD<5.21E+04	148.57
RA-224	LLD<3.45E+00	LLD<3.45E+00	240.99
RA-226	LLD<3.18E+00	LLD<3.18E+00	186.10
RB-88	LLD<7.95E-01	LLD<7.95E-01	1836.00
RB-89	LLD<1.01E+00	LLD<1.01E+00	1031.88
RN-220	LLD<1.65E+02	LLD<1.65E+02	549.73
RU-103	LLD<2.07E-01	LLD<2.07E-01	497.08
RURH106	LLD<3.49E+00	LLD<3.49E+00	621.80
SB-124	LLD<2.92E-01	LLD<2.92E-01	602.72
SB-125	LLD<1.64E+00	LLD<1.64E+00	176.33
SC-46	LLD<2.24E-01	LLD<2.24E-01	1120.45
SE-75	LLD<2.39E-01	LLD<2.39E-01	264.66
SN-113	LLD<2.81E-01	LLD<2.81E-01	391.67
SR-85	LLD<1.97E-01	LLD<1.97E-01	513.99
SR-91	LLD<3.40E-01	LLD<3.40E-01	555.60
SR-92	LLD<1.06E-01	LLD<1.06E-01	1383.94
TA-182	LLD<5.97E-01	LLD<5.97E-01	1121.30
TC-99M	LLD<1.10E-01	LLD<1.10E-01	140.51
TE-123M	LLD<1.25E-01	LLD<1.25E-01	159.00
TE-125M	LLD<3.27E+01	LLD<3.27E+01	109.27
TE-132	LLD<1.55E-01	LLD<1.55E-01	228.16
TH-228	LLD<1.06E+01	LLD<1.06E+01	84.37
TL-208	LLD<2.46E-01	LLD<2.46E-01	583.14
U-235	LLD<2.12E-01	LLD<2.12E-01	185.71
U-237	LLD<6.15E-01	LLD<6.15E-01	208.00
W-187	LLD<5.77E-01	LLD<5.77E-01	685.74
XE-131M	LLD<5.51E+00	LLD<5.51E+00	163.98
XE-133	LLD<3.89E-01	LLD<3.89E-01	81.00
XE-133M	LLD<1.33E+00	LLD<1.33E+00	233.21
XE-135	LLD<1.63E-01	LLD<1.63E-01	249.79
XE-138	LLD<1.21E+00	LLD<1.21E+00	258.41
Y-88	LLD<7.54E-02	LLD<7.54E-02	1836.06
Y-91	LLD<4.99E+01	LLD<4.99E+01	1204.90
Y-91M	LLD<2.57E-01	LLD<2.57E-01	555.60
ZN-65	LLD<4.82E-01	LLD<4.82E-01	1115.55
ZR-95	LLD<3.23E-01	LLD<3.23E-01	756.73
ZR-97	LLD<1.65E-01	LLD<1.65E-01	743.33
	---	---	
TOTAL	7.90E+01 +-1.25E+00	7.90E+01 +-1.25E+00	

STANDARD DEVIATION = 0.05

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.44E-09 UC/LI
TOTAL MEASURED ACTIVITY = 7.90E+01 (+-1.25E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
950.89	474.96	140.	69.2	5.24E+00
1126.87	562.91	692.	10.6	2.96E+01
1139.05	568.99	1324.	9.0	5.72E+01
1604.17	801.51	546.	7.1	3.13E+01
2730.11	1364.76	160.	17.1	1.43E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.69	1460.66	179.	15.8	1.69E+01

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Americium Analysis

Water Dissolution / Fusion Dissolution

Instrument	E60044
Procedure / Rev	LA-503-156/C-2
Technologist	6B598 R.D. Hale
Date	02-08-90
Temperature	23 C
Starting Time	09:00 02-07-90
Ending Time	15:00 02-08-90
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial Check Standard	F0897
2	Reagent Blank	F0946
3	Sample Comp 5	F0899
4	Duplicate Comp 5	F0900
5	Sample Comp 5	F0905
6	Duplicate Comp 5	F0906
7	Sample Comp 6	F0923
8	Duplicate Comp 6	F0924
9	Sample Comp 6	F0929
10	Duplicate Comp 6	F0930
11	Sample Comp 8	F0947

	Description	Lab. Id.
12	Duplicate Comp 8	F0948
13	Sample Comp 8	F0953
14	Duplicate Comp 8	F0954
15	Spike Comp 8	F0949
16	Final LMCS Check Std	F0950
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Standard	16B43/100 uL			N/A
Spike	10B43-B/ 50 uL	F0947/ 1 mL	16B43/100 uL	N/A

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 08-24-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-24-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

306

9 1 1 2 1 3 0 3 1 4

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Np-237, Pu 239/240, Am 241/Pu 238 Cm 243/244		
Procedure	LA-508-051	Revision:	A-2
Instrument:	Canberra Juptier System	Property Number:	
Technologist:	Varied	Payroll Number:	
Date:	Listed on attachments.		

Calibration Standard ID: Book number	N/A
Analyte Concentration:	N/A
Type of Calibration:	N/A

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Detector are aligned not calibration.

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-27-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-27-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

307

9 1 1 2 1 5 9 0 3 1 5

AEA ENERGY CALIBRATION

	TECH/ SHIFT	DATE	BELL #1	BELL #2	BELL#3	BELL #4	BELL #5	BELL #6	BELL #7	BELL #8
Np-237	VR/D	2/3/90	83	151	151	152	155	156	out	153
Pu 239/240		2/3/90	111	229	229	230	232	233	of	232
Am-241/Pu238		2/3/90	137	301	301	301	303	303	service	303
Cm-243/Cm-244		2/3/90	161	367	368	368	369	369		370
Np-237	AJ/D	2/4/90	83	151	150	152	152	154	out	150
Pu-239/240		2/4/90	110	229	228	230	230	231	of	229
Am-241/Pu-238		2/4/90	136	300	300	300	301	301	service	300
Cm-243/Cm-244		2/4/90	160	367	366	367	367	367		368
Np-237	AJ/D	2/5/90	82	149	148	150	153	155	out	151
Pu-239/240		2/5/90	110	228	226	228	231	231	of	230
Am-241/Pu-238		2/5/90	135	229	298	299	301	302	service	301
Cm-243/Cm-244		2/5/90	159	365	365	366	368	367		368
Np-237	VR/D	2/7/90	82	149	149	150	153	154	out	151
Pu-239/240		2/7/90	110	227	227	228	230	231	of	230
Am-241/Pu-238		2/7/90	135	298	299	298	301	301	service	301
Cm-243/Cm-244		2/7/90	159	364	365	365	367	367		368
Np-237	VR/D	2/8/90	81	150	150	152	155	156	out	152
Pu-239/240		2/8/90	109	227	228	230	232	233	of	231
Am-241/Pu-238		2/8/90	135	298	299	300	303	303	service	302
Cm-243/Cm-244		2/8/90	158	365	365	366	369	368		370
Np-237	VR/D	2/9/90	81	149	149	150	152	153	out	151
Pu-239/240		2/9/90	109	227	228	228	230	230	of	230
Am-241/Pu-238		2/9/90	135	299	299	299	301	300	service	301
Cm-243/Cm-244		2/9/90	159	365	366	365	367	366		369
Np-237	AJ/C	2/10/90	82	149	148	151	153	155	out	151
Pu-239/240		2/10/90	110	227	227	229	231	232	of	230
Am-241/Pu-238		2/10/90	136	299	298	300	302	302	service	302
Cm-243/Cm-244		2/10/90	160	365	365	366	368	367		369

F897-6582

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-897 SEO.COMP#7 AM
File ID: SD2726.SPC

Counted on: 2/13/90 @ 0: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	2841.1	2830.9	298.349	298.349	24.000	16.162	12.000	5.953
2	3932.2	3937.6	253.170	253.170	20.000	13.999	10.000	4.917

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/cc
1	Pu238	0.4269	5.499	5.509	-0.010	0.08	63.53	1389.46	0.626E-03
	Am241		5.480	5.509	-0.029				0.479E-03
2		0.5731		5.297		0.07	85.29	1343.14	0.605E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.107 + (0.0047)*Channel
Energy range (MeV): 4.107 TO 6.514
Efficiency = 0.0635 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	75197.0	100.000
Smoothed	75196.7	100.000
Composite fit	74407.8	98.950
Residuals	788.9	1.049

Analyzed by: _____
MAX

9112903017

F897.-6582

Raw Data Dump for GEA Spectrum: SP:SD2726.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
11	0.	0.	3.	1.	1.	2.	0.	0.	1.	1.
21	0.	2.	0.	0.	0.	3.	0.	2.	0.	2.
31	0.	1.	2.	1.	0.	3.	1.	3.	0.	0.
41	2.	1.	2.	1.	0.	1.	0.	0.	2.	0.
51	1.	3.	2.	1.	1.	2.	1.	1.	0.	0.
61	2.	3.	0.	1.	2.	2.	0.	1.	2.	1.
71	1.	1.	2.	0.	4.	3.	0.	2.	1.	1.
81	0.	0.	3.	1.	1.	3.	1.	0.	1.	2.
91	1.	1.	0.	0.	3.	1.	1.	5.	1.	3.
101	0.	2.	2.	1.	0.	0.	0.	1.	0.	2.
111	1.	3.	1.	1.	4.	2.	6.	2.	2.	0.
121	3.	2.	4.	2.	2.	2.	1.	4.	1.	3.
131	1.	2.	1.	1.	0.	4.	0.	2.	4.	2.
141	3.	5.	3.	2.	4.	1.	3.	1.	3.	0.
151	5.	4.	4.	0.	5.	1.	3.	2.	4.	5.
161	5.	5.	2.	5.	5.	4.	4.	7.	5.	3.
171	5.	7.	9.	8.	9.	9.	4.	3.	8.	8.
181	7.	6.	8.	8.	12.	10.	16.	11.	20.	12.
191	10.	12.	8.	19.	19.	24.	16.	11.	18.	29.
201	28.	25.	27.	33.	30.	33.	54.	49.	54.	52.
211	51.	63.	71.	83.	82.	88.	97.	95.	124.	150.
221	133.	181.	173.	204.	215.	224.	237.	237.	281.	330.
231	331.	354.	403.	433.	533.	506.	580.	676.	788.	843.
241	946.	1078.	1170.	1345.	1457.	1612.	1749.	1823.	2038.	2181.
251	2189.	2326.	2241.	2102.	1961.	1704.	1479.	1218.	972.	729.
261	589.	448.	393.	342.	265.	225.	192.	180.	203.	151.
271	145.	137.	171.	170.	185.	209.	236.	259.	274.	332.
281	396.	421.	508.	541.	628.	660.	766.	872.	995.	1063.
291	1157.	1298.	1385.	1402.	1481.	1579.	1557.	1612.	1547.	1444.
301	1185.	1132.	923.	796.	635.	528.	407.	333.	242.	160.
311	130.	99.	75.	57.	45.	29.	18.	12.	5.	2.
321	2.	4.	0.	1.	0.	1.	1.	1.	0.	0.
331	1.	1.	2.	1.	2.	2.	1.	1.	2.	2.
341	3.	1.	4.	4.	3.	0.	0.	0.	2.	0.
351	1.	2.	3.	1.	0.	0.	0.	0.	2.	0.
361	0.	0.	1.	0.	0.	3.	1.	0.	1.	0.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	1.	2.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.
471	1.	0.	1.	1.	0.	1.	0.	1.	0.	1.
481	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
511	0.	0.								

9112590318

SPECTRUM SD2726.SPC

F897.-6582

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 15192.4

```
2
...2
........2
.................2
.........................................2..
.........................................................................2.
1.........................................2
..1...2.....
.......1
.................1
.........................................1
.........................................1
.................1
..1
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G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F946 AM
File ID: SD3956.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.9	4.3	353.061	353.061	24.000	27.195	12.000	4.586
2	122.1	47.0	296.965	296.965	12.000	0.111	6.000	4.586
3	2724.3	2794.8	253.936	253.936	24.000	18.856	12.000	4.432
4	4.3	3.1	108.186	108.186	72.000	295.052	36.000	17.485

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Ra224	0.0020	5.680	5.715	-0.035	0.13	0.15	0.82	0.368E-06
2	Th228	0.0007	5.430	5.445	-0.015	0.00	0.05	0.38	0.171E-06
3	Am243	0.9935	5.234	5.239	-0.005	0.09	78.29	3533.97	0.159E-02
4	U 235	0.0038	4.396	4.539	-0.143	1.42	0.30	2.64	0.119E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	39211.0	100.000
Smoothed	39209.6	99.996
Composite fit	39401.6	100.486
Residuals	-192.0	-0.490

Analyzed by: _____
MAX

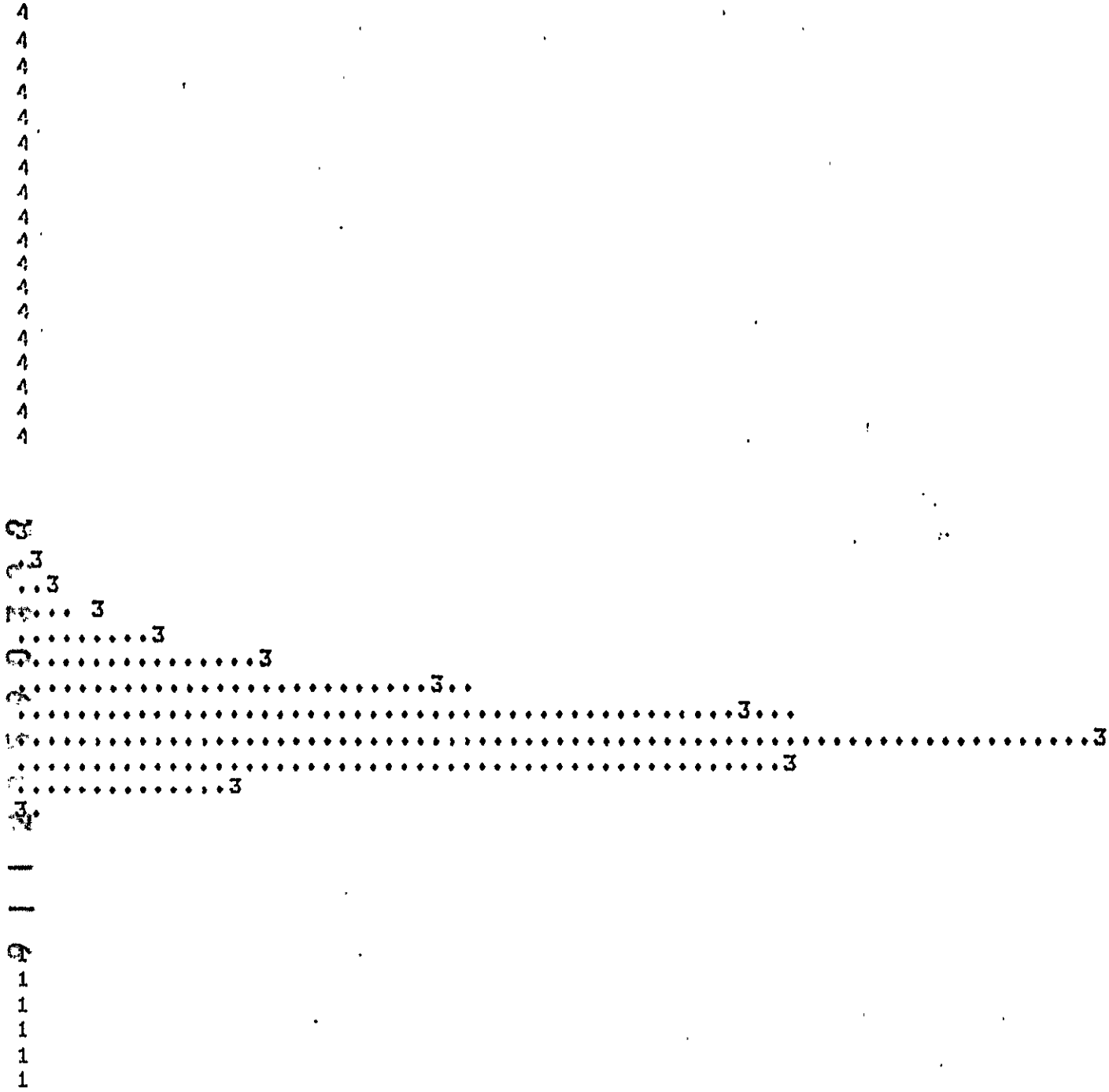
F 746- 6202

Raw Data Dump for AEA Spectrum: SP:SD3956.SPC

1	0.	0.	0.	0.	0.	2.	0.	2.	0.	0.
11	1.	1.	0.	0.	1.	1.	0.	0.	0.	1.
21	3.	2.	1.	0.	0.	0.	3.	1.	1.	1.
31	3.	0.	1.	2.	0.	0.	1.	1.	0.	1.
41	0.	1.	2.	4.	1.	0.	1.	1.	0.	1.
51	0.	0.	3.	0.	0.	0.	1.	0.	0.	0.
61	0.	0.	1.	3.	1.	1.	1.	1.	1.	2.
71	0.	1.	1.	4.	2.	1.	0.	3.	3.	2.
81	1.	1.	1.	0.	0.	3.	2.	1.	0.	0.
91	1.	0.	0.	1.	1.	0.	0.	2.	3.	0.
101	1.	2.	2.	3.	3.	1.	4.	4.	1.	0.
111	2.	3.	2.	1.	1.	1.	2.	0.	4.	3.
121	1.	1.	1.	1.	2.	0.	3.	3.	3.	1.
131	2.	2.	3.	1.	5.	2.	2.	5.	1.	2.
141	3.	0.	1.	4.	3.	4.	2.	3.	2.	2.
151	3.	3.	3.	1.	2.	9.	2.	3.	3.	3.
161	5.	8.	6.	9.	0.	4.	5.	5.	7.	7.
171	5.	11.	2.	5.	5.	8.	12.	7.	8.	6.
181	11.	13.	15.	17.	9.	15.	21.	19.	14.	20.
191	28.	24.	22.	24.	31.	47.	38.	33.	49.	42.
201	42.	43.	40.	50.	57.	48.	62.	66.	86.	70.
211	84.	95.	99.	130.	148.	116.	141.	174.	159.	214.
221	197.	216.	235.	228.	257.	304.	342.	330.	370.	386.
231	442.	468.	496.	541.	546.	628.	598.	665.	778.	826.
241	863.	911.	967.	1074.	1099.	1169.	1251.	1278.	1305.	1377.
251	1445.	1512.	1452.	1456.	1360.	1349.	1273.	1129.	961.	830.
261	725.	583.	443.	341.	246.	222.	159.	122.	101.	72.
271	65.	43.	44.	39.	28.	13.	14.	6.	9.	5.
281	6.	6.	3.	0.	6.	5.	8.	2.	9.	5.
291	9.	4.	8.	5.	3.	5.	5.	10.	8.	9.
301	2.	6.	2.	1.	5.	3.	2.	5.	1.	1.
311	1.	2.	0.	0.	2.	0.	0.	1.	0.	2.
321	0.	0.	3.	1.	1.	0.	1.	0.	2.	1.
331	0.	2.	0.	1.	0.	2.	1.	1.	1.	2.
341	3.	1.	0.	1.	0.	2.	2.	3.	2.	4.
351	2.	5.	2.	0.	1.	4.	2.	3.	1.	0.
361	1.	0.	1.	0.	2.	1.	1.	0.	1.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	3.	0.	1.	1.	0.
431	0.	1.	1.	0.	1.	2.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
471	0.	0.	1.	0.	2.	2.	1.	2.	2.	3.
481	1.	0.	0.	1.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

2/100

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 10532.2



F905-1082

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F905 AM
File ID: SD5589.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 5/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	57.6	54.3	302.567	302.567	24.000	17.421	12.000	0.000
2	3579.2	3716.8	255.720	255.720	24.000	14.457	12.000	4.298

PEAK RESULTS

Peak		AEA	Peak Centroid				Count		Activity
ID	Isotope	Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m	d/m	uCi/ea
1	Pu238	0.1610	5.499	5.506	-0.007	0.08	16.70	100.00	0.450E-04
	Am241		5.480	5.506	-0.026				0.345E-04
2		0.8390		5.282		0.07	87.00	375.16	0.169E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.054 + (0.0048)*Channel
Energy range (MeV): 4.054 TO 6.512
Efficiency = 0.2319 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	45931.0	100.000
Smoothed	45931.0	100.000
Composite fit	51848.2	112.883
Residuals	-5917.2	-12.883

Analyzed by: _____
MAX

Raw Data Dump for AEA Spectrum: SP:SD5589.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
11	0.	1.	1.	1.	0.	0.	0.	0.	2.	0.
21	2.	0.	1.	0.	3.	0.	2.	1.	0.	0.
31	1.	1.	1.	0.	0.	0.	0.	1.	0.	1.
41	0.	2.	0.	0.	1.	1.	1.	0.	2.	1.
51	2.	0.	0.	0.	2.	1.	1.	0.	0.	1.
61	0.	0.	2.	0.	1.	0.	1.	0.	2.	0.
71	1.	0.	0.	1.	0.	2.	2.	0.	1.	3.
81	3.	0.	1.	0.	1.	0.	3.	1.	0.	0.
91	0.	2.	0.	1.	3.	3.	0.	0.	2.	1.
101	0.	3.	2.	1.	1.	2.	2.	1.	0.	0.
111	0.	1.	1.	3.	0.	0.	2.	0.	1.	0.
121	0.	4.	0.	2.	2.	2.	0.	1.	2.	2.
131	1.	3.	2.	4.	2.	3.	3.	1.	0.	2.
141	0.	4.	2.	1.	2.	3.	4.	4.	0.	1.
151	3.	3.	2.	4.	6.	4.	4.	3.	3.	4.
161	5.	4.	7.	4.	5.	2.	4.	2.	5.	7.
171	3.	4.	3.	7.	5.	2.	6.	8.	5.	5.
181	5.	8.	12.	11.	9.	9.	11.	12.	21.	10.
191	20.	15.	20.	15.	11.	29.	16.	24.	23.	22.
201	24.	21.	26.	43.	28.	31.	46.	50.	58.	43.
211	53.	58.	58.	80.	74.	66.	102.	99.	94.	110.
221	131.	126.	153.	168.	177.	185.	235.	237.	266.	285.
231	320.	411.	385.	466.	526.	557.	616.	655.	757.	830.
241	917.	976.	1025.	1179.	1296.	1420.	1528.	1562.	1624.	1778.
251	1781.	1838.	1834.	1922.	1973.	1955.	1936.	1771.	1634.	1409.
261	1160.	814.	588.	426.	318.	246.	215.	161.	140.	109.
271	79.	75.	75.	53.	52.	28.	21.	19.	17.	17.
281	5.	10.	18.	6.	14.	12.	10.	14.	19.	20.
291	29.	24.	24.	26.	36.	25.	26.	22.	29.	29.
301	32.	29.	39.	23.	26.	26.	27.	22.	15.	7.
311	7.	7.	6.	2.	3.	1.	0.	0.	1.	0.
321	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
331	0.	1.	1.	1.	0.	0.	0.	1.	1.	0.
341	1.	0.	1.	1.	1.	1.	1.	2.	2.	3.
351	1.	0.	0.	1.	1.	1.	0.	0.	1.	0.
361	2.	0.	1.	0.	3.	2.	0.	0.	2.	1.
371	0.	2.	0.	0.	0.	1.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	1.	0.	0.	0.	1.
431	0.	0.	0.	1.	0.	0.	1.	0.	1.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	1.	0.	1.
481	3.	0.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

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5 6 3 0 6 5 2 1 1 6

SPECTRUM SD5589.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..., ETC 13447.7

F906-7132

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F906 AM
File ID: SD4719.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.1	4.1	353.834	353.834	40.000	37.794	20.000	8.414
2	41.0	26.5	302.773	302.773	12.000	3.770	6.000	8.414
3	3527.5	3527.4	236.919	236.919	20.000	13.572	10.000	5.246

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Cm243	0.0020	5.786	5.766	0.020	0.18	0.14	0.97	0.438E-06
	Pu236		5.756	5.766	-0.010				0.327E-06
2	Pu238	0.0034	5.499	5.521	-0.022	0.02	0.25	1.70	0.764E-06
3		0.9947		5.301		0.07	73.09	361.86	0.163E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.068 + (0.0048)*Channel
Energy range (MeV): 4.068 TO 6.525
Efficiency = 0.2020 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	37557.0	100.000
Smoothed	37556.6	99.999
Composite fit	36742.5	97.831
Residuals	814.1	2.168

Analyzed by: _____
MAX

F906. — 11 8

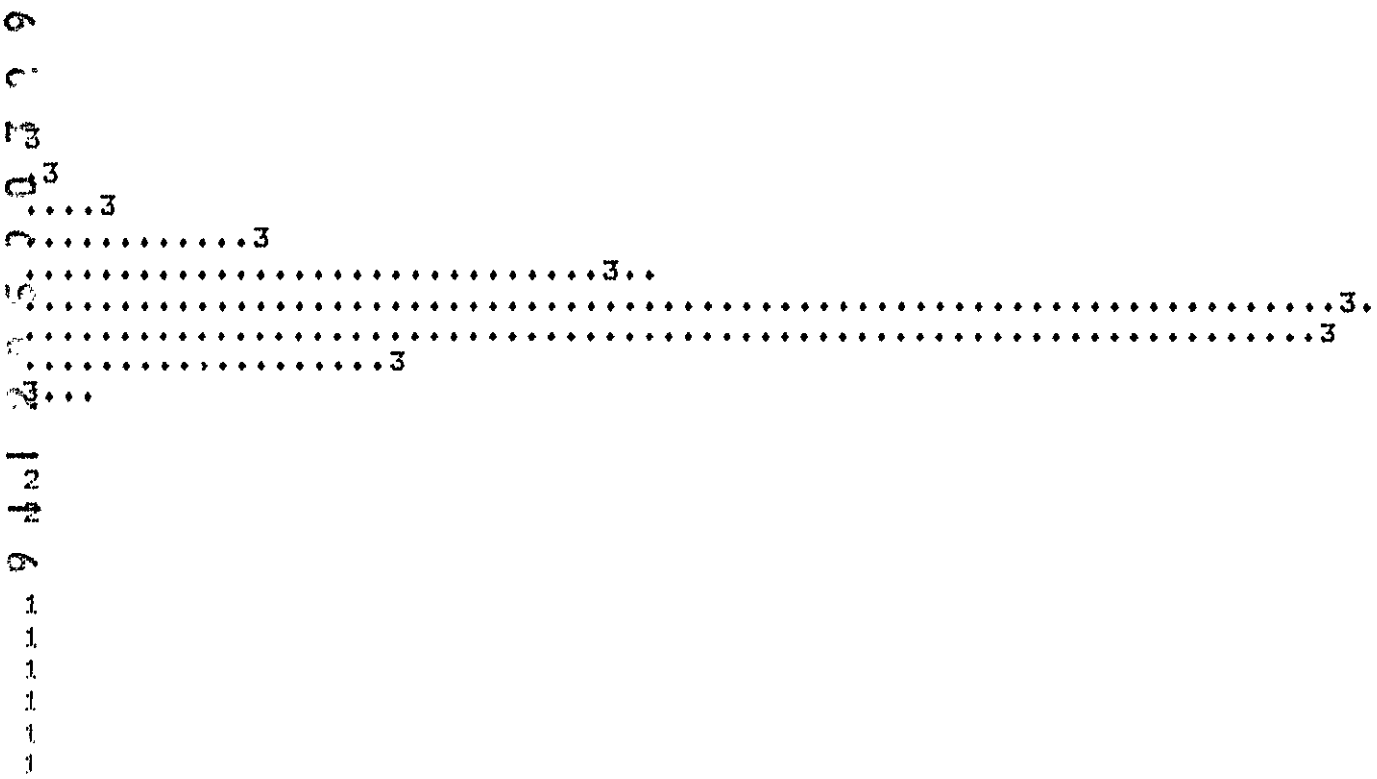
Raw Data Dump for AEA Spectrum: SP:SD4719.SPC

1	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.
11	2.	1.	0.	0.	0.	0.	0.	0.	1.	1.
21	0.	0.	1.	2.	0.	0.	0.	0.	0.	1.
31	1.	1.	1.	0.	2.	0.	1.	1.	2.	2.
41	0.	0.	3.	1.	0.	0.	0.	0.	1.	0.
51	1.	1.	0.	0.	1.	2.	1.	0.	1.	1.
61	1.	0.	1.	0.	2.	0.	0.	0.	0.	0.
71	0.	0.	0.	1.	0.	1.	0.	2.	2.	1.
81	1.	1.	0.	0.	0.	0.	0.	0.	0.	1.
91	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
101	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
111	0.	3.	0.	5.	3.	3.	1.	0.	1.	1.
121	1.	3.	1.	0.	0.	2.	1.	1.	3.	1.
131	1.	1.	1.	2.	1.	0.	2.	3.	2.	3.
141	0.	2.	3.	0.	2.	3.	0.	3.	0.	5.
151	4.	0.	1.	1.	2.	3.	0.	2.	3.	0.
161	1.	2.	1.	3.	5.	4.	1.	3.	3.	6.
171	4.	3.	2.	1.	4.	3.	7.	9.	7.	10.
181	6.	9.	2.	3.	7.	6.	12.	9.	8.	8.
191	10.	6.	10.	10.	12.	15.	19.	10.	14.	22.
201	19.	18.	14.	20.	22.	16.	25.	28.	27.	39.
211	24.	27.	39.	36.	33.	39.	54.	32.	44.	66.
221	52.	64.	89.	80.	86.	101.	102.	122.	126.	131.
231	149.	164.	197.	217.	243.	282.	333.	380.	407.	483.
241	516.	594.	637.	761.	803.	971.	1103.	1150.	1312.	1472.
251	1568.	1678.	1796.	1951.	1971.	1972.	2018.	1897.	1735.	1458.
261	1197.	926.	687.	525.	382.	257.	201.	182.	154.	156.
271	109.	84.	89.	60.	38.	26.	19.	14.	4.	3.
281	1.	2.	0.	2.	2.	3.	1.	2.	3.	5.
291	1.	4.	4.	7.	8.	6.	5.	8.	7.	8.
301	6.	11.	6.	9.	6.	11.	2.	1.	5.	0.
311	2.	1.	1.	1.	0.	0.	0.	0.	2.	1.
321	0.	0.	0.	1.	0.	2.	1.	0.	0.	2.
331	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.
341	2.	6.	1.	1.	2.	3.	1.	1.	1.	3.
351	0.	6.	1.	1.	3.	1.	3.	2.	1.	0.
361	0.	1.	2.	6.	1.	0.	1.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	2.	1.	0.	0.	0.	0.	0.
431	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	1.	1.	0.	0.	0.	1.	0.	0.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	1.	0.	0.	0.	0.	1.	0.	1.	1.
471	2.	0.	2.	1.	1.	0.	1.	1.	0.	2.
481	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
511	0.	0.								

x100

SPECTRUM SD4719.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,..,. ETC 11827.4



G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-949 SEG.COMP#11 AM
File ID: S03958.SPC

Counted on: 2/13/90 @ 1: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	69.9	45.7	294.281	294.281	16.000	8.685	8.000	0.000
2	1416.7	1464.9	248.325	248.325	32.000	25.605	16.000	4.657
3	2.4	3.3	101.979	101.979	152.000	2.000	76.000	0.200
4	0.0	0.1	27.155	27.155	0.000	0.200	0.000	0.200

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Th228	0.2115	5.430	5.432	-0.002	0.04	13.54	94.68	0.426E-04
2	Am243	0.7866	5.234	5.212	0.022	0.12	50.35	2272.65	0.102E-0[illegible]
3		0.0019		4.509		0.01	0.12	0.61	0.274E-06
4		0.0000		4.150		0.00	0.00	0.00	0.106E-08

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0040)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31305.0	100.000
Smoothed	31295.7	99.970
Composite fit	32005.0	102.236
Residuals	-709.3	-2.266

Analyzed by: _____
MAX

F949-6282

Raw Data Dump for AEA Spectrum: SP:SD3958.SPC

1	0.	0.	0.	0.	0.	8.	10.	10.	11.	10.
11	11.	11.	18.	16.	6.	10.	10.	14.	7.	12.
21	16.	15.	9.	10.	17.	10.	16.	15.	9.	10.
31	9.	17.	16.	4.	11.	8.	10.	11.	16.	14.
41	17.	9.	11.	14.	14.	19.	23.	12.	11.	17.
51	10.	9.	12.	14.	20.	17.	16.	12.	18.	11.
61	18.	17.	12.	15.	8.	20.	17.	11.	17.	14.
71	12.	20.	20.	21.	20.	17.	13.	18.	16.	25.
81	17.	22.	18.	14.	24.	15.	19.	20.	14.	21.
91	27.	25.	23.	20.	22.	15.	24.	22.	30.	29.
101	24.	23.	20.	23.	29.	17.	23.	19.	26.	18.
111	22.	24.	25.	23.	29.	22.	26.	18.	24.	33.
121	24.	33.	25.	30.	29.	28.	27.	24.	31.	23.
131	19.	29.	28.	36.	31.	30.	29.	33.	27.	27.
141	28.	29.	31.	41.	32.	44.	46.	42.	28.	49.
151	54.	34.	47.	33.	31.	38.	37.	50.	42.	51.
161	51.	47.	41.	45.	60.	37.	60.	43.	44.	38.
171	37.	40.	59.	48.	55.	59.	60.	65.	57.	60.
181	53.	59.	68.	65.	64.	60.	74.	56.	86.	84.
191	68.	75.	82.	82.	76.	93.	101.	86.	95.	102.
201	110.	109.	110.	144.	129.	131.	137.	140.	152.	151.
211	155.	170.	165.	181.	183.	201.	199.	213.	208.	236.
221	216.	270.	261.	292.	303.	324.	347.	335.	400.	403.
231	396.	472.	456.	515.	498.	565.	564.	588.	650.	672.
241	661.	696.	733.	764.	768.	747.	758.	762.	760.	739.
251	693.	664.	626.	613.	511.	472.	422.	360.	297.	263.
261	177.	187.	139.	101.	85.	61.	52.	35.	41.	26.
271	25.	18.	16.	19.	17.	18.	7.	16.	12.	14.
281	13.	16.	11.	11.	10.	16.	12.	12.	14.	7.
291	9.	15.	16.	16.	17.	10.	8.	17.	9.	9.
301	5.	7.	5.	9.	5.	1.	3.	2.	2.	3.
311	1.	1.	2.	3.	1.	1.	0.	0.	2.	0.
321	2.	0.	1.	1.	0.	1.	1.	1.	2.	0.
331	0.	1.	1.	4.	2.	0.	1.	1.	2.	1.
341	1.	2.	1.	1.	0.	1.	1.	1.	2.	1.
351	1.	1.	0.	0.	1.	1.	0.	0.	0.	0.
361	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
401	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	2.	0.
431	0.	1.	0.	0.	0.	0.	0.	1.	0.	1.
441	1.	0.	0.	0.	1.	0.	1.	0.	0.	0.
451	0.	1.	2.	0.	0.	1.	0.	0.	0.	0.
461	0.	1.	1.	0.	1.	1.	1.	0.	2.	2.
471	1.	1.	0.	1.	0.	1.	0.	0.	0.	0.
481	1.	0.	2.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

<100

9112590371

F949-6282

SPECTRUM SD3958.SPC

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1 LEGEND:  RAW = ....  MODELED PEAKS = 1,2,..., ETC                    5540.0
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F950-6582

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F950 AM
File ID: SD2724.SPC

Counted on: 2/12/90 @15: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	17.8	11.2	347.151	347.151	12.000	0.091	6.000	0.000
2	2259.9	2267.7	299.307	299.307	24.000	17.119	12.000	4.348
3	3066.1	3106.7	253.961	253.961	24.000	14.243	12.000	3.364

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu236	0.0265	5.756	5.742	0.014	0.00	3.83	19.94	0.898E-05
2	Pu238	0.4131	5.499	5.512	-0.013	0.08	59.70	423.25	0.191E-03
	Am241		5.480	5.512	-0.032				0.146E-03
3		0.5604		5.295		0.07	80.98	413.39	0.186E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.076 + (0.0048)*Channel
Energy range (MeV): 4.076 TO 6.533
Efficiency = 0.1959 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	71370.0	100.000
Smoothed	71369.7	100.000
Composite fit	72254.9	101.240
Residuals	-885.3	-1.240

Analyzed by: _____
MAX

Raw Data Dump for AEA Spectrum: SP:SD2724.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	3.
11	2.	1.	0.	0.	1.	0.	0.	1.	2.	0.
21	0.	0.	1.	0.	2.	0.	1.	1.	0.	2.
31	1.	1.	2.	0.	1.	0.	1.	2.	2.	1.
41	0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
51	0.	0.	0.	3.	0.	1.	1.	1.	0.	2.
61	1.	0.	3.	0.	0.	0.	0.	0.	1.	1.
71	1.	3.	0.	1.	0.	0.	1.	1.	1.	3.
81	2.	1.	3.	2.	1.	3.	0.	2.	3.	1.
91	0.	3.	3.	4.	1.	3.	4.	3.	2.	2.
101	1.	0.	2.	2.	2.	5.	1.	2.	0.	0.
111	1.	0.	2.	0.	4.	0.	1.	2.	2.	0.
121	2.	4.	2.	0.	2.	1.	2.	0.	2.	4.
131	1.	0.	1.	4.	2.	3.	4.	3.	5.	4.
141	3.	4.	3.	5.	3.	2.	5.	6.	3.	5.
151	6.	5.	10.	10.	2.	4.	7.	7.	8.	7.
161	6.	9.	2.	1.	8.	6.	10.	7.	8.	11.
171	9.	10.	9.	12.	9.	20.	22.	10.	13.	17.
181	19.	17.	20.	14.	34.	24.	24.	21.	27.	31.
191	43.	42.	29.	45.	45.	46.	53.	58.	48.	65.
201	64.	60.	70.	83.	97.	82.	93.	116.	116.	107.
211	121.	147.	163.	150.	174.	187.	188.	193.	213.	215.
221	288.	298.	313.	329.	324.	372.	383.	403.	413.	443.
231	449.	479.	519.	562.	548.	572.	626.	662.	750.	843.
241	894.	933.	1006.	1146.	1214.	1338.	1373.	1513.	1536.	1619.
251	1686.	1740.	1708.	1741.	1678.	1583.	1410.	1245.	1020.	842.
261	701.	564.	388.	337.	309.	280.	270.	278.	227.	222.
271	211.	244.	256.	239.	264.	270.	296.	300.	339.	359.
281	435.	446.	466.	483.	567.	652.	671.	675.	733.	854.
291	934.	972.	1045.	1059.	1103.	1226.	1223.	1235.	1222.	1260.
301	1132.	1017.	891.	839.	693.	545.	470.	350.	298.	222.
311	171.	115.	93.	70.	50.	40.	21.	12.	8.	7.
321	3.	3.	0.	3.	0.	1.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	2.	4.	2.	1.
341	1.	1.	2.	3.	1.	5.	1.	2.	1.	2.
351	2.	2.	1.	0.	0.	0.	1.	2.	0.	0.
361	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	2.	1.	2.	0.	0.	0.	0.
431	1.	2.	0.	0.	1.	0.	1.	0.	0.	0.
441	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	2.	1.	0.	1.	0.	0.	0.	0.	2.	0.
471	0.	0.	1.	1.	1.	4.	1.	0.	1.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Plutonium Analysis

Water Digestion / Fusion Dissolution

Instrument	E60044
Procedure / Rev	LA-503-156
Technologist	R.D. Hale
Date	02-08-90
Temperature	23 C
Starting Time	09:00 02-07-90
Ending Time	15:00 02-08-90
Chemist	S. A. Catlow

	Description		Lab. Id.
1	Initial LMCS Check Std		F0903
2	Reagent Blank		F0946
3	Sample	Comp 5	F0899
4	Duplicate	Comp 5	F0900
5	Sample	Comp 5	F0905
6	Duplicate	Comp 5	F0906
7	Sample	Comp 6	F0923
8	Duplicate	Comp 6	F0924
9	Sample	Comp 6	F0929
10	Duplicate	Comp 6	F0930
11	Sample	Comp 8	F0947

	Description		Lab. Id.
12	Duplicate	Comp 8	F0948
13	Sample	Comp 8	F0953
14	Duplicate	Comp 8	F0954
15	Spike	Comp 5	F0949
16	Final LMCS Check Std		F0950
17			
18			
19			
20			
21			
22			

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Standard	16B43 / 100 uL			N/A
Spike	10B43-B /50 uL	F0947 / 1mL	16B43/100 uL	N/A

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 08-14-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-14-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

SST-102 Rev. E 4/04/90 Interim

9 1 1 2 1 5 0 3 7 5

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Np-237, Pu 239/240, Am 241/Pu 238 Cm 243/244		
Procedure	LA-508-051	Revision:	A-2
Instrument:	Canberra Juptier System	Property Number:	
Technologist:	Varied	Payroll Number:	
Date:	Listed on attachments.		

Calibration Standard ID: Book number	N/A
Analyte Concentration:	N/A
Type of Calibration:	N/A

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Detector are aligned not calibration.

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-27-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-27-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

9112190376

AEA ENERGY CALIBRATION

	TECH/ SHIFT	DATE	BELL #1	BELL #2	BELL#3	BELL #4	BELL #5	BELL #6	BELL #7	BELL #8
Np-237	VR/D	2/3/90	83	151	151	152	155	156	out	153
Pu 239/240		2/3/90	111	229	229	230	232	233	of	232
Am-241/Pu238		2/3/90	137	301	301	301	303	303	service	303
Cm-243/Cm-244		2/3/90	161	367	368	368	369	369		370
Np-237	AJ/D	2/4/90	83	151	150	152	152	154	out	150
Pu-239/240		2/4/90	110	229	228	230	230	231	of	229
Am-241/Pu-238		2/4/90	136	300	300	300	301	301	service	300
Cm-243/Cm-244		2/4/90	160	367	366	367	367	367		368
Np-237	AJ/D	2/5/90	82	149	148	150	153	155	out	151
Pu-239/240		2/5/90	110	228	226	228	231	231	of	230
Am-241/Pu-238		2/5/90	135	229	298	299	301	302	service	301
Cm-243/Cm-244		2/5/90	159	365	365	366	368	367		368
Np-237	VR/D	2/7/90	82	149	149	150	153	154	out	151
Pu-239/240		2/7/90	110	227	227	228	230	231	of	230
Am-241/Pu-238		2/7/90	135	298	299	298	301	301	service	301
Cm-243/Cm-244		2/7/90	159	364	365	365	367	367		368
Np-237	VR/D	2/8/90	81	150	150	152	155	156	out	152
Pu-239/240		2/8/90	109	227	228	230	232	233	of	231
Am-241/Pu-238		2/8/90	135	298	299	300	303	303	service	302
Cm-243/Cm-244		2/8/90	158	365	365	366	369	368		370
Np-237	VR/D	2/9/90	81	149	149	150	152	153	out	151
Pu-239/240		2/9/90	109	227	228	228	230	230	of	230
Am-241/Pu-238		2/9/90	135	299	299	299	301	300	service	301
Cm-243/Cm-244		2/9/90	159	365	366	365	367	366		369
Np-237	AJ/C	2/10/90	82	149	148	151	153	155	out	151
Pu-239/240		2/10/90	110	227	227	229	231	232	of	230
Am-241/Pu-238		2/10/90	136	299	298	300	302	302	service	302
Cm-243/Cm-244		2/10/90	160	365	365	366	368	367		369

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F903 SEG/COMP/#13 PU
File ID: SD4709.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	5.2	4.8	469.869	469.869	20.000	12.660	10.000	5.524
2	2145.9	2208.4	358.677	358.677	20.000	10.661	10.000	4.945
3	280.4	285.9	302.189	302.189	20.000	10.454	10.000	3.516
4	229.4	64.8	264.079	264.079	12.000	6.706	6.000	4.662
5	2612.8	2618.0	229.858	229.858	20.000	10.762	10.000	5.781

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0010		6.322		0.06	0.09	0.47	0.211E-0
2	Cm244	0.4328	5.796	5.789	0.007	0.05	39.74	198.99	0.896E-0
	Cm243		5.786	5.789	-0.003				0.123E-0
3	Pu238	0.0630	5.499	5.518	-0.019	0.05	5.79	40.26	0.181E-0
	Am241		5.480	5.518	-0.038				0.139E-0
4		0.0096		5.335		0.03	0.88	4.41	0.199E-0
5	Pu239	0.4935	5.143	5.170	-0.027	0.05	45.32	226.93	0.102E-0
	Pu240		5.144	5.170	-0.026				0.102E-0

DETECTOR CALIBRATION

Energy(MEV) = 4.067 + (0.0048)*Channel
Energy range (MeV): 4.067 TO 6.525
Efficiency = 0.1997 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	45919.0	100.000
Smoothed	45918.7	99.999
Composite fit	45910.5	99.982
Residuals	8.1	0.018

Analyzed by: _____
VR

SPECTRUM SD4709.SPC

P-783-7581

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC

9724.5

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Raw Data Dump for AEA Spectrum: SP1SD4709.SPC

F903-7587

1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
11	1.	1.	0.	0.	0.	1.	1.	1.	0.	2.
21	1.	0.	0.	1.	0.	0.	1.	0.	1.	0.
31	2.	0.	0.	0.	1.	1.	0.	1.	0.	1.
41	1.	1.	0.	0.	0.	2.	0.	2.	1.	0.
51	1.	1.	0.	0.	1.	0.	0.	1.	4.	0.
61	0.	1.	0.	1.	1.	0.	1.	0.	1.	1.
71	0.	1.	0.	0.	1.	0.	1.	1.	0.	0.
81	0.	0.	2.	1.	1.	1.	1.	0.	0.	1.
91	2.	1.	1.	1.	1.	0.	2.	2.	0.	1.
101	1.	0.	1.	1.	0.	1.	1.	0.	1.	1.
111	0.	3.	0.	0.	0.	0.	2.	2.	0.	1.
121	1.	0.	0.	1.	1.	0.	3.	0.	0.	0.
131	2.	0.	3.	0.	1.	3.	5.	2.	2.	0.
141	1.	1.	2.	4.	1.	5.	1.	4.	1.	1.
151	6.	4.	2.	1.	3.	2.	2.	7.	4.	3.
161	2.	1.	7.	4.	3.	7.	8.	2.	4.	4.
171	5.	10.	7.	8.	5.	7.	11.	11.	7.	6.
181	9.	9.	8.	12.	5.	6.	8.	9.	7.	11.
191	9.	7.	11.	13.	6.	8.	10.	12.	11.	11.
201	15.	22.	26.	29.	37.	37.	70.	47.	85.	97.
211	128.	136.	207.	238.	290.	347.	427.	535.	585.	700.
221	784.	890.	972.	1153.	1192.	1345.	1426.	1577.	1629.	1426.
231	1296.	1248.	1035.	787.	555.	407.	263.	132.	81.	59.
241	20.	15.	7.	8.	12.	8.	10.	8.	19.	24.
251	20.	21.	21.	30.	27.	27.	29.	36.	31.	35.
261	37.	35.	37.	40.	35.	41.	33.	28.	19.	15.
271	15.	9.	15.	7.	12.	8.	14.	14.	9.	27.
281	29.	25.	36.	39.	44.	36.	53.	55.	66.	74.
291	88.	80.	82.	100.	99.	139.	114.	139.	150.	170.
301	172.	150.	148.	143.	120.	106.	81.	46.	34.	25.
311	21.	9.	9.	4.	3.	5.	13.	6.	12.	18.
321	6.	14.	14.	8.	11.	18.	16.	10.	17.	14.
331	23.	32.	40.	44.	50.	49.	56.	87.	111.	142.
341	156.	223.	240.	320.	349.	455.	532.	592.	653.	754.
351	805.	890.	954.	999.	1084.	1256.	1220.	1250.	1184.	1191.
361	976.	851.	680.	466.	302.	176.	75.	43.	26.	11.
371	3.	0.	0.	1.	0.	0.	0.	1.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	1.	0.	0.	0.	0.	0.	3.	0.	2.
421	1.	0.	1.	0.	0.	1.	1.	1.	1.	0.
431	0.	0.	1.	0.	1.	0.	1.	0.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	2.	1.	1.	0.	0.	0.	1.	0.	0.	1.
461	1.	1.	4.	1.	2.	2.	3.	5.	3.	3.
471	3.	0.	1.	3.	1.	3.	1.	0.	0.	0.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F946 SEG/COMP/#8
File ID: SD2714.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	4.2	4.2	468.114	468.114	20.000	16.828	14.000	13.274
2	1994.2	1914.8	357.234	357.234	20.000	12.011	10.000	5.995
3	83.9	85.9	299.394	299.394	20.000	14.183	10.000	2.399
4	57.9	57.7	262.857	262.857	20.000	7.005	10.000	2.100
5	21.9	23.3	227.770	227.770	20.000	6.104	10.000	2.418
6	4.0	2.6	172.563	172.563	20.000	59.890	10.000	4.825

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0021		6.275		0.08	0.08	0.37	0.166E-06
2	Pu236	0.8871	5.756	5.754	0.002	0.06	35.19	159.58	0.719E-04
3	Pu238	0.0686	5.499	5.482	0.017	0.07	2.72	16.80	0.757E-05
	Am241		5.480	5.482	-0.002				0.580E-05
4		0.0283		5.311		0.03	1.12	5.00	0.225E-05
5	Pu239	0.0096	5.143	5.146	-0.003	0.03	0.38	1.69	0.759E-06
	Pu240		5.144	5.146	-0.002				0.759E-06
6	Np237	0.0043	4.781	4.886	-0.105	0.28	0.17	0.88	0.395E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.075 + (0.0047)*Channel
Energy range (MeV): 4.075 TO 6.482
Efficiency = 0.2250 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19661.0	100.000
Smoothed	19661.0	100.000
Composite fit	19834.1	100.880
Residuals	-173.1	-0.880

Analyzed by: _____
VR

Raw Data Dump for AEA Spectrum: SP:SD2714.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
11	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.
21	1.	0.	0.	2.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
51	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
71	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
91	1.	1.	1.	0.	0.	0.	1.	0.	0.	0.
101	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
111	1.	0.	0.	0.	0.	0.	1.	2.	0.	0.
121	1.	0.	1.	1.	1.	0.	2.	0.	0.	1.
131	2.	1.	0.	1.	1.	0.	1.	0.	0.	1.
141	1.	1.	0.	1.	1.	1.	0.	2.	1.	1.
151	2.	0.	0.	2.	0.	1.	0.	1.	1.	0.
161	0.	1.	3.	1.	2.	0.	1.	1.	1.	4.
171	4.	4.	1.	1.	1.	1.	2.	1.	1.	0.
181	0.	3.	2.	2.	2.	0.	0.	2.	1.	2.
191	0.	2.	1.	0.	1.	3.	4.	4.	0.	2.
201	0.	3.	0.	2.	1.	0.	3.	4.	2.	5.
211	3.	4.	6.	3.	3.	3.	10.	6.	9.	15.
221	14.	13.	15.	13.	22.	8.	15.	15.	23.	10.
231	10.	5.	14.	12.	5.	3.	4.	5.	1.	7.
241	10.	8.	6.	5.	16.	11.	17.	14.	21.	12.
251	25.	25.	33.	24.	24.	38.	26.	25.	28.	40.
261	41.	52.	52.	33.	27.	26.	18.	19.	20.	22.
271	14.	10.	10.	18.	10.	17.	13.	17.	13.	18.
281	14.	27.	30.	28.	23.	24.	33.	35.	27.	36.
291	41.	34.	39.	40.	38.	51.	38.	42.	44.	48.
301	45.	48.	34.	25.	25.	24.	19.	7.	11.	8.
311	5.	6.	7.	5.	7.	6.	4.	5.	7.	15.
321	10.	6.	9.	21.	12.	12.	12.	17.	16.	18.
331	21.	44.	35.	38.	46.	56.	66.	101.	127.	133.
341	205.	250.	257.	334.	415.	511.	550.	597.	683.	687.
351	786.	904.	913.	1084.	1035.	1116.	1072.	1028.	939.	811.
361	684.	536.	405.	268.	192.	128.	66.	36.	16.	9.
371	5.	2.	2.	0.	0.	0.	0.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	1.	1.	0.	2.
411	0.	0.	0.	0.	1.	1.	0.	0.	2.	0.
421	0.	2.	0.	0.	1.	1.	0.	1.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	1.	0.	1.	0.	1.	1.	2.	2.
461	1.	1.	3.	5.	0.	0.	4.	3.	3.	0.
471	2.	1.	2.	2.	3.	1.	0.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

4100

1.LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 7179.2

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G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 1.10

DATA REDUCTION REPORT F0905-7081

SAMPLE
F905 SEG/COMP/#15 PU
File ID: SD8065.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 8/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1893.1	1874.1	362.142	362.142	20.000	8.844	10.000	2.949
2	76.5	76.1	304.353	304.353	16.000	5.447	8.000	0.800
3	18.3	16.3	267.001	267.001	16.000	3.790	8.000	0.571
4	185.5	185.7	231.527	231.527	20.000	9.022	10.000	3.268
5	4.1	3.5	25.073	25.073	16.000	14.631	8.000	13.792

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu236	0.8513	5.756	5.775	-0.019	0.04	36.46	175.76	0.792E-04
	Cm243		5.786	5.775	0.011				0.106E-03
2	Pu238	0.0546	5.499	5.503	-0.004	0.03	2.34	15.34	0.691E-05
	Am241		5.480	5.503	-0.023				0.529E-05
3		0.0110		5.328		0.02	0.47	2.23	0.101E-05
4	Pu239	0.0815	5.143	5.161	-0.018	0.04	3.49	16.49	0.743E-05
	Pu240		5.144	5.161	-0.017				0.743E-05
5	U 238	0.0015	4.200	4.191	0.009	0.07	0.06	0.40	0.179E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.073 + (0.0047)*Channel
Energy range (MeV): 4.073 TO 6.479
Efficiency = 0.2117 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21590.0	100.000
Smoothed	21589.8	99.999
Composite fit	21416.1	99.194
Residuals	173.7	0.805

Analyzed by: _____
VR

Raw Data Dump for AEA Spectrum: SP:SDB065.SPC

1	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
11	0.	0.	0.	0.	0.	1.	2.	3.	2.	2.
21	2.	1.	2.	0.	3.	4.	3.	1.	0.	0.
31	0.	1.	0.	1.	1.	0.	1.	0.	1.	2.
41	1.	0.	1.	1.	0.	0.	1.	1.	2.	3.
51	0.	0.	0.	0.	3.	1.	0.	1.	1.	1.
61	2.	0.	0.	1.	1.	3.	1.	0.	1.	0.
71	1.	2.	0.	0.	2.	2.	0.	2.	1.	1.
81	1.	2.	1.	0.	0.	2.	0.	1.	2.	0.
91	0.	0.	1.	0.	1.	2.	0.	3.	1.	2.
101	1.	3.	0.	1.	2.	0.	2.	1.	0.	1.
111	1.	2.	0.	3.	0.	0.	0.	0.	1.	1.
121	4.	3.	2.	1.	2.	0.	1.	1.	0.	3.
131	1.	2.	0.	1.	4.	1.	3.	1.	0.	1.
141	2.	1.	1.	1.	4.	1.	1.	3.	0.	4.
151	2.	1.	1.	2.	3.	1.	2.	3.	1.	1.
161	2.	2.	1.	0.	2.	0.	1.	4.	2.	1.
171	0.	1.	3.	1.	1.	1.	0.	2.	1.	3.
181	2.	1.	1.	1.	1.	4.	3.	3.	1.	4.
191	1.	2.	2.	0.	3.	2.	6.	3.	2.	4.
201	8.	4.	4.	13.	9.	8.	19.	22.	18.	16.
211	24.	26.	25.	30.	23.	29.	41.	37.	42.	43.
221	38.	48.	55.	66.	66.	89.	96.	109.	112.	100.
231	106.	117.	105.	87.	65.	45.	44.	22.	13.	9.
241	6.	7.	5.	2.	6.	8.	9.	3.	10.	12.
251	12.	8.	9.	8.	7.	11.	9.	11.	14.	10.
261	13.	16.	21.	20.	19.	27.	17.	12.	10.	18.
271	15.	19.	6.	6.	13.	9.	11.	12.	15.	15.
281	13.	6.	17.	22.	23.	26.	33.	29.	35.	27.
291	30.	24.	29.	38.	32.	20.	22.	35.	28.	38.
301	47.	42.	69.	45.	48.	44.	29.	29.	28.	19.
311	6.	3.	6.	5.	4.	3.	4.	5.	6.	8.
321	6.	9.	14.	23.	25.	29.	40.	45.	54.	66.
331	70.	80.	93.	106.	129.	119.	157.	201.	192.	196.
341	241.	253.	240.	233.	209.	261.	293.	301.	375.	398.
351	475.	503.	565.	610.	673.	688.	773.	873.	1025.	1079.
361	1116.	1187.	1052.	938.	733.	525.	359.	201.	116.	55.
371	32.	7.	2.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	2.	0.	0.	0.	1.	0.	0.	0.	0.	0.
431	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	2.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	2.	0.	1.
471	0.	1.	0.	3.	3.	0.	0.	1.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
511	0.	0.								

SPECTRUM SD8065.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 6265.1

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G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-906 -Pu
File ID: SD4710.SPC

Counted on: 2/ 9/90 @ 9: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	6.2	6.1	470.143	470.143	24.000	10.521	12.000	5.143
2	2224.1	2257.4	359.076	359.076	20.000	10.395	10.000	4.949
3	96.8	96.9	302.163	302.163	20.000	10.870	10.000	1.800
4	52.0	54.9	263.680	263.680	20.000	7.063	10.000	2.558
5	36.9	35.2	227.550	227.550	24.000	13.226	12.000	1.221
6	5.1	4.8	156.204	156.204	16.000	3.980	8.000	1.392

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0023		6.324		0.05	0.11	0.54	0.241E-06
2	Cm244	0.8725	5.796	5.791	0.005	0.05	39.94	199.98	0.901E-04
	Cm243		5.786	5.791	-0.005				0.123E-03
3	Pu238	0.0650	5.499	5.517	-0.018	0.05	2.98	20.71	0.933E-05
	Am241		5.480	5.517	-0.037				0.714E-05
4		0.0212		5.333		0.03	0.97	4.85	0.219E-05
5	Pu239	0.0373	5.143	5.159	-0.016	0.06	1.71	8.55	0.385E-05
	Pu240		5.144	5.159	-0.015				0.385E-05
6	Np237	0.0017	4.781	4.817	-0.036	0.02	0.08	0.44	0.197E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.067 + (0.0048)*Channel
Energy range (MeV): 4.067 TO 6.525
Efficiency = 0.1997 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	22701.0	100.000
Smoothed	22700.9	100.000
Composite fit	22886.3	100.816
Residuals	-185.4	-0.817

Analyzed by: _____
EMB

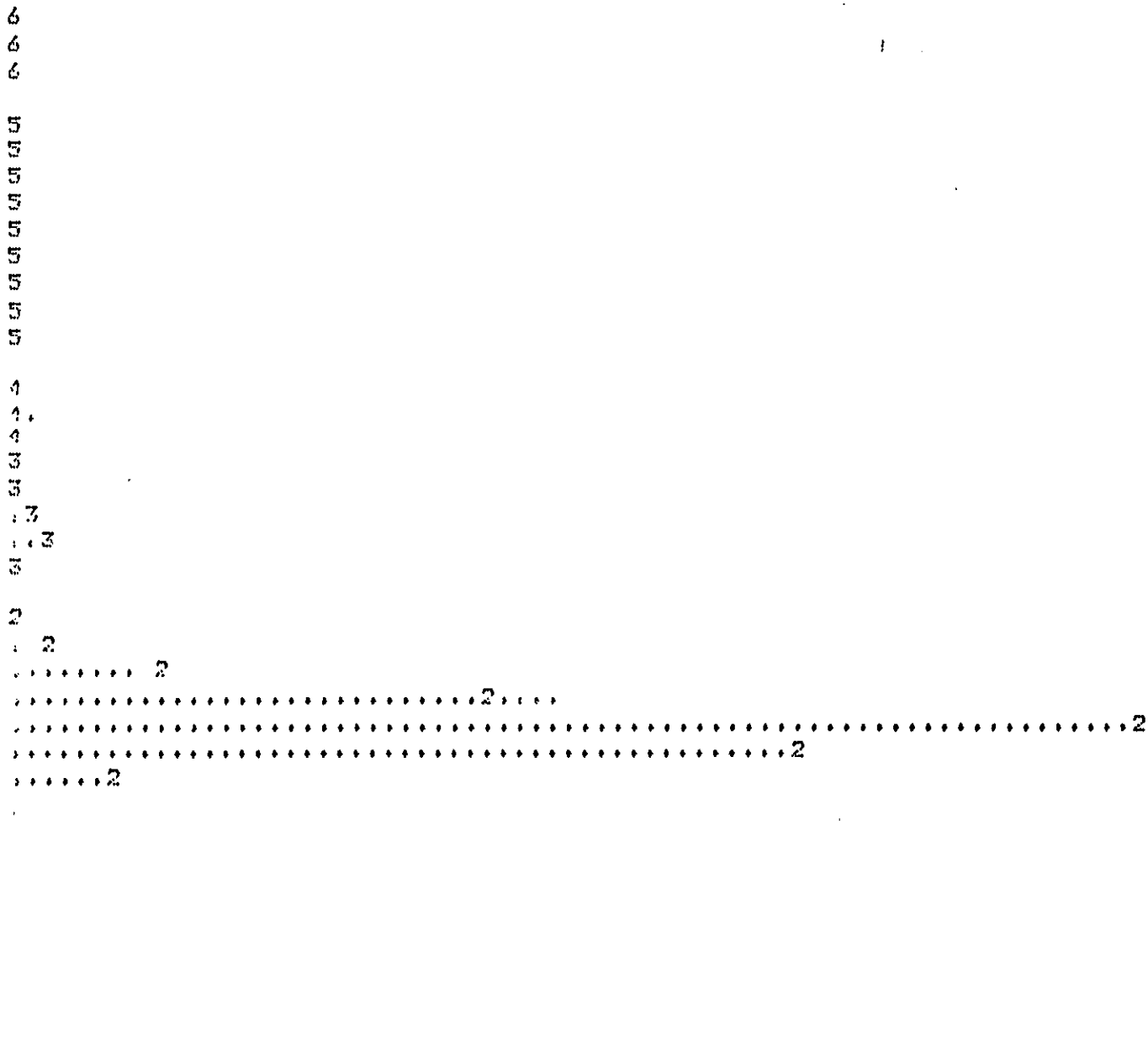
Raw Data Dump for AEA Spectrum: SP:SD4710.SPC

1	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
11	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
31	0.	0.	1.	1.	0.	1.	0.	0.	2.	1.
41	2.	0.	1.	0.	0.	2.	1.	1.	0.	0.
51	2.	3.	0.	0.	1.	0.	0.	0.	0.	1.
61	0.	1.	1.	1.	0.	0.	1.	0.	0.	0.
71	0.	1.	0.	1.	2.	0.	1.	2.	0.	1.
81	0.	0.	0.	2.	1.	1.	0.	0.	2.	1.
91	0.	2.	1.	1.	2.	1.	0.	0.	2.	1.
101	5.	1.	2.	1.	1.	1.	0.	0.	2.	4.
111	1.	0.	3.	1.	4.	1.	1.	2.	1.	1.
121	0.	1.	1.	2.	2.	3.	2.	4.	1.	3.
131	1.	2.	2.	0.	1.	1.	1.	5.	4.	3.
141	2.	1.	4.	1.	3.	3.	10.	3.	2.	3.
151	5.	6.	6.	6.	4.	10.	5.	4.	4.	4.
161	4.	3.	2.	3.	7.	5.	2.	6.	6.	3.
171	3.	4.	7.	2.	6.	8.	3.	9.	8.	7.
181	4.	12.	8.	9.	10.	7.	4.	8.	15.	9.
191	7.	7.	9.	16.	10.	4.	8.	9.	12.	11.
201	13.	12.	9.	15.	11.	10.	7.	13.	11.	9.
211	11.	13.	10.	14.	17.	16.	12.	13.	11.	11.
221	17.	23.	31.	28.	12.	23.	24.	21.	27.	12.
231	21.	15.	20.	13.	11.	12.	10.	3.	4.	5.
241	3.	8.	6.	9.	11.	7.	5.	11.	15.	19.
251	17.	17.	22.	24.	15.	30.	21.	33.	48.	37.
261	27.	47.	36.	46.	25.	33.	31.	26.	19.	20.
271	14.	13.	11.	16.	9.	8.	6.	13.	15.	19.
281	11.	21.	19.	27.	29.	33.	46.	36.	37.	34.
291	39.	26.	42.	29.	43.	47.	35.	41.	42.	59.
301	71.	49.	52.	48.	47.	34.	26.	13.	9.	10.
311	9.	13.	15.	9.	5.	8.	5.	3.	11.	15.
321	14.	13.	13.	14.	7.	17.	14.	20.	15.	17.
331	28.	24.	24.	25.	34.	57.	58.	61.	96.	125.
341	143.	180.	218.	283.	353.	399.	479.	536.	698.	721.
351	786.	819.	933.	1027.	1073.	1189.	1244.	1295.	1326.	1201.
361	1111.	955.	687.	501.	355.	217.	131.	45.	33.	9.
371	2.	1.	0.	0.	0.	0.	0.	0.	0.	1.
381	0.	1.	0.	0.	0.	1.	0.	1.	0.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
411	0.	1.	0.	1.	1.	0.	0.	0.	2.	2.
421	0.	0.	2.	3.	0.	0.	0.	1.	0.	0.
431	0.	0.	2.	0.	1.	0.	0.	0.	0.	2.
441	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	3.	1.	0.	2.	0.
461	0.	2.	1.	2.	1.	4.	9.	4.	2.	1.
471	4.	1.	4.	4.	2.	1.	0.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

P 106. - 11 81

SPECTRUM SD4710.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 8008.6



G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F-949 SEG.COMP#11 PU
File ID: S03954.SPC

Counted on: 2/11/90 @11: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	10.4	10.0	471.543	471.543	20.000	13.382	10.000	6.489
2	1898.2	1910.1	359.114	359.114	20.000	13.459	10.000	7.396
3	85.1	87.0	301.260	301.260	20.000	13.453	10.000	2.603
4	50.6	52.5	264.610	264.610	20.000	8.169	10.000	1.755
5	149.1	151.5	229.417	229.417	20.000	10.611	10.000	7.113

PEAK RESULTS

Peak ID	Isotope	AREA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		0.0045		6.283		0.06	0.19	0.96	0.430E-06
2	Pu236	0.8469	5.756	5.744	0.012	0.06	35.86	181.69	0.818E-04
3	Th228	0.0593	5.430	5.466	-0.036	0.06	2.51	17.54	0.790E-05
	Am241		5.480	5.466	0.014				0.597E-05
4		0.0305		5.290		0.04	1.29	6.41	0.289E-05
5		0.0588		5.121		0.05	2.49	12.35	0.556E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	21109.0	100.000
Smoothed	21107.7	99.994
Composite fit	21170.5	100.291
Residuals	-62.9	-0.298

Analyzed by: _____
DM

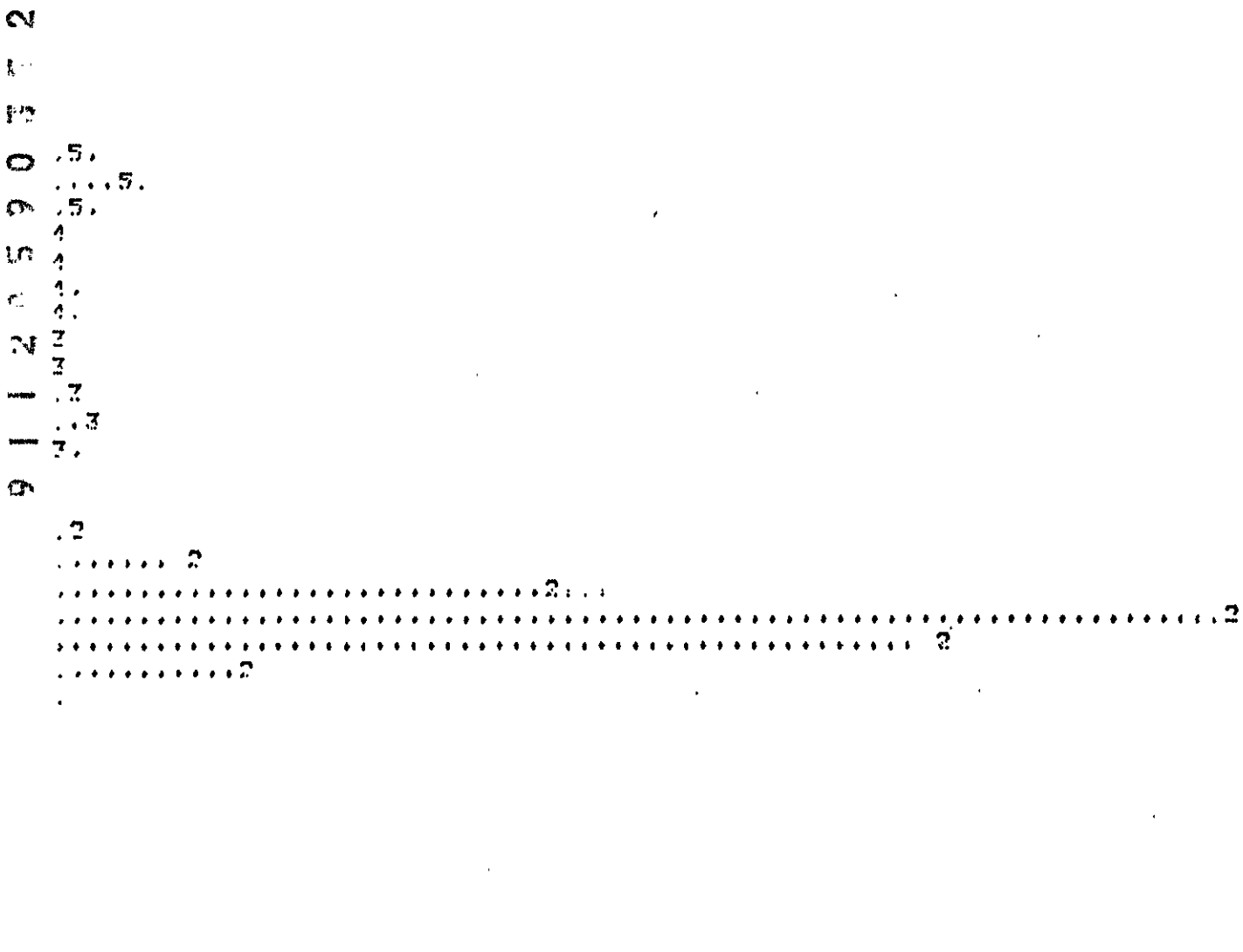
F949-620

Raw Data Dump for 6EA Spectrum: SP1SD3954.SPC

1	0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
11	0.	0.	0.	0.	0.	2.	3.	2.	0.	2.
21	0.	0.	0.	1.	0.	0.	2.	0.	0.	0.
31	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
41	0.	0.	2.	0.	0.	1.	1.	0.	1.	1.
51	0.	0.	0.	1.	0.	1.	0.	0.	1.	0.
61	0.	1.	0.	0.	0.	0.	0.	1.	2.	0.
71	0.	0.	0.	0.	1.	1.	1.	1.	0.	1.
81	1.	1.	0.	0.	2.	0.	1.	1.	0.	0.
91	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
101	1.	0.	1.	0.	0.	0.	1.	0.	1.	1.
111	1.	0.	1.	1.	0.	1.	1.	1.	0.	1.
121	3.	1.	0.	2.	2.	0.	1.	3.	0.	0.
131	0.	1.	0.	0.	1.	2.	1.	0.	2.	1.
141	2.	1.	1.	0.	1.	3.	3.	2.	0.	1.
151	2.	2.	3.	1.	2.	1.	2.	1.	0.	1.
161	3.	3.	1.	0.	2.	1.	0.	0.	0.	2.
171	1.	3.	0.	2.	2.	0.	1.	0.	3.	0.
181	5.	0.	0.	2.	3.	0.	1.	0.	2.	1.
191	4.	0.	1.	1.	0.	0.	0.	3.	1.	2.
201	2.	5.	3.	1.	1.	2.	1.	5.	0.	5.
211	1.	6.	8.	14.	18.	24.	26.	33.	34.	41.
221	53.	59.	70.	87.	77.	77.	100.	79.	96.	86.
231	80.	69.	58.	42.	43.	28.	20.	17.	6.	10.
241	7.	5.	7.	6.	12.	12.	9.	15.	14.	10.
251	21.	28.	16.	22.	19.	25.	30.	26.	26.	29.
261	32.	46.	31.	38.	32.	25.	30.	30.	25.	24.
271	19.	11.	12.	9.	10.	8.	13.	7.	11.	9.
281	25.	24.	19.	15.	27.	27.	32.	31.	21.	17.
291	39.	32.	29.	37.	36.	39.	41.	53.	48.	46.
301	44.	39.	46.	50.	38.	25.	19.	11.	15.	14.
311	13.	10.	3.	3.	0.	1.	1.	2.	1.	1.
321	1.	2.	4.	3.	4.	8.	2.	6.	5.	12.
331	15.	11.	19.	28.	19.	44.	58.	66.	61.	79.
341	111.	133.	223.	251.	317.	337.	410.	462.	517.	649.
351	696.	725.	856.	938.	951.	1047.	1069.	1106.	1083.	981.
361	942.	817.	655.	565.	445.	311.	234.	159.	99.	75.
371	48.	23.	21.	5.	6.	0.	2.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	1.	0.	2.	2.	1.	1.
421	3.	1.	1.	1.	0.	0.	1.	3.	0.	0.
431	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	2.	2.	1.	0.	2.	0.	2.
461	7.	2.	5.	2.	6.	1.	5.	4.	8.	7.
471	4.	7.	7.	2.	2.	3.	5.	1.	2.	0.
481	2.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

SPECTRUM SD3954.SPC

1 LEGEND: RAW = ... MODELED PEAKS = 1,2,... ETC 6956.3



1
1
1 344

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
F950 SEG/COMP/#12 PU
File ID: SD3946.SPC

Counted on: 2/ 9/90 @ 0: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1946.0	1958.5	357.840	357.840	24.000	14.662	12.000	8.261
2	245.9	249.9	300.354	300.354	24.000	12.967	12.000	4.179
3	321.6	69.1	262.412	262.412	12.000	5.250	6.000	6.220
4	2343.9	2333.2	228.108	228.108	24.000	13.601	12.000	8.431
5	5.2	8.2	150.480	150.480	80.000	2.000	40.000	0.200
6	1.6	0.9	126.257	126.257	8.000	0.382	4.000	0.057

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu236	0.4328	5.756	5.738	0.018	0.07	37.89	191.98	0.865E-04
2	Th228	0.0625	5.430	5.462	-0.032	0.06	5.48	38.29	0.172E-04
	Am241		5.480	5.462	0.018				0.130E-04
3		0.0089		5.279		0.03	0.78	3.85	0.173E-05
4		0.4919		5.115		0.07	43.06	213.81	0.963E-04
5		0.0037		4.742		0.01	0.32	1.59	0.715E-06
6	Np237	0.0003	4.640	4.626	0.014	0.00	0.02	1.85	0.835E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	43612.0	100.000
Smoothed	43611.1	99.998
Composite fit	43772.9	100.369
Residuals	-161.8	-0.371

Analyzed by: _____
VR

Raw Data Dump for AEA Spectrum: SP1SD3946.SPC

1	0.	0.	0.	0.	0.	0.	2.	3.	1.	0.
11	2.	0.	1.	2.	1.	1.	1.	1.	0.	0.
21	1.	1.	2.	0.	0.	1.	1.	1.	1.	0.
31	1.	0.	1.	2.	1.	0.	0.	0.	0.	0.
41	0.	1.	2.	2.	0.	0.	1.	2.	1.	1.
51	0.	2.	0.	1.	1.	1.	0.	2.	1.	0.
61	0.	0.	1.	0.	1.	0.	2.	3.	1.	0.
71	0.	2.	1.	2.	1.	0.	0.	0.	1.	1.
81	1.	0.	1.	0.	1.	2.	0.	1.	0.	0.
91	2.	0.	0.	2.	0.	1.	1.	1.	2.	0.
101	2.	2.	2.	0.	1.	1.	2.	2.	1.	2.
111	2.	1.	3.	0.	3.	7.	1.	1.	2.	0.
121	2.	2.	3.	2.	3.	4.	5.	0.	1.	2.
131	3.	0.	1.	0.	0.	1.	0.	3.	4.	1.
141	1.	4.	7.	0.	5.	0.	2.	0.	3.	4.
151	4.	3.	2.	1.	3.	0.	2.	0.	1.	2.
161	2.	4.	1.	1.	3.	1.	1.	3.	0.	1.
171	6.	4.	4.	2.	6.	4.	2.	2.	1.	1.
181	0.	2.	4.	2.	1.	3.	0.	5.	4.	4.
191	4.	4.	7.	5.	2.	7.	7.	6.	9.	7.
201	16.	21.	23.	23.	42.	47.	66.	72.	112.	136.
211	164.	186.	224.	334.	394.	473.	562.	603.	726.	841.
221	902.	1109.	1134.	1198.	1312.	1294.	1379.	1310.	1233.	1074.
231	1017.	829.	709.	489.	402.	304.	204.	145.	82.	68.
241	36.	21.	16.	9.	13.	13.	16.	11.	18.	23.
251	23.	16.	20.	26.	25.	22.	16.	36.	35.	35.
261	27.	36.	30.	22.	29.	28.	21.	26.	22.	14.
271	12.	10.	4.	11.	18.	12.	14.	15.	24.	23.
281	38.	40.	34.	42.	43.	44.	69.	55.	73.	88.
291	86.	88.	107.	91.	121.	125.	121.	146.	126.	148.
301	123.	141.	115.	88.	73.	57.	41.	37.	24.	29.
311	12.	8.	7.	3.	2.	5.	3.	3.	5.	2.
321	6.	5.	1.	4.	6.	5.	4.	4.	8.	6.
331	24.	15.	24.	34.	31.	52.	68.	104.	118.	139.
341	169.	210.	290.	338.	347.	489.	518.	610.	674.	760.
351	844.	914.	957.	1047.	1099.	1043.	1095.	1059.	992.	929.
361	826.	722.	560.	460.	351.	230.	183.	130.	85.	44.
371	30.	14.	14.	6.	1.	2.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
421	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
451	0.	0.	1.	0.	1.	0.	0.	1.	1.	1.
461	0.	1.	1.	1.	1.	1.	2.	4.	1.	1.
471	3.	2.	1.	0.	0.	1.	2.	1.	2.	0.
481	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

```
SPECTRUM SD3946.SPC
1 LEGEND:  RAW = ....  MODELED PEAKS = 1,2,..., ETC                    8821.5

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Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Carbon 14 Analysis

Water Digestion

Instrument	Beckman
Procedure / Rev	LA-348-104/A-0
Technologist	R. H. Hale
Date	07-16-90
Temperature	24 C
Starting Time	10:00
Ending Time	15;00
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial Check Std	F0903
2	Reagent Blank	F0904
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Spike Composite 5	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	31B46/1.0 mL			N/A
Spike	31B46/1.0 mL	F0905 / 10.0 uL		N/A

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 7-10-90

Verified by: Carey M. Seidel (Signature) C.M. Seidel (Printed Name) Date: 7-10-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-12-90

Interim

Rev. E 4/04/90

SST-102

9 1 1 2 1 5 9 0 3 7 6

Single Shell Tank Calibration Record

Phase I-A

Analyte:	C-14		
Procedure	LA-508-121	Revision:	
Instrument:	Liquid Scintillation Counter	Property Number:	WA77390
Technologist:	R. A. Jones	Payroll Number:	
Date:	9-20-88		

Calibration Standard ID: Book number Packard 6008502 #2

Analyte Concentration: See Attached Calibration Sheets.

Type of Calibration: See Attached Calibration Sheets.

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Quench Curve

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

349

9 1 1 2 5 9 0 3 7

USER: 2 ID:CARBON-14 PRESET TIME: 10.00 TUE 17 JUL 1990 02:00
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 3 ASC:Y DCF:N RCM:Y 2 PHASE MONITOR:Y POST CHK:N VIAL:8 VOLUME:1
RCM-TIME- 0.10 INT:999.95
CHANNEL 1-LL: 0 UL: 700 2SIGMA: 0.10 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM SET UP ON 19 SEP 1988 18:58

UNKNOWN ID:C-14 UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR ISO1:0 1.00000
UNKNOWN UNITS ISO1:DPM
UNKNOWN HALF LIFE CORRECTION:N
INDIVIDUAL UNKNOWN NORM FACTORS:N BACKGROUND QUENCH CURVES:Y
STANDARD ID:PACKARD 6008502 #2 QUENCH LIMITS LOW:0.000 HIGH:253.7
HALF LIFE(DAYS) ISO1:N
STANDARD DPM ISO1: 108600.0

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
B1	**- 1	1	41.50	9.82	10.00	10.63	145.0	0.27	**	

BACKGROUND QUENCH CURVES: CONSTANT

CHANNEL 1
QUENCH CURVE COEFFICIENTS
A: 41.50000 B:0.00000000 C:0.00000000 D:0.00000000000

BACKGROUND QUENCH CURVE CORRELATION TABLE

BKG	H#	MEASURED CPM.	CALCULATED CPM.	PERCENT DIFF.	FLAG
1	145.0	41.50	41.50	0.00	

BACKGROUND QUENCH LIMITS LOW:0.000 HIGH:1000.
TOTAL QUENCH LIMITS LOW:0.000 HIGH:253.7

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
1	**- 3	1	1582.50	1.59	10.00	21.58	144.0	0.01	**	
	ISO1 %EFF CH1.90.24						ISO1 DPM	:1707.579		
2	**- 4	1	40.90	9.89	10.00	32.30	143.0	0.44	**	
	ISO1 %EFF CH1:90.34						ISO1 DPM	:0.000000		
3	**- 5	1	138.00	5.38	10.00	43.20	145.5	0.05	**	
	H#: 146, 145									
	ISO1 %EFF CH1:90.11						ISO1 DPM	:107.0918		

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCH%	2P	ERR
4	**- 6	1	136.10	5.42	10.00	53.92	142.0	0.10	**	
	ISO1	%EFF	CH1:90.43				ISO1 DPM	:104.6160		
5	**- 7	1	1717.60	1.53	10.00	64.63	146.0	0.01	**	
	ISO1	%EFF	CH1:90.06				ISO1 DPM	:1860.993		
6	**- 8	1	1786.30	1.50	10.00	75.34	144.0	0.01	**	
	ISO1	%EFF	CH1:90.24				ISO1 DPM	:1931.110		

9112590379

```
SINGLE LABEL DPM  SET UP ON 19 SEP 1988 (EDITED)                THU 03 MAY 1990 03:41

UNKNOWN ID(20CHAR)TO 99 DIRECT
UNKNOWN REPLICATES(1-10) 1
UNKNOWN NORM FACTOR(P/Q 7DIGITS) ISO1:Q 1.00000
UNKNOWN UNITS(5CHAR)                ISO1:    DPM
INDIVIDUAL UNKNOWN NORM FACTORS(Y/N)N
HALF LIFE CORRECTION(Y/N)N

BACKGROUND QUENCH CURVES(Y/N)Y  COUNT BACKGROUND SAMPLES(Y/N)Y
STORE AND RE-USE THIS BACKGROUND COUNT(Y/N)N

STANDARD ID(20CHAR)131B29-A 1-10
QUENCH LIMITS(5DIGITS)LOW:73.67   HIGH:207.7
QUENCH MODE(S/H)H
```

POOR COPY RECEIVED

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SINGLE LABEL DPM QUENCH STANDARDS                               THU 03 MAY 1990 03:41

QUENCH STANDARDS STORED                                SET UP ON  19 SEP 1988(EDITED)

STANDARD ID(20CHAR)131B29-A 1-10
COUNT QUENCH STANDARDS(Y/N)N QUENCH MODE(S/H)H

                                        ISO1
STANDARD DPM(10DIGITS)               0 00000000
HALF LIFE, DAYS(N/10DIGITS)          N
REFERENCE DATE (DAY MON YEAR)        1 JAN 1983
                 (HOUR MIN)              00 00
QUENCH LIMITS(5DIGITS)LOW:73.67    HIGH:207.7
PLOT QUENCH CURVES(Y/N)N

EDIT OR RE-COUNT QUENCH STANDARDS(N=NO/E=EDIT/R=RE-COUNT)N
```

QUENCH STANDARDS FOR ISOTOPE : THU 23 MAY 1990 [illegible]

H#	EFF1	H#	EFF1
73.67	95.93	87.00	95.68
100.3	95.45	113.0	94.96
126.0	94.66	137.7	94.41
145.7	94.32	164.0	93.07
179.3	92.90	207.7	91.02

DELETE STANDARD(N/ H#)N RE-ORDER(Y/N)N
DISPLAY QUENCH CURVE(Y/N)N PLOT QUENCH CURVE(Y/N)N

POOR COPY RECEIVED

9 1 1 2 0 5 9 0 3 1

```
ID(12CHAR)TC-99, ALL              USER  5                          THU 03 MAY 1990 08:4
PRESET TIME(.01-999.99) 10.00  HK(0-10) 3  SCR(N/X:Y) N
SAMPLE REPEAT(0-10) 1          AGC(Y/N) Y  PROGRAM SUMMARY(Y/N) Y
CYCLE REPEAT(1-10) 1           DCF(Y/N) N  LSR: TIME(.1-999.95)  0.10 INT999.95
RS232 OUTPUT(Y/N) N            RCM(Y/N) Y  RCM: TIME(.1-999.95)  0.10 INT999.9
? PHASE(Y/N) Y POST CHK(Y/N)N  VIAL(S/P)S  VOLUME(1=18-11ML/2=11-7ML/3=7-2ML)

COUNT CHANNELS(1,2,3) 1
CHANNEL SETTINGS      LL      UL    2SIGMA    BKG SUB   BKG 2SIG      LSR
        CHANNEL 1    150     500     0.10      0.00      0.00        0


DATA CALCULATION PROGRAM (SELECT ONE) 5
 1 CPM          2 COUNTS       3 DL % REF    4 DL % REF    5 SL DPM      6 DL DPM
 7 TL DPM       8 SL DIG INT   9 DL DIG INT  10 SL RIA
PRINT FORMAT(1=STANDARD/2=SHORT/3=SELECT) 1
```

POOR COPY RECEIVED

9 1 1 2 0 5 9 0 3 1 2

USER: 5 ID:TC-99, ALL PRESET TIME: 10.00 FRI 02 FEB 1990 00:07
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 3 AQC:Y QCF:N RCM:Y 2 PHASE MONITOR:Y POST CHK:N VIAL:G VOLUME:1
RCM-TIME: 0.10 INT:999.95
CHANNEL 1-LL:150 UL: 800 2SIGMA: 0.10 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM SET UP ON 19 SEP 1988 08:22

UNKNOWN ID:TC 99 DIRECT UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR ISO1:Q 1.00000
UNKNOWN UNITS ISO1:DPM
UNKNOWN HALF LIFE CORRECTION:N
INDIVIDUAL UNKNOWN NORM FACTORS:N BACKGROUND QUENCH CURVES:Y
STANDARD ID:131B28-A 1-10 QUENCH LIMITS LOW:73.67 HIGH:207.7
HALF LIFE(DAYS) ISO1:N
STANDARD DPM ISO1:0.00000000

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
B1	**- 1	1	50.00	8.94	10.00	10.64	162.0	1.87	**	

BACKGROUND QUENCH CURVES: CONSTANT

CHANNEL 1
QUENCH CURVE COEFFICIENTS
A: 50.00000 B:0.00000000 C:0.00000000 D:0.00000000000

BACKGROUND QUENCH CURVE CORRELATION TABLE

BKG	H#	MEASURED CPM.	CALCULATED CPM.	PERCENT DIFF.	FLAG
1	162.0	50.00	50.00	0.00	

BACKGROUND QUENCH LIMITS LOW:0.000 HIGH:1000.
TOTAL QUENCH LIMITS LOW:73.67 HIGH:207.7

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
1	**- 3	1	813.80	2.22	10.00	21.66	151.0	0.49	**	
	ISO1 %EFF CH1:94.03						ISO1 DPM	:812.2896		
2	**- 4	1	3179.00	1.12	10.00	32.40	154.0	0.18	**	
	ISO1 %EFF CH1:93.80						ISO1 DPM	:3335.985		
3	**- 5	1	58.50	8.27	10.00	43.16	156.0	3.47	**	
	ISO1 %EFF CH1:93.63						ISO1 DPM	:9.078415		

F903
F903+
355-904

9112590363

F904+. ISO1 %EFF CH1:93.24 ISO1 DPM :2530.877

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG HN	RCM%	2P	CRP
5	**- 7	1	75.20	7.29	10.00	64.70	145.0	5.43	**	
	ISO1 %EFF CH1:94.34						ISO1 DPM	:26.71191		
6	**- 8	1	2342.50	1.31	10.00	75.46	164.0	0.20	**	
	ISO1 %EFF CH1:93.07						ISO1 DPM	:2463.191		
7	**- 9	1	116.60	5.86	10.00	86.23	155.0	3.67	**	
	ISO1 %EFF CH1:93.71						ISO1 DPM	:71.06857		
8	**-10	1	2568.90	1.25	10.00	97.00	156.0	0.22	**	
	ISO1 %EFF CH1:93.63						ISO1 DPM	:2690.308		
9	**-11	1	99.70	6.33	10.00	107.77	158.0	5.50	**	
	ISO1 %EFF CH1:93.46						ISO1 DPM	:53.17546		
10	**-12	1	3354.90	1.09	10.00	118.54	158.0	0.17	**	
	ISO1 %EFF CH1:93.46						ISO1 DPM	:3536.008		
11	**- 1	1	861.70	2.15	10.00	129.35	157.0	0.61	**	
	ISO1 %EFF CH1:93.55						ISO1 DPM	:867.7051		
12	**- 2	1	3212.60	1.12	10.00	140.14	158.0	0.18	**	
	ISO1 %EFF CH1:93.46						ISO1 DPM	:3383.757		
13	**- 3	1	3201.40	1.12	10.00	150.92	157.0	0.19	**	
	ISO1 %EFF CH1:93.55						ISO1 DPM	:3368.838		
14	**- 4	1	823.30	2.20	10.00	161.70	147.0	0.58	**	
	ISO1 %EFF CH1:94.27						ISO1 DPM	:820.2977		

F905 F905+ F906 F906+ F907 F907+

9 1 1 2 5 2 0 3 4

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Iodine 129 Analysis

Water Digestion

Instrument	N/A
Procedure / Rev	LA-378-103/A-2
Technologist	S. Cervantes
Date	02-23-90
Temperature	26 C
Starting Time	08:00 / 02-22-90
Ending Time	13:50 / 02-23-90
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	124B44 / 1 mL			N/A
Spike	124B44 / 1 mL	F0905 / 1 mL		N/A

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-21-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-21-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

9 1 1 2 0 5 9 0 3 5

[illegible]	Isotope Energy	[illegible] Abs.Int.(%)	[illegible]
1	I 129 1.[illegible]	[illegible]	0.5[illegible]
	39.7	55.00	
2	I 129 1.[illegible]	D	0.58[illegible]
	39.6	7.50	
3	[illegible]	119.7[illegible] D	0.419[illegible]
	[illegible]	17.36	
[illegible]	[illegible]	10[illegible].40 D	[illegible]
	17[illegible].3	[illegible].30	
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	0.41[illegible]
	[illegible]	[illegible]	
[illegible]	[illegible]	1054.4[illegible] D	0.44[illegible]
	[illegible]	1.53	

Maximum Energy Error for Isotope Identification = 1.5 keV

[illegible]

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H-2 DET. ISOTOPE FILE

No.	Isotope	Half-life	MPC Value	Calc.Limit
	Energy	Abs.Int.(%)		
1	I 129	1.600E+06 D	---	Yes
	39.6	7.50		
2	AM 241	1.580E+05 D	---	Yes
	59.5	35.90		
3	AM 243	2.700E+06 D	---	Yes
	74.7	66.00		
4	SB 125	1004.40 D	---	Yes
	176.3	6.80		
5	SE 75	119.77 D	---	Yes
	136.0	59.00		
	121.1	17.30		

Maximum Energy Error for Isotope Identification = 1.5 keV

MPC values are corrected for decay.

Command-- ?

F 903.-7585

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129 ?	0.163E-03 +/- 0.997E-05		1.00			
39.6	0.163E-03	7.50	13.73	6.1	0.4	
SE 75	0.487E-04 +/- 0.121E-05		1.00			
136.0	0.497E-04	59.00	32.86	2.7	1.0	
121.1	0.445E-04	17.30	9.18	6.3	0.9	

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
AM 241			1.00			
59.5	<0.219E-05	35.90	<	0.98		
AM 243			1.00			
74.7	<0.122E-05	66.00	<	1.10		
SB 125			1.00			
176.3	<0.156E-04	6.80	<	0.93		

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
29.3	86.89	1.7	34.0	18.29	4.7	96.1	3.28	13.8

STOP --
BG4500

F 903, -7585

AUTOMATIC ISOTOPE ANALYSIS 25-FEB-90 06:06:53

SAMPLE PARAMETERS

Spectrum Label:	F903 SEG/COMO/#13 A-1	
Sample Counting Date	23-FEB-90	19:33:34
Sample Collection Date	23-FEB-90	19:33:00
Decay Time	0. Days	0.009 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1A8
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	29.3*	29.3	4345.	796.	1.7	1.375	0.0000E+00	
2	34.0*	34.0	915.	796.	4.7	1.375	0.4492E+00	
3	39.3	39.2	686.	987.	6.1	1.373	0.5054E+00	I 129
4	96.4*	96.1	164.	278.	13.8	1.366	0.5832E+00	
5	120.6	120.2	459.	232.	6.3	1.366	0.5374E+00	SE 75
6	135.4	135.0	1643.	206.	2.7	1.367	0.5048E+00	SE 75

F904.-7385

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Abundance(%)	Decay Corr. Rate(CPM)	% Err	Delta-E	%MPC
AM 243 ?	0.107E-05 +/- 0.311E-06		1.00			
74.7	0.107E-05	66.00	0.96	29.2	0.9	
SE 75	0.488E-04 +/- 0.122E-05		1.00			
136.0	0.483E-04	59.00	31.91	2.8	1.0	
121.1	0.510E-04	17.30	10.54	5.6	1.0	

- -

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Abundance(%)	Decay Corr. Rate(CPM)	% Err	Delta-E	%MPC
I 129			1.00			
39.6	<0.118E-04	7.50	< 1.00			
AM 241			1.00			
59.5	<0.211E-05	35.90	< 0.95			
SB 125			1.00			
176.3	<0.177E-04	6.80	< 1.06			

- -

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
31.2	1.02	42.9	44.1	0.53	49.4	96.2	3.33	15.0

STOP --
BG4500

F904.7385

AUTOMATIC ISOTOPE ANALYSIS 25-FEB-90 06:13:31

SAMPLE PARAMETERS

Spectrum Label:	F904 SEG/COMP/#14 A-1	
Sample Counting Date	23-FEB-90	21:34:20
Sample Collection Date	23-FEB-90	21:34:00
Decay Time	0. Days	0.006 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	31.2*	31.2	51.	339.	42.9	1.375	0.4291E+00	
2	44.2	44.1	26.	96.	49.4	1.372	0.5683E+00	
3	74.0	73.8	48.	99.	29.2	1.367	0.6135E+00	AM 243
4	96.5*	96.2	167.	349.	15.0	1.366	0.5830E+00	
5	120.5	120.1	527.	205.	5.6	1.366	0.5376E+00	SE 75
6	135.4	135.0	1595.	239.	2.9	1.367	0.5048E+00	SE 75

F905.- 1000

AUTOMATIC ISOTOPE ANALYSIS 24-FEB-90 00:31:07

SAMPLE PARAMETERS

Spectrum Label:	F905 SEG/COMP/#15 A-1	
Sample Counting Date	23-FEB-90	22:46:46
Sample Collection Date	23-FEB-90	22:45:00
Decay Time	0. Days	0.029 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	31.7	31.7	58.	218.	34.5	1.375	0.4322E+00	
2	59.8	59.7	29.	117.	49.0	1.369	0.5637E+00	AM 241
3	75.8	75.6	42.	167.	40.2	1.367	0.6148E+00	AM 243
4	86.5	86.2	45.	147.	36.7	1.366	0.5992E+00	
5	96.4	96.1	160.	221.	14.0	1.366	0.5832E+00	
6	120.6	120.2	493.	205.	5.8	1.366	0.5374E+00	SE 75
7	135.4	135.0	1733.	198.	2.6	1.367	0.5048E+00	SE 75

F905-7085

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
AM 241 ?	0.130E-05 +/- 0.637E-06		1.00			
59.5	0.130E-05	35.90	0.58	49.0	-0.2	
AM 243 ?	0.937E-06 +/- 0.376E-06		1.00			
74.7	0.937E-06	66.00	0.84	40.2	-0.9	
SE 75	0.515E-04 +/- 0.123E-05		1.00			
136.0	0.524E-04	59.00	34.67	2.6	1.0	
121.1	0.478E-04	17.30	9.87	5.8	0.9	

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129			1.00			
39.6	<0.126E-04	7.50	<	1.07		
SB 125			1.00			
176.3	<0.173E-04	6.80	<	1.03		

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
31.7	1.16	34.5	86.2	0.99	36.7	96.1	3.20	14.0

STOP --
BG4500

F 906. -7/85

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
AM 243 ?	0.123E-05 +/- 0.389E-06		1.00			
74.7	0.123E-05	66.00	1.11	31.5	-0.2	
SE 75	0.521E-04 +/- 0.124E-05		1.01			
136.0	0.519E-04	59.00	34.13	2.7	1.1	
121.1	0.531E-04	17.30	10.90	5.3	0.9	

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Abundance(%)	Corr. Rate(CPM)	% Err	Delta-E	%MPC
I 129			1.00			
39.6	<0.133E-04	7.50	< 1.13			
AM 241			1.00			
59.5	<0.225E-05	35.90	< 1.01			
SB 125			1.00			
176.3	<0.164E-04	6.80	< 0.97			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
31.8	2.35	16.9	96.2	3.22	13.7			

STOP --
BG4500

AUTOMATIC ISOTOPE ANALYSIS 24-FEB-90 02:13:03

F906 - 7185

SAMPLE PARAMETERS

Spectrum Label:	F-906 SEG.COMP#16	
Sample Counting Date	24-FEB-90	00:32:40
Sample Collection Date	24-FEB-90	00:39:00
Decay Time	1. Days	0.000 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3003. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	31.8	31.8	118.	180.	16.9	1.375	0.4329E+00	
2	75.1	74.9	56.	168.	31.5	1.367	0.6157E+00	AM 243
3	96.5	96.2	161.	199.	13.7	1.366	0.5830E+00	
4	120.6	120.2	545.	188.	5.3	1.366	0.5374E+00	SE 75
5	135.3	134.9	1706.	240.	2.7	1.367	0.5050E+00	SE 75

9112590376

F907,-7285

***** IDENTIFIED ISOTOPES *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129 ?	0.994E-04 +/- 0.101E-04	1.00				
39.6	0.994E-04	7.50	8.36	10.1	0.4	
AM 241 ?	0.119E-05 +/- 0.556E-06	1.00				
59.5	0.119E-05	35.90	0.53	46.7	0.3	
AM 243 ?	0.112E-05 +/- 0.344E-06	1.00				
74.7	0.112E-05	66.00	1.01	30.7	0.3	
SE 75	0.503E-04 +/- 0.123E-05	1.00				
136.0	0.495E-04	59.00	32.76	2.8	1.1	
121.1	0.539E-04	17.30	11.13	5.3	0.9	

***** MDL TABLE *****

Nuclide / Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
SB 125		1.00				
176.3	<0.163E-04	6.80	< 0.97			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
29.3	58.42	2.2	47.0	0.69	40.6	145.1	0.33	34.5
34.0	10.17	7.9	96.0	3.00	13.9			

STOP --
BG4500

F-907.-7285

AUTOMATIC ISOTOPE ANALYSIS 24-FEB-90 03:20:39

SAMPLE PARAMETERS

Spectrum Label:	F-907 SEG.COMP#17	
Sample Counting Date	24-FEB-90	02:14:35
Sample Collection Date	24-FEB-90	02:14:00
Decay Time	0. Days	0.010 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3004. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	Q.Energy (keV)	T.Energy (keV)	Net Cnts.	Bgnd.	% Err.	FWHM (keV)	Eff.	
1	29.3*	29.3	2921.	927.	2.2	1.375	0.0000E+00	
2	34.0*	34.0	508.	927.	7.9	1.375	0.4492E+00	
3	39.3	39.2	418.	1228.	10.1	1.373	0.5054E+00	I 129
4	47.1	47.0	34.	106.	40.6	1.371	0.5629E+00	
5	59.3	59.2	27.	89.	46.7	1.369	0.5628E+00	AM 241
6	74.6	74.4	51.	124.	30.7	1.367	0.6151E+00	AM 243
7	96.3	96.0	150.	179.	13.9	1.366	0.5834E+00	
8	120.6	120.2	556.	196.	5.3	1.366	0.5374E+00	SE 75
9	135.3	134.9	1638.	243.	2.8	1.367	0.5050E+00	SE 75
10	145.5	145.1	42.	115.	34.5	1.369	0.4805E+00	

F908.-7585

***** IDENTIFIED ISOTOPES *****

Nuclide Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
I 129 ?	0.139E-03 +/- 0.994E-05		1.00			
39.6	0.139E-03	7.50	11.70	7.2	0.3	
AM 243 ?	0.101E-05 +/- 0.309E-06		1.00			
74.7	0.101E-05	66.00	0.91	30.6	-0.2	
SE 75	0.525E-04 +/- 0.126E-05		1.00			
136.0	0.531E-04	59.00	35.14	2.6	1.0	
121.1	0.497E-04	17.30	10.26	5.7	1.0	

***** MDL TABLE *****

Nuclide Energy	UCI/GM	Decay Corr. Abundance(%)	Rate(CPM)	% Err	Delta-E	%MPC
AM 241			1.00			
59.5	<0.207E-05	35.90	< 0.93			
SB 125			1.00			
176.3	<0.177E-04	6.80	< 1.05			

***** UNIDENTIFIED PEAKS *****

Energy	Rate	% Err.	Energy	Rate	% Err.	Energy	Rate	% Err.
29.3	67.87	2.0	95.9	2.96	14.5	171.6	0.52	48.2
34.0	13.67	5.9	142.5	0.68	47.0			

STOP --
BG4500

F 908.-7585

AUTOMATIC ISOTOPE ANALYSIS 25-FEB-90 06:02:14

SAMPLE PARAMETERS

Spectrum Label:	F90B SEG/COMP/#1B A-1	
Sample Counting Date	23-FEB-90	18:24:40
Sample Collection Date	23-FEB-90	18:25:00
Decay Time	0. Days	0.000 Hrs.
Acq.Live Time	3000. Sec.	
Acq.Clock Time	3004. Sec.	
Deadtime	0.1 %	
Sample Mass	1.000 GM	
Eff.Corr.Factor	1.000	

PEAK SEARCH PARAMETERS

Mem.Group	1AB
Search Range	25 - 200 keV
Max. % Error	50.0 %
Filter Width	1.6 keV
Multiplet Det.Factor	0.1
Max.Delta-E	1.5 keV
keV/Ch.	0.20
Zero Offset	0.60 keV

Lineshape File Name:	JIM	-- H2 SHP FILE 5/13/86
Efficiency File Name:	WEM01	-- H2 EFF TABLE 5/13/86
Isotope File Name:	WIM01	-- H-2 DET. ISOTOPE FILE

***** PEAK SEARCH TABLE *****

No.	O.Energy (keV)	T.Energy (keV)	Net Cnts.	Band.	% Err.	FWHM (keV)	Eff.	
1	29.3*	29.3	3393.	824.	2.0	1.375	0.0000E+00	
2	34.0*	34.0	683.	824.	5.9	1.375	0.4492E+00	
3	39.4	39.3	585.	1069.	7.2	1.373	0.5067E+00	I 129
4	75.1	74.9	46.	100.	30.6	1.367	0.6157E+00	AM 243
5	96.2	95.9	148.	205.	14.5	1.366	0.5835E+00	
6	120.5	120.1	513.	214.	5.7	1.366	0.5376E+00	SE 75
7	135.4	135.0	1757.	253.	2.6	1.367	0.5048E+00	SE 75
8	142.9	142.5	34.	150.	47.0	1.368	0.4869E+00	
9	172.1	171.6	26.	91.	48.2	1.374	0.4088E+00	

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Neptunium Analysis

Water Digestion

Instrument	Tennelec
Procedure / Rev	LA-933-141/G-1
Technologist	R. H. Hale
Date	03-02-90
Temperature	23 C
Starting Time	1000
Ending Time	1400
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F1058
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Sample Comp 6	F0929
6	Duplicate Comp 6	F0930
7	Sample Comp 8	F0953
8	Duplicate Comp 8	F0954
9	Spike	F1081
10	Final LMCS Check Std	F1077
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	148B33/100uL			N/A
Spike	148B33/100uL	F0905/250 uL		N/A

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

9 1 1 2 7 5 9 0 3 7 1

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Strontium 89/90 Analysis

Water Digestion

Instrument	N/A
Procedure / Rev	LA-220-101 / B-4
Technologist	S. Lai
Date	02-06-90
Temperature	N/A
Starting Time	08:00
Ending Time	15:00
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	106B44 / 1 mL			N/A
Spike	106B44 / 1 mL	F0905 / 250 uL		N/A

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-21-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-21-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim

Rev. E 4/04/90

SST-102

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9 1 1 2 1 5 0 3 0 3 2

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Strontium		
Procedure	LO-508-002	Revision:	A-1
Instrument:	Detector #10	Property Number:	WA45242
Technologist:	R. A. Jones	Payroll Number:	
Date:	5-21-89		

Calibration Standard ID: Book number	48B16G; 48B16J; 48B16L
Analyte Concentration:	36760; 58980; 112700 cpm.
Type of Calibration:	Efficiency

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-29-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-29-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

375

9 1 1 2 5 9 0 3 1 3

CALIBRATION SHEET FOR ALPHA/BETA SYSTEMS: USING PROCEDURE LQ-508-002

DETECTOR No. 10

TIME ZERO DATE (HD): 13977

RADIONUCLIDE: SrY-90
HALF LIFE: 10590
COUNT TIME: 5
CPM BKG: 22

DATE COUNTED (HD): 16309

CALIBRATED BY: RA JONES HD 0 = 09/25/44

STANDARD ID	SIZE	DATE	TIME	COUNTS @ 0 DEG.	COUNTS @ 90 DEG.	COUNTS @ 180 DEG.	COUNTS @ 270 DEG.
48B16T	1	05/21/89		84795	84166	84768	83389
48B16U	1	05/21/89		107308	108714	109687	109090
48B16TV	1	05/21/89		208878	200713	210979	211700
48B16G	2	05/21/89		62088	62802	61690	63053
48B16J	2	05/21/89		102092	101782	101676	101546
48B16L	2	05/21/89		192834	198242	197051	195835
	5						
	5						
	5						

STANDARD ID	SIZE	STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
48B16T	1"	40910	16834	1.16	19610	0.4793
48B16U	1"	54640	21718	1.16	25299	0.4630
48B16TV	1"	104000	41592	1.16	48450	0.4659

AVERAGE, 1" = 0.4694 +/- @95% 0.0171 3.64 % ON 05/21/89

STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
48B16G	2"	36760	12460	1.16	14514	0.3948
48B16J	2"	58980	20333	1.16	23686	0.4016
48B16L	2"	112700	39176	1.16	45636	0.4049

AVERAGE, 2" = 0.4005 +/- @95% 0.0101 2.52 % ON 05/21/89

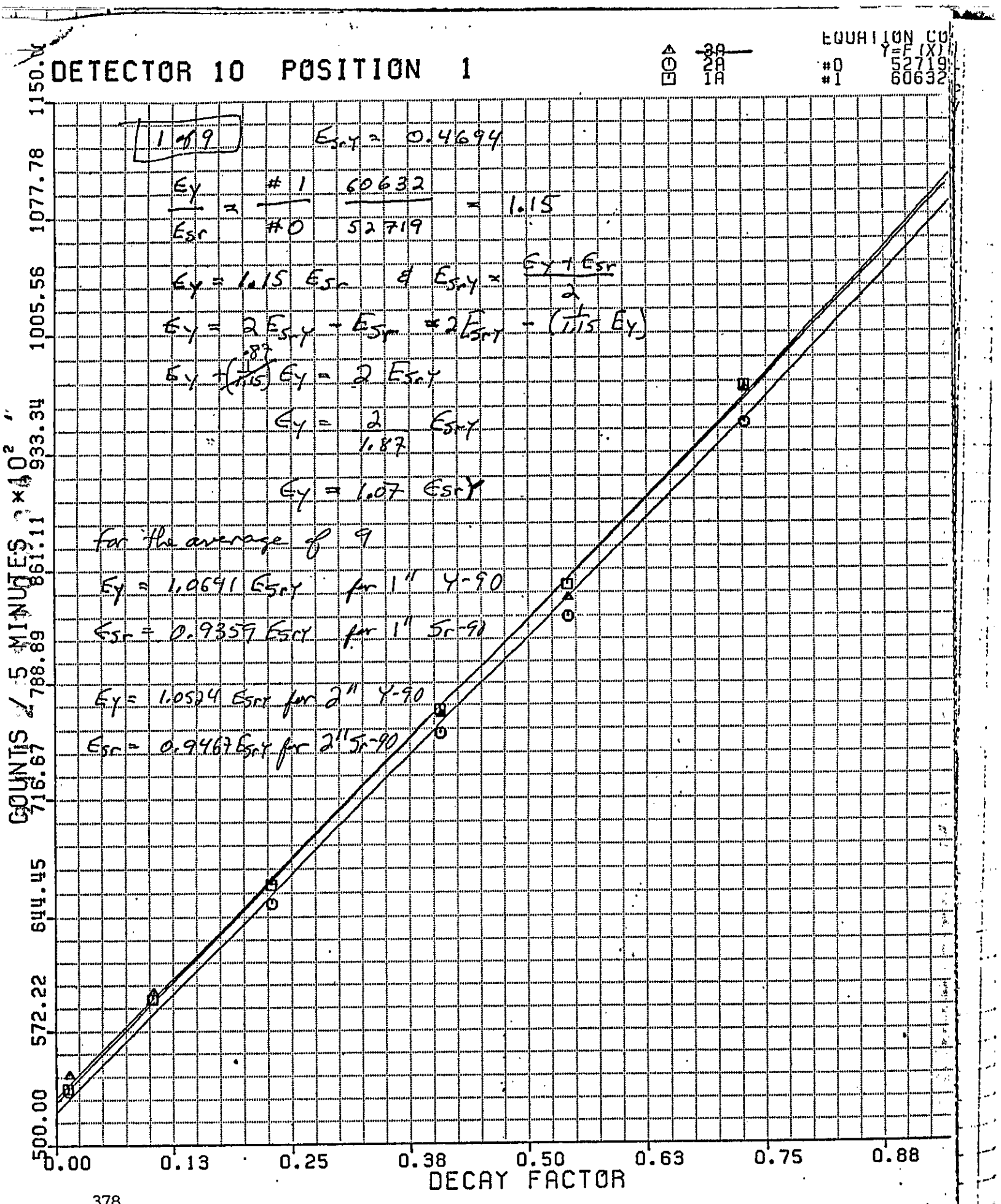
STANDARD ID		STD VALUE	AVE CPM	DECAY CORR	DECAY CORR CPM	EFFICIENCY
36B40A6	5"	0	0	1.16	0	ERR
36B40B6	5"	0	0	1.16	0	ERR
36B40C5	5"	0	0	1.16	0	ERR

AVERAGE, 5" = ERR +/- @95% ERR ERR % ON 05/21/89

NEW EFFS FOR DET 10 SrY-90 1" = 0.4694 2" = 0.4005

5" = ERR

Procedure LQ-508-005 "Calibration of Beta Detectors for Sr-90 And Y-90" is used to determine ^{90}Sr & ^{90}Y efficiencies from the above calibration using an equilibrium mixture of ^{90}SrY.


DETECTOR 10 POSITION 1
3A
2A
1A
EQUATION CO
Y=F(X)
#0 52719
#1 60632
1150.
1077.78
1005.56
933.34
861.11
788.89
716.67
644.45
572.22
500.00
COUNTS / 5 MINUTES
0.00
0.13
0.25
0.38
0.50
0.63
0.75
0.88
DECAY FACTOR
1 of 9
$E_{Sr-Y} = 0.4694$
$\frac{E_Y}{E_{Sr}} = \frac{\#1}{\#0} \frac{60632}{52719} = 1.15$
$E_Y = 1.15\ E_{Sr}$ & $E_{Sr-Y} = \frac{E_Y + E_{Sr}}{2}$
$E_Y = 2E_{Sr-Y} - E_{Sr} = 2E_{Sr-Y} - (\frac{1}{1.15} E_Y)$
$E_Y + (\frac{1}{1.15}) E_Y = 2\ E_{Sr-Y}$
$E_Y = \frac{2}{1.87} E_{Sr-Y}$
$E_Y = 1.07\ E_{Sr-Y}$
For the average of 9
$E_Y = 1.0641\ E_{Sr-Y}$ for 1" Y-90
$E_{Sr} = 0.9359\ E_{Sr-Y}$ for 1" Sr-90
$E_Y = 1.0524\ E_{Sr-Y}$ for 2" Y-90
$E_{Sr} = 0.9467\ E_{Sr-Y}$ for 2" Sr-90

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Technetium 99

Water Digestion

Instrument	N/A
Procedure / Rev	LA-438-101/C-1
Technologist	S. A. Cervantes
Date	02-08-90
Temperature	25 C
Starting Time	08:00; 2-01-90
Ending Time	15:30; 2-01-90
Chemist	S. A. Catlow

	Description	Lab. Id.
1	Intial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Spike Composite 5	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	148B39 /250			20 mL
Spike	49B39 /100 uL	F0905 /1mL	148B39/250mL	20 mL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-20-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-20-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

9 1 1 2 1 5 9 0 3 3 7

Interim

4/04/90 Rev. E

SST-102

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Single Shell Tank Calibration Record

Phase I-A

Analyte:	TC 99		
Procedure	LA-508-121	Revision:	A-0
Instrument:	Liquid Scinitillation Counter	Property Number:	WA77390
Technologist:	R. A. Jones	Payroll Number:	
Date:	9-19-88		

Calibration Standard ID: Book number	Packard 6008502 #2
Analyte Concentration:	See attached calibration sheets.
Type of Calibration:	Quench Curve.

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Quench Curve

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

9112150318

380

```
SINGLE LABEL DPM  SET UP ON 19 SEP 1988 (EDITED)                THU 03 MAY 1990 08:

UNKNOWN ID(20CHAR)TC 99 DIRECT
UNKNOWN REPLICATES(1-10) 1
UNKNOWN NORM FACTOR(P/Q 7DIGITS) ISO1:Q 1.00000
UNKNOWN UNITS(5CHAR)             ISO1:    DPM
INDIVIDUAL UNKNOWN NORM FACTORS(Y/N)N
HALF LIFE CORRECTION(Y/N)N

BACKGROUND QUENCH CURVES(Y/N)Y  COUNT BACKGROUND SAMPLES(Y/N)Y
STORE AND RE-USE THIS BACKGROUND COUNT(Y/N)N

STANDARD ID(20CHAR)131B29-A 1-10
QUENCH LIMITS(5DIGITS)LOW:73.67   HIGH:207.7
QUENCH MODE(S/H)H
```

POOR COPY RECEIVED

```
SINGLE LABEL DPM QUENCH STANDARDS                                THU 03 MAY 1990 08:

QUENCH STANDARDS STORED                                  SET UP ON  19 SEP 1988(EDITED)

STANDARD ID(20CHAR)131B29-A 1-10
COUNT QUENCH STANDARDS(Y/N)N QUENCH MODE(S/H)H

                                        ISO1
STANDARD DPM(10DIGITS)                0.00000000
HALF LIFE, DAYS(N/10DIGITS)           N
REFERENCE DATE (DAY MON YEAR)         1 JAN 1983
                    (HOUR MIN)              00 00
QUENCH LIMITS(5DIGITS)LOW:73.67       HIGH:207.7
PLOT QUENCH CURVES(Y/N)N

EDIT OR RE-COUNT QUENCH STANDARDS(N=NO/E=EDIT/R=RE-COUNT)N
```

9112570319

QUENCH STANDARDS FOR ISOTOPE 1 THU 13 MAY 1990 [illegible]

H#	EFF1	H#	EFF1
73.67	95.93	87.00	95.62
100.3	95.45	110.0	94.96
128.0	94.66	137.7	94.41
145.7	94.32	164.0	93.07
179.3	92.90	207.7	91.02

DELETE STANDARD(N/ H#)N RE-ORDER(Y/N)N
DISPLAY QUENCH CURVE(Y/N)N PLOT QUENCH CURVE(Y/N)N

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```
ID(12CHAR)TC-99, ALL                USER  5                          THU 03 MAY 1990 05:40
PRESET TIME(.01-999.99) 10.00       HI(0-10) 3   SCR(N/X:Y) N
SAMPLE REPEAT(0-10) 1               AGC(Y/N) Y   PROGRAM SUMMARY(Y/N) Y
CYCLE REPEAT(1-10) 1                OCF(Y/N) N   LSR: TIME(.1-999.95)  0.10 INT999.95
RS232 OUTPUT(Y/N) N                 RCM(Y/N) Y   RCM: TIME(.1-999.95)  0.10 INT999.95
2 PHASE(Y/N) Y POST CHK(Y/N)N       VTAL(3/P)C   VOLUME(1=18-11ML/2=11-7ML/3=7-2ML)1

COUNT CHANNELS(1,2,3) 1
CHANNEL SETTINGS      LL      UL    2SIGMA    BKG SUB   BKG 2SIG      LSR
        CHANNEL 1    150     800     0.10       0.00       0.00        0


DATA CALCULATION PROGRAM (SELECT ONE) 5
 1 CPM          2 COUNTS      3 SL % REF    4 DL % REF    5 SL DPM      6 DL DPM
 7 TL DPM       8 SL DIG INT 9 DL DIG INT 10 SL RIA
PRINT FORMAT(1=STANDARD/2=SHORT/3=SELECT) 1
```

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9112590301

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Tritium Analysis

Water Digestion

Instrument	N/A
Procedure / Rev	LA-218-115 / A-1
Technologist	M.S. Lavarias
Date	03-27-90
Temperature	N/A
Starting Time	N/A
Ending Time	N/A
Chemist	Not Reported

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	140B44 / 1 mL			20 mL
Spike	140B44 / 2 mL	F0905 / 2 mL		20 mL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-21-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-21-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

9 1 1 2 7 5 9 0 3 7 2

Interim

Rev. E 4/04/90

SST-102

Single Shell Tank Calibration Record

Phase I-A

Analyte:	H-3		
Procedure	LA-508-121	Revision:	A-0
Instrument:	Liquid Scintillation Counter	Property Number:	WA77390
Technologist:	R. A. Jones	Payroll Number:	
Date:	9-20-88		

Calibration Standard ID: Book number	Packard 6005801 #54
Analyte Concentration:	See Attached Calibration Sheets.
Type of Calibration:	See Attached Calibration Sheets.

	Dilution	Concentration	Instrument Reading Units =
1			
2			
3	See Attached Calibration Sheets.		
4			
5			
6			
7			
8			
9			
10			

Comments: Quench Curve

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carrie M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

9112520323

-20-88
RAfonen

USER: 1 ID:H-3 TRITIUM PRESET TIME: 10.00 MON 19 SEP 1988 14:37
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 3 AQC:Y QCF:N RCM:Y 2 PHASE MONITOR:Y POST CHK:N VIAL:G VOLUME:1
RCM-TIME: 0.10 INT:999.95
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 0.10 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM
UNKNOWN ID:H-3 TRITIUM UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR ISO1:0 1.00000
UNKNOWN UNITS ISO1:DPM
UNKNOWN HALF LIFE CORRECTION:N
INDIVIDUAL UNKNOWN NORM FACTORS:N BACKGROUND QUENCH CURVES:Y
STANDARD ID:PACKARD 6008501 #54
HALF LIFE(DAYS) ISO1: 4503.000 To = 6-12-86
STANDARD DPM ISO1: 260100.0

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
B1	**- 1	1	28.10	11.93	10.00	11.04	55.0	0.61		
	H#: 55, 55, 55									

BACKGROUND QUENCH CURVES: CONSTANT

CHANNEL 1
QUENCH CURVE COEFFICIENTS
A: 28.10000 B:0.00000000 C:0.00000000 D:0.00000000000

BACKGROUND QUENCH CURVE CORRELATION TABLE

BKG	H#	MEASURED CPM.	CALCULATED CPM.	PERCENT DIFF.	FLAG
1	55.0	28.10	28.10	0.00	

BACKGROUND QUENCH LIMITS LOW:0.000 HIGH:1000.
TOTAL QUENCH LIMITS LOW:0.000 HIGH:1000.

	SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
A	S1	**- 3	1	148243.70	0.16	10.00	22.72	-5.0	0.00		
		H#: -5, -5, -5									
		ISO1 %EFF CH1:64.75									
B	S2	**- 4	1	142518.20	0.17	10.00	34.25	13.3	0.00		
		H#: 13, 14, 13									
		ISO1 %EFF CH1:62.25									
C	S3	**- 5	1	127749.40	0.18	10.00	45.75	43.3	0.00		
		H#: 43, 44, 43									
		ISO1 %EFF CH1:55.80									

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
S4	**- 6	1	111143.00	0.19	10.00	57.17	76.0	0.00		
	H#: 76, 76, 76									
	ISO1 %EFF CH1:48.54									
S5	**- 7	1	95303.30	0.20	10.00	68.56	105.3	0.00		
	H#: 105, 106, 105									
	ISO1 %EFF CH1:41.62									
S6	**- 8	1	77574.80	0.23	10.00	79.88	135.3	0.00		
	H#: 135, 136, 135									
	ISO1 %EFF CH1:33.88									
S7	**- 9	1	57990.70	0.26	10.00	91.13	173.0	0.00		
	H#: 173, 172, 174									
	ISO1 %EFF CH1:25.32									

POWERFAIL RECOVERY MON 19 SEP 1988 16:16

S8	**-10	1	41786.70	0.31	10.00	109.66	207.3	0.00		
	H#: 207, 207, 208									
	ISO1 %EFF CH1:18.24									
S9	**-11	1	34400.70	0.34	10.00	120.86	221.7	0.01		
	H#: 223, 220, 222									
	ISO1 %EFF CH1:15.02									
S10	**-12	1	23670.80	0.41	10.00	132.04	252.0	0.01		
	H#: 252, 253, 251									
	ISO1 %EFF CH1:10.33									

ISOTOPE 1 QUENCH STANDARDS

STANDARD	H#	%EFF CH1
1	-5.00	64.75
2	13.33	62.25
3	43.33	55.80
4	76.00	48.54
5	105.3	41.62
6	135.3	33.88
7	173.0	25.32
8	207.3	18.24
9	221.7	15.02
10	252.0	10.33

QUENCH LIMITS LOW:0.000 HIGH:252.0

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Arsenic Analysis

Water Digestion

Instrument	Perkin-Elmer
Procedure / Rev	LA-355-131 / A-2
Technologist	S. Riel
Date	04/09/90
Temperature	70 C
Starting Time	13:30
Ending Time	14:00
Chemist	R. K. Fuller

	Description	Lab. Id.
1	Initial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Spike	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11BU/35uL			35 mL
Spike	58C11BU/35uL	F0905 / 1 mL		35 mL

Prepared by: D. K. Sato (Signature) — D. K. Sato (Printed Name) — Date: 8-20-90

Verified by: Carrie M. Seidel (Signature) — C. M. Seidel (Printed Name) — Date: 8-20-90

Approved by: L. H. Taylor (Signature) — L.H. Taylor (Printed Name) — Date: 9/17/90

Interim

Rev. E 4/04/90

SST-102

9112290326

Single Shell Tank
Calibration Record

ANALYTE:	As		
PROCEDURE:	LA-355-131	REVISION:	A-2
INSTRUMENT:	Perkin-Elmer	PROPERTY NUMBER:	WA77479
TECHNOLOGIST:	S. Riel	PAYROLL NUMBER:	6C280
DATE:	April 09, 1990		

CALIBRATION STANDARD ID: 102C32

ANALYTE CONCENTRATION:

TYPE OF CALIBRATION:

Dilution	Concentration	Instrument Reading Units=
0	0 ng	4.5
25 ul	25 ng	56.0
50 ul	50 ng	102.0
75 ul	75 ng	144.0

COMMENTS:

SST-103 Rev. B 9/27/90 Interim

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Mercury Analysis by Atomic Absorption.

Manual Cold Vapor Technique.

Water Digestion

Instrument	WA77479
Procedure / Rev	LA-325-102 /A-2
Technologist	M. Meyers
Date	06-29-90
Temperature	23 C
Starting Time	08:00
Ending Time	11:00
Chemist	Keith Fuller

	Description	Lab. Id.
1	Intial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Composite 5	F0905
4	Duplicate Composite 5	F0906
5	Spike Composite 5	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11CB/25uL			2.5 mL
Spike	58C11CB/25uL	F0905 / 1 mL		2.5 mL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 08-05-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 08-05-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

SST-102 Rev.E 4/04/90 Interim

9 1 1 2 0 5 9 0 3 0 3 8

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Hg		
Procedure	LA-325-102	Revision:	
Instrument:	Perkin - Elmer	Property Number:	WA77479
Technologist:	M. Myers	Payroll Number:	
Date:	6-29-90		

Calibration Standard ID: Book number	102C3-AD
Analyte Concentration:	1.00 ppm
Type of Calibration:	Linear Regression

	Dilution	Concentration	Instrument Reading Units = millimeter
1	0 uL	0 ng	4.0
2	10 uL	10 ng	23.0
3	20 uL	20 ng	42.0
4	40 uL	40 ng	84.5
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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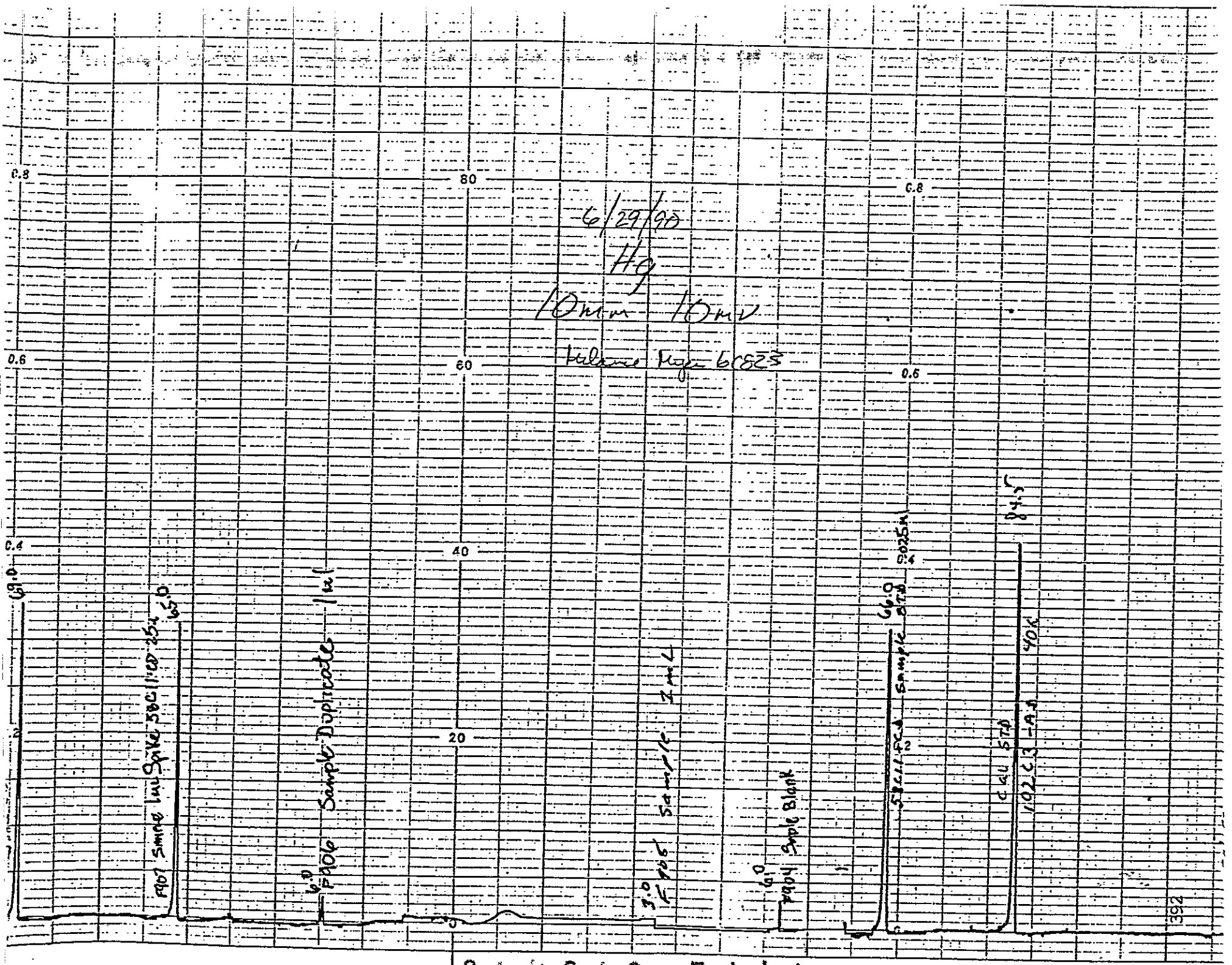
9 1 1 2 1 5 9 0 3 0 9



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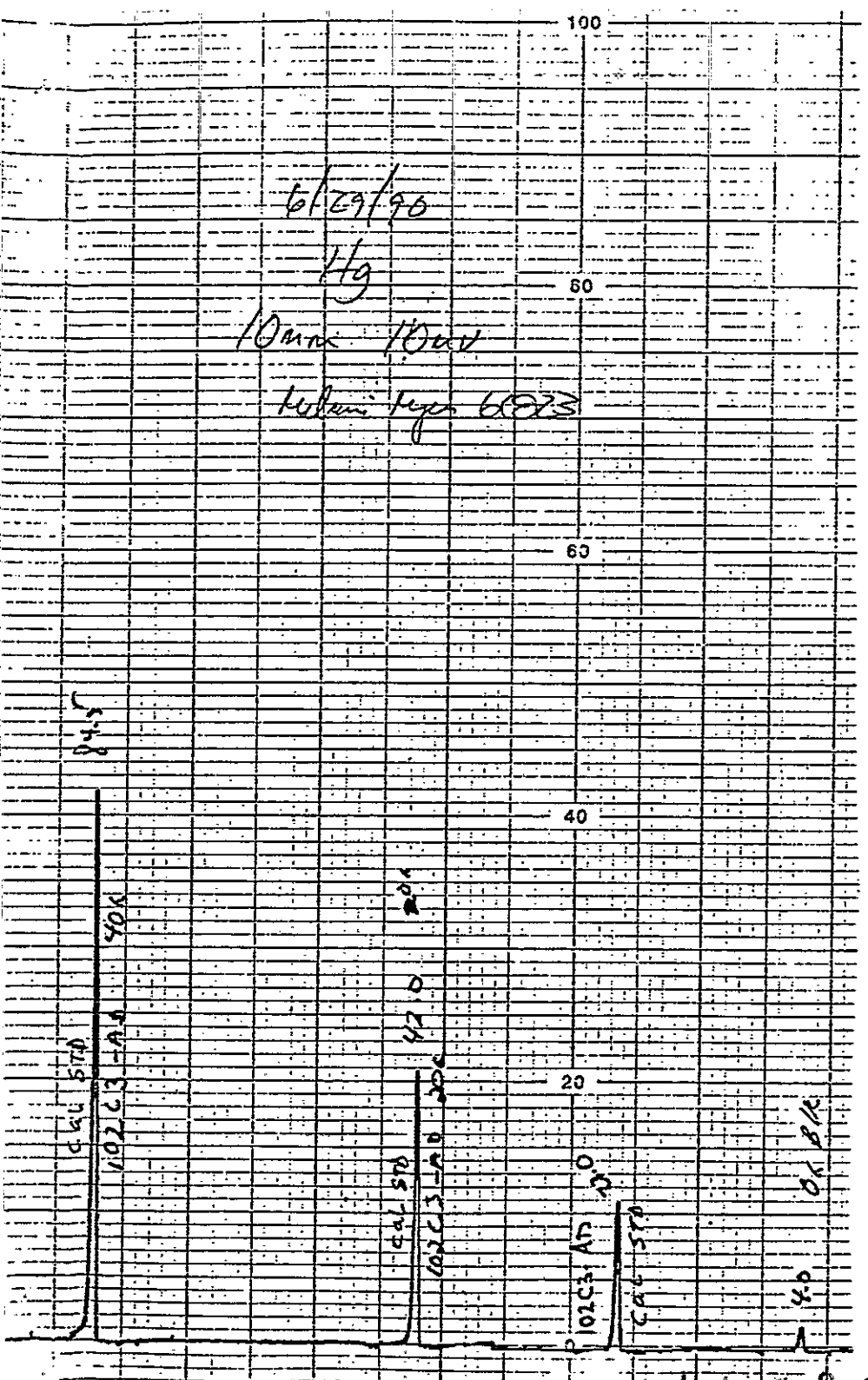
0 0 0 0 6 5 0 7 1 1 6


6/29/90
Hg
10mm 10uv
100
80
60
40
20
Cal STD
102C3-AD
40K
Cal STD
102C3-AD
42.0
102C3-AD
Cal STD
4.0
OK B/R

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Selenium Analysis

Water Digestion

Instrument	Perkin - Elmer
Procedure / Rev	LA-365-131 / A-3
Technologist	S. Riel
Date	06-22-90
Temperature	70 F
Starting Time	09:20
Ending Time	11:38
Chemist	R. K. Fuller

	Description	Lab. Id.
1	Intial LMCS Check Std	F0903
2	Reagent Blank	F0904
3	Sample Comp 5	F0905
4	Duplicate Comp 5	F0906
5	Spike	F0907
6	Final LMCS Check Std	F0908
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11CA/35 uL			10.035 mL
Spike Comp 5	58C11CA/35uL	F0905 / 100uL		10.135 mL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-21-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-21-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. E 4/04/90 SST-102

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9112590402

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Se		
Procedure	LA-365-131	Revision:	
Instrument:	Perkin-Elmer	Property Number:	WA77479
Technologist:	S. Riel	Payroll Number:	
Date:	6-22-90		

Calibration Standard ID: Book number 36C9-D

Analyte Concentration: 1.001 ppm

Type of Calibration: Linear Regression

	Dilution	Concentration	Instrument Reading Units = millimeter
1	0	0	3.0
2	25 uL	25 ng	60.0
3	50 uL	50 ng	104.0
4	75 uL	75 ng	143.0
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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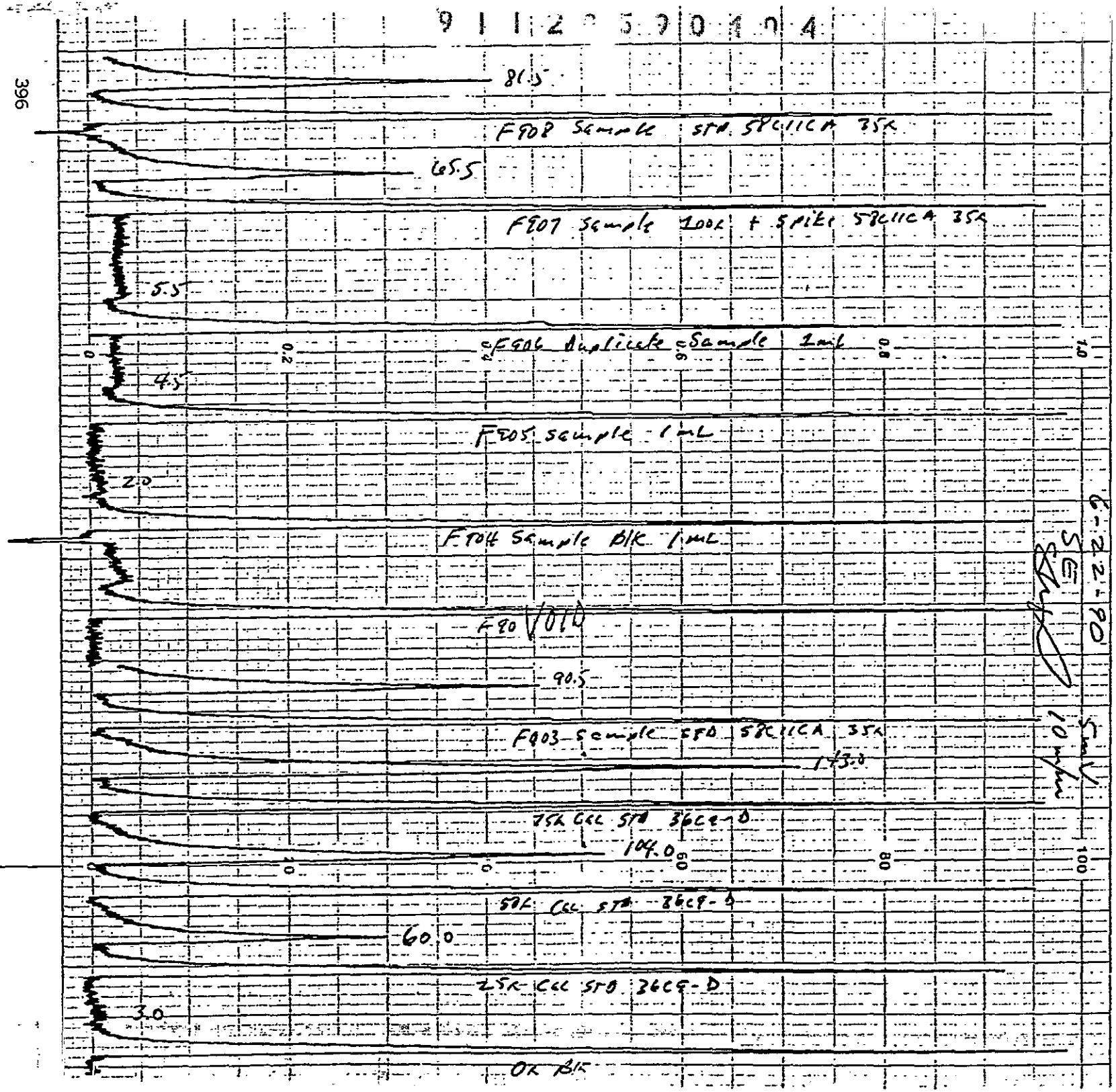
9 1 1 2 1 5 9 0 4 0 3



PERKIN-ELMER
Chart No. CP33402-0

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Core 5 Composite

Water Digestion

Second ICP batch ran this date.

Instrument	WB39939
Procedure / Rev	LA-505-151/A-0
Technologist	J. A. White
Date	7-09-90
Temperature	N/A
Starting Time	13:02
Ending Time	15:08
Chemist	S. A. Jones

	Description	Lab. Id.
1	LMCS Check Std	N/A
2	Reagent Blank	F0904
3	Core 5 Composite	F0905
4	Duplicate Comp 5	F0906
5	Spike Comp 5	F0907
6	Core 6 Composite	F0929
7	Duplicate Comp 6	F0930
8	Core 7 Composite	F0983
9	Duplicate Comp 7	F0984
10	Core 15 Composite	F1031
11	Duplicate Comp 15	F1032

	Description	Lab. Id.
12	Core 12 Composite	F1055
13	Duplicate Comp 12	F1056
14	LMCS Check Std	N/A
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	78C11T/1.0mL	87B38B/1.0mL	77C11R/1.0mL	1.0 mL
Spike of Comp 5	78C11T/1.0mL	87B38B/1.0mL	77C11R/1.0mL	13.5 mL
Spike (continued)	F0907 / .5 mL.			

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 9-06-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 9-06-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev. E SST-102

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ICP Results Raw Data Summary

Date Analyzed:	JULY 9, 1990		
Procedure:	LA-505-151/A-0	Reagent Blank	F904
Analyst:	J. A. WHITE	Core 5 Composite	F905
Digestion	Water Digestion	Duplicate Core 5 Composite	F906
Procedure:	LA-505-159/A-0	Spike of Core 5 Composite	F907

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	101.94%	NA	< 2.35	4332	6274	125.25%	NA	102.50%
Antimony	103.10%	NA	< 2.99	< 307	< 273	108.72%	NA	103.33%
Arsenic	108.56%	NA	< 0.70	< 72	< 64	110.09%	NA	109.09%
Barium	108.49%	NA	< 0.08	< 8	< 7	108.99%	NA	106.68%
Beryllium	107.33%	NA	< 0.01	< 1	< 1	108.14%	NA	106.33%
Cadmium	102.99%	NA	< 0.12	< 13	< 11	101.47%	NA	103.17%
Calcium	104.32%	NA	1.04	63	1946	103.30%	NA	102.78%
Chromium	90.82%	NA	< 0.12	807	2405	90.91%	NA	90.53%
Cobalt	104.45%	NA	< 0.77	< 79	< 71	98.54%	NA	104.74%
Copper	104.12%	NA	< 0.50	< 51	< 46	106.69%	NA	102.75%
Iron	106.43%	NA	< 0.23	29	< 21	106.52%	NA	106.33%
Lead	102.18%	NA	< 0.86	122	< 79	104.70%	NA	121.40% #
Lithium	102.50%	NA	< 0.10	< 10	< 9	101.09%	NA	101.12%
Magnesium	107.64%	NA	0.45	92	2367	124.83%	NA	107.44%
Manganese	103.54%	NA	< 0.03	< 4	< 3	101.98%	NA	102.93%
Molybdenum	98.32%	NA	< 0.15	< 16	< 14	100.07%	NA	98.41%
Nickel	102.34%	NA	< 0.46	< 47	< 42	101.50%	NA	102.75%
Phosphorous	111.86% #	NA	< 0.97	20324	17653	NOT CALC.	NA	114.28% #
Potassium	104.45%	NA	< 6.68	< 685	< 611	122.48%	NA	106.83%
Selenium	99.48%	NA	< 1.99	255	4289	110.85%	NA	100.23%
Silver	103.78%	NA	< 0.58	< 59	< 53	102.92%	NA	107.60%
Sodium	101.90%	NA	4.10	127953	111278	NOT CALC.	NA	101.79%
Strontium	104.58%	NA	< 0.03	< 3	< 3	102.99%	NA	103.14%
Thallium	99.91%	NA	1.51	< 141	< 126	127.83%	NA	99.80%
Vanadium	99.65%	NA	< 0.39	< 40	< 36	102.07%	NA	98.23%
Zinc	103.98%	NA	0.21	19	1909	103.43%	NA	103.54%

Dilution Factor

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated

Other Elements									
Bismuth	108.88%	NA	< 2.64	< 271	< 242	117.60%	NA	128.00% #
Boron	103.83%	NA	2.40	667	2498	103.11%	NA	103.08%
Cerium	96.87%	NA	< 4.28	< 439	< 391	99.99%	NA	99.00%
Europium	96.18%	NA	< 0.08	< 8	< 7	95.39%	NA	96.20%
Lanthanum	93.88%	NA	< 0.44	< 46	< 41	95.46%	NA	98.40%
Mercury	104.05%	NA	0.77	66	1903	100.76%	NA	104.93%
Neodymium	95.33%	NA	< 6.71	< 688	< 613	89.02%	NA	93.97%
Samarium	99.10%	NA	< 4.80	< 493	< 439	109.76%	NA	185.02% #
Silicon	89.64% #	NA	3.00	5077	5896	67.11%	NA	90.05%
Sulfur	101.58%	NA	< 0.51	1802	5103	94.22%	NA	102.49%
Tantalum	96.99%	NA	< 0.86	< 88	< 79	98.38%	NA	97.63%
Thorium	103.93%	NA	0.77	127	4853	103.61%	NA	113.48% #
Tin	102.44%	NA	< 0.45	< 47	< 41	106.91%	NA	102.92%
Titanium	101.96%	NA	< 0.11	< 11	< 10	103.44%	NA	101.79%
Tungsten	72.75% #	NA	< 0.86	139	1486	74.30%	NA	73.05% #
Uranium	101.61%	NA	< 35.93	< 3684	< 3284	132.92%	NA	195.60% #
Zirconium	96.87%	NA	< 0.44	< 46	< 41	99.10%	NA	96.70%

ICP Resuults Raw Data Report

	Sample Dilution One ppm	Sample Duplicate Dilution Three ppm	Sample Duplicate Dilution Two ppm	Sample Duplicate Dilution One ppm	Spike of Sample Dilution Three ppm	Spike of Sample Dilution Two ppm	Spike of Sample Dilution One ppm	Spike Recovery %	Standard LMCS Acid Digestion ppm
	0.01 g mL	Digestion Weight Volume	1.09 g 100.00 mL	0.01	Digestion Weight Volume	1.01 g 100.00 mL	0.01		
Aluminum	42.25			50.92			68.62	125.25%	
Antimony	1.14 LT			0.57 LT			21.74	108.72%	
Arsenic	0.16 LT			0.12 LT			44.04	110.09%	
Barium	0.05 LT			0.03 LT			21.80	108.99%	
Beryllium	0.01 LT			0.00 LT			8.65	108.14%	
Cadmium	0.02 LT			0.02 LT			20.29	101.47%	
Calcium	0.61			0.44			21.29	103.30%	
Chromium	7.87			10.21			26.30	90.91%	
Cobalt	-0.15 LT			0.00 LT			19.71	98.54%	
Copper	0.12 LT			0.08 LT			21.34	106.69%	
Iron	0.29			0.19 LT			21.60	106.52%	
Lead	1.19			0.26 LT			11.69	104.70%	
Lithium	0.06 LT			0.04 LT			20.22	101.09%	
Magnesium	0.90			3.22			25.89	124.83%	
Manganese	0.02 LT			0.00 LT			20.40	101.98%	
Molybdenum	0.09 LT			0.04 LT			20.01	100.07%	
Nickel	0.09 LT			0.07 LT			20.30	101.50%	
Phosphorous	198.20			59.11			193.09	NOT CALC.	
Potassium	4.36 LT			3.17 LT			24.50	122.48%	
Selenium	2.49			2.65			46.91	110.85%	
Silver	0.10 LT			0.06 LT			10.29	102.92%	
Sodium	1247.80			1012.60			1217.16	NOT CALC.	
Strontium	0.02 LT			0.01 LT			20.60	102.99%	
Thallium	-0.58 LT			-0.13 LT			51.13	127.83%	
Vanadium	0.01 LT			-0.02 LT			8.17	102.07%	
Zinc	0.18			0.20			20.88	103.43%	
Dilution Factor	21.00			21.00			27.00		
Other Elements									
Bismuth	0.72 LT			0.48 LT			11.76	117.60%	
Boron	6.50			1.98			27.33	103.11%	
Cerium	1.37 LT			0.82 LT			20.00	99.99%	
Europium	0.03 LT			0.02 LT			9.54	95.39%	
Lanthanum	0.18 LT			0.00 LT			9.55	95.46%	
Mercury	0.65			0.54			20.82	100.76%	
Neodymium	0.69 LT			-0.60 LT			17.80	89.02%	
Samarium	1.89 LT			1.08 LT			10.98	109.76%	
Silicon	49.51			8.87			64.49	67.11%	
Sulfur	17.57			9.31			55.81	94.22%	
Tantalum	0.26 LT			0.04 LT			19.68	98.38%	
Thorium	1.24			0.64			53.08	103.61%	
Tin	0.20 LT			0.16 LT			10.69	106.91%	
Titanium	0.09 LT			0.02 LT			20.69	103.44%	
Tungsten	1.35			2.06			16.26	74.30%	
Uranium	11.11 LT			5.48 LT			66.46	132.92%	
Zirconium	0.25 LT			0.11 LT			19.82	99.10%	

ICP Resuults Raw Data Report

Date Analyzed:	JULY 9, 1990	Reagent Blank	F904
Procedure:	LA-505-151/A-0	Core 5 Composite	F905
Analyst:	J. A. WHITE	Duplicate of Core 5 Composite	F906
Digestion	Water Digestion	Spike of Core 5 Composite	F907
Procedure:	LA-505-159/A-0		

									Digestion Weight	0.49
									Volume	50.00
			Starting LMCS Standard			LMCS Acid	Acid Digestion Standard	Reagent Blank	Sample	Sample
			Instrument Standard ppm	Recovery %		Digestion Standard ppm	Recovery %	ppm	Dilution Three ppm	Dilution Two ppm
	SST-1	SST-2	SST-3							
Aluminum			10.19	101.94%			NA	0.62 LT		
Antimony	10.31			103.10%			NA	-0.25 LT		
Arsenic			21.71	108.56%			NA	0.26 LT		
Barium	10.85			108.49%			NA	0.04 LT		
Beryllium			4.29	107.33%			NA	0.01 LT		
Cadmium	10.30			102.99%			NA	0.02 LT		
Calcium	10.43			104.32%			NA	1.04		
Chromium	9.08			90.82%			NA	0.03 LT		
Cobalt	10.45			104.45%			NA	-0.31 LT		
Copper	10.41			104.12%			NA	0.08 LT		
Iron	10.64			106.43%			NA	0.22 LT		
Lead		5.11		102.18%			NA	0.40 LT		
Lithium	10.25			102.50%			NA	0.06 LT		
Magnesium	10.76			107.64%			NA	0.45		
Manganese	10.35			103.54%			NA	0.01 LT		
Molybdenum			9.83	98.32%			NA	0.03 LT		
Nickel	10.23			102.34%			NA	-0.01 LT		
Phosphorous			11.19	111.86%	#		NA	-0.27 LT		
Potassium	10.45			104.45%			NA	2.24 LT		
Selenium			19.90	99.48%			NA	0.30 LT		
Silver		5.19		103.78%			NA	0.08 LT		
Sodium	10.19			101.90%			NA	4.10		
Strontium	10.46			104.58%			NA	0.02 LT		
Thallium			19.98	99.91%			NA	1.51		
Vanadium			3.99	99.65%			NA	0.01 LT		
Zinc	10.40			103.98%			NA	0.21		
Dilution Factor	1.00	1.00	1.00					21.00		
Other Elements										
Bismuth		5.44		108.88%			NA	0.27 LT		
Boron	10.38			103.83%			NA	2.40		
Cerium	9.69			96.87%			NA	1.06 LT		
Europium		4.81		96.18%			NA	0.02 LT		
Lanthanum		4.69		93.88%			NA	0.06 LT		
Mercury			10.41	104.05%			NA	0.77		
Neodymium	9.53			95.33%			NA	-0.21 LT		
Samarium		4.96		99.10%			NA	1.56 LT		
Silicon			8.96	89.64%	#		NA	3.00		
Sulfur			20.32	101.58%			NA	0.05 LT		
Tantalum			9.70	96.99%			NA	0.09 LT		
Thorium		25.98		103.93%			NA	0.77		
Tin	5.12			102.44%			NA	0.06 LT		
Titanium			10.20	101.96%			NA	0.03 LT		
Tungsten			7.28	72.75%	#		NA	0.03 LT		
Uranium		25.40		101.61%			NA	6.47 LT		
Zirconium			9.69	96.87%			NA	0.16 LT		

ICP Resuults Raw Data Report

	Acid Digestion Standard Recovery %	SST-1	SST-2	Ending LMCS Standard ppm SST-3	Standard Recovery %		Spike Standard LMCS ppm added	Spike tandard ID Book # 78C11T 87B38B 77C11R	SST-1	SST-2	LMCS Standards Values ppm SST-3
Aluminum	NA			10.25	102.50%		10.00				10.00
Antimony	NA	10.33			103.33%		10.00		10.00		
Arsenic	NA			21.82	109.09%		20.00				20.00
Barium	NA	10.67			106.68%		10.00		10.00		
Beryllium	NA			4.25	106.33%		4.00				4.00
Cadmium	NA	10.32			103.17%		10.00		10.00		
Calcium	NA	10.28			102.78%		10.00		10.00		
Chromium	NA	9.05			90.53%		10.00		10.00		
Cobalt	NA	10.47			104.74%		10.00		10.00		
Copper	NA	10.28			102.75%		10.00		10.00		
Iron	NA	10.63			106.33%		10.00		10.00		
Lead	NA		6.07		121.40%	#	5.00			5.00	
Lithium	NA	10.11			101.12%		10.00		10.00		
Magnesium	NA	10.74			107.44%		10.00		10.00		
Manganese	NA	10.29			102.93%		10.00		10.00		
Molybdenum	NA			9.84	98.41%		10.00				10.00
Nickel	NA	10.28			102.75%		10.00		10.00		
Phosphorous	NA			11.43	114.28%	#	10.00				10.00
Potassium	NA	10.68			106.83%		10.00		10.00		
Selenium	NA			20.05	100.23%		20.00				20.00
Silver	NA		5.38		107.60%		5.00			5.00	
Sodium	NA	10.18			101.79%		10.00		10.00		
Strontium	NA	10.31			103.14%		10.00		10.00		
Thallium	NA			19.96	99.80%		20.00				20.00
Vanadium	NA			3.93	98.23%		4.00				4.00
Zinc	NA	10.35			103.54%		10.00		10.00		
Dilution Factor		1.00	1.00	1.00							
Other Elements											
Bismuth	NA		6.40		128.00%	#	5.00			5.00	
Boron	NA	10.31			103.08%		10.00		10.00		
Cerium	NA	9.90			99.00%		10.00		10.00		
Europium	NA		4.81		96.20%		5.00			5.00	
Lanthanum	NA		4.92		98.40%		5.00			5.00	
Mercury	NA			10.49	104.93%		10.00				10.00
Neodymium	NA	9.40			93.97%		10.00		10.00		
Samarium	NA		9.25		185.02%	#	5.00			5.00	
Silicon	NA			9.01	90.05%		10.00				10.00
Sulfur	NA			20.50	102.49%		20.00				20.00
Tantalum	NA			9.76	97.63%		10.00				10.00
Thorium	NA		28.37		113.48%	#	25.00			25.00	
Tin	NA	5.15			102.92%		5.00		5.00		
Titanium	NA			10.18	101.79%		10.00				10.00
Tungsten	NA			7.31	73.05%	#	10.00				10.00
Uranium	NA		48.90		195.60%	#	25.00			25.00	
Zirconium	NA			9.67	96.70%		10.00				10.00

	LMCS tandard IDs Book # 78C11T 87B38B 77C11R	ACID DIGESTION LMCS TANDARD VALUES ppm in Sample	ACID DIGEST. LMCS IDs Book # na
Aluminum		100.00	
Antimony			
Arsenic			
Barium		100.00	
Beryllium			
Cadmium		100.00	
Calcium		100.00	
Chromium		100.90	
Cobalt		100.00	
Copper		100.00	
Iron		100.00	
Lead		100.00	
Lithium		100.00	
Magnesium		100.00	
Manganese		100.00	
Molybdenum		99.80	
Nickel		100.00	
Phosphorous		100.00	
Potassium		100.00	
Selenium			
Silver			
Sodium		100.00	
Strontium		100.00	
Thallium			
Vanadium			
Zinc		100.00	
Dilution Factor		10.00	
Other Elements			
Bismuth		100.00	
Boron		100.00	
Cerium		100.00	
Europium			
Lanthanum		100.00	
Mercury			
Neodymium		100.00	
Samarium			
Silicon		100.00	
Sulfur			
Tantalum		99.50	
Thorium			
Tin		100.00	
Titanium		100.10	
Tungsten			
Uranium			
Zirconium		99.80	

ICP Calibration Report

Procedure: LA-505-151 Revision: A-0
Instrument: WB39939
Technologist: J.A. White
Date: July 9, 1990 Time: 13:02
(Second ICP batch ran this date.)

Calibration Standards for ICP Program "SST"

Element	Standard	Element	Standard
Aluminum	SST-3	Antimony	SST-4
Arsenic	SST-4	Barium	SST-2
Beryllium	SST-2	Bismuth	SST-4
Boron	SST-3	Cadmium	SST-2
Calcium	SST-2	Cerium	SST-5
Chromium	SST-2	Cobalt	SST-2
Copper	SST-2	Europium	SST-5
Iron	SST-2	Lanthanum	SST-5
Lead	SST-4	Lithium	SST-1
Magnesium	SST-2	Manganese	SST-2
Mercury	SST-3	Molybdenum	SST-3
Neodymium	SST-5	Nickel	SST-2
Phosphorous	SST-3	Potassium	SST-1
Samarium	SST-5	Selenium	SST-4
Silicon	SST-3	Silver	SST-2
Sodium	SST-1	Strontium	SST-2
Sulfur	SST-3	Tantalum	SST-3
Thallium	SST-4	Thorium	SST-4
Tin	SST-4	Titanium	SST-3
Tungsten	SST-3	Uranium	SST-4
Vanadium	SST-2	Zinc	SST-2
Zirconium	SST-3		

ICP Standard Formulations

SST-0:
Calibration blank, 1 M ultrex HNO_3.

SST-1:
Stock solutions from AESAR/John Mathey Inc., Seabrook, NH 03874. Individual element solutions as follows:

Li	$LiCO_3$ 10,000 ppm in 5% HNO_3 Lot# 14394A
K	KNO_3 10,000 ppm in 5% HNO_3 Lot# 14379A
Na	$NaCO_3$ 10,000 ppm in 5% HNO_3 Lot# 14400A

200 mL of standard made by combining 25 mL HCl/HNO_3 mixed acid, 1 mL each single element standards, and water.

SST-2:
Stock solutions from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standards as follows:

SM-10	Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr, & Ba 100 ppm Lot# 0-119A
SM-20	V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ag, & Cd 100 ppm Lot# 0-119B

50 mL of each mixed standard are added to a 250 mL volumetric flask and diluted to volume with 1 M HNO3.

SST-3:
Stock solutions from AESAR/John Mathey Inc., Seabrook, NH 03874. Individual element solutions as follows:

Al	Al 10,000 ppm in 10% HCl Lot# 9-053A
B	H_3BO_3 10,000 ppm in 1% NH_4OH Lot# 9-335A
Hg	Hg 10,000 ppm in 5% HNO_3 Lot# 8-656S
Mo	Mo 10,000 ppm in 5% HCl Lot# 9-159T
P	P 10,000 ppm in 5% HNO3 Lot# 9-160A
Si	Si 1000 ppm in KOH Lot# 086DM Spex Industries, Edison, NJ
S	$(NH_4)_2SO_4$ in H_2O Lot# 9-231M
Ta	TaCl5 10,000 ppm in 5% HCl/tr HF Lot# 9-335M
Ti	Ti 10,000 ppm in 5% HF Lot# 9-079EE
W	W 10,000 ppm in 5% HF/tr HNO_3 Lot# 8-685L
Zr	$ZrCl_2O$ 10,100 ppm in 5% HCl Lot# 9-078G

50 mL of each mixed standard are added to a 250 mL volumetric flask and diluted to volume with 1 M HNO33.

SST-4:
Stock solution from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standard as follows:

SM-50 Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Se, Te, Th, & U 100 ppm Lot# 0-119D

Solution is used directly for calibration.

SST-5:
Stock solution from VHG labs, Inc., 180 Zachary Rd. #5, Manchester, NH 03103. Mixed element standard as follows:

SM-60 Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, & Lu 100 ppm Lot# 7-165F

50 mL of SM-60 is added to a 250 mL volumetric flask and diluted to volume with 1 M HNO_3.

ICP Calibration - July 9, 1990 - Second Run

Sample name : SST0
Programme : SST 09-Jul-90 13:02:18

NAME	MV INT	RSD	BCOR
AL	2.09	0.29	0.00000
SB	0.37	0.71	0.00000
AS	1.26	0.65	0.00000
BA	5.38	0.44	0.00000
BE	0.70	0.30	0.00000
BI	4.51	0.57	0.00000
B	5.47	0.61	0.00000
CD	2.87	0.82	0.00000
CA	0.57	0.57	0.00000
CE	6.89	0.41	0.00000
CR	2.20	1.24	0.00000
CO	0.21	0.28	0.00000
CU	3.61	0.42	0.00000
EU	5.24	0.47	0.00000
FE	1.79	1.30	0.00000
LA	0.45	0.47	0.00000
PB	0.28	0.21	0.00000
LI	5.08	0.37	0.00000
MG	0.50	0.40	0.00000
MN	0.89	0.68	0.00000
HG	2.89	0.09	0.00000
MO	1.94	0.55	0.00000
ND	11.08	0.15	0.00000
NI	3.97	1.05	0.00000
P	1.49	1.87	0.00000
K	4.20	0.47	0.00000
SM	6.52	0.38	0.00000
SE	2.06	0.46	0.00000
SI	4.05	0.51	0.00000
AG	5.43	0.53	0.00000
NA	8.06	0.34	0.00000
SR	4.61	0.36	0.00000
S	0.86	0.68	0.00000
TA	4.58	0.52	0.00000
TL	4.59	0.40	0.00000
TH	1.44	0.22	0.00000
SN	1.73	0.49	0.00000
TI	4.39	0.53	0.00000
W	3.39	0.89	0.00000
U	6.88	0.45	0.00000
V1	4.42	0.54	0.00000
ZN	2.94	1.03	0.00000
ZR	5.62	0.32	0.00000

Sample name : SST1
Programme : SST 09-Jul-90 13:06:11

NAME	MV INT	RSD	BCOR
LI	478.79	1.23	0.00000
K	15.13	0.65	0.00000
NA	82.35	1.13	0.00000

ICP Calibration - July 9, 1990 - Second Run

Sample name : SST2
Programme : SST 09-Jul-90 13:08:29

NAME	MV INT	RSD	BCOR
BA	329.62	0.60	0.00000
BE	502.26	0.51	0.00000
CD	402.15	0.52	0.00000
CA	461.12	0.55	0.00000
CR	109.38	0.21	0.00000
CO	1.12	2.01	0.00000
CU	106.37	0.49	0.00000
FE	117.78	0.39	0.00000
MG	531.13	0.62	0.00000
MN	303.40	0.47	0.00000
NI	184.24	0.47	0.00000
AG	146.54	0.37	0.00000
SR	619.02	0.64	0.00000
V1	141.42	0.45	0.00000
ZN	768.00	0.47	0.00000

Sample name : SST3
Programme : SST 09-Jul-90 13:11:46

NAME	MV INT	RSD	BCOR
AL	21.94	0.74	0.00000
B	702.34	1.08	0.00000
HG	585.91	0.66	0.00000
MO	359.48	0.92	0.00000
P	49.78	2.77	0.00000
SI	99.03	0.11	0.00000
S	44.00	0.94	0.00000
TA	171.88	0.79	0.00000
TI	512.89	1.00	0.00000
W	177.07	0.95	0.00000
ZR	193.71	0.92	0.00000

Sample name : SST4
Programme : SST 09-Jul-90 13:14:40

NAME	MV INT	RSD	BCOR
SB	2.52	0.77	0.00000
AS	37.93	0.57	0.00000
BI	37.65	0.42	0.00000
PB	1.61	0.35	0.00000
SE	17.65	0.61	0.00000
TL	13.72	0.32	0.00000
TH	5.55	0.40	0.00000
SN	98.61	0.61	0.00000
U	9.18	0.24	0.00000

Sample name : SST5
Programme : SST 09-Jul-90 13:17:03

NAME	MV INT	RSD	BCOR
CE	20.71	0.21	0.00000
EU	447.33	0.52	0.00000

ICP Calibration - July 9, 1990 - Second Run

Sample name : SST5
Programme : SST 09-Jul-90 13:17:03

NAME	MV INT	RSD	BCOR
CE	20.71	0.21	0.00000
EU	447.33	0.52	0.00000
LA	7.46	0.41	0.00000
ND	49.10	0.30	0.00000
SM	16.24	0.14	0.00000

Programme name : SST Channel name : AL Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.9899	23.042	-0.527633E+01	0.251893E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.0947	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	21.944	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SB1 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.3553	2.6418	-0.436508E+01	0.116713E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.3740	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	2.5160	25.000	25.000	25.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : AS Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.2008	39.826	-0.861842E+00	0.681837E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.2640	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	37.930	25.000	25.000	25.000	0.0000	0.0000	CRV1

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : BA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.1075	346.10	-0.331624E+00	0.616822E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.3763	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	329.62	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : BE1 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.6609	527.37	-0.277398E-01	0.398751E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.6957	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	502.26	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : BI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.2848	39.529	-0.340283E+01	0.754451E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.5103	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	37.647	25.000	25.000	25.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : B Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.2000	737.46	-0.392735E+00	0.717499E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : B Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.2000	737.46	-0.392735E+00	0.717499E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.4737	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	702.34	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : CD Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.7256	422.26	-0.143707E+00	0.500895E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.8690	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	402.15	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : CA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.5383	484.18	-0.246081E-01	0.434260E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.5667	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	461.12	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : CE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	6.5445	21.741	-0.997225E+01	0.144756E+01		

Name	Number	Int.	Conc	True	Calc	Conc	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : CE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	6.5445	21.741	-0.997225E+01	0.144756E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	6.8890	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	20.705	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : CR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.0922	114.85	-0.410982E+00	0.186612E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.2023	0.0000	0.0000	-0.000	-0.000		CRV1
SST2	0	109.38	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : CO Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.1973	1.1770	-0.454745E+01	0.218978E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.2077	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	1.1210	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : CU Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.4248	111.69	-0.701619E+00	0.194624E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : CU Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.4248	111.69	-0.701619E+00	0.194624E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.6050	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	106.37	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : EU Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.9818	469.70	-0.237238E+00	0.452398E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.2440	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	447.33	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : FE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.6999	123.67	-0.308518E+00	0.172421E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.7893	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	117.78	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : LA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.4231	7.8323	-0.126984E+01	0.285144E+01		

Name	Number	Int.	Conc	True	Calc	Conc	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : LA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.4231	7.8323	-0.126984E+01	0.285144E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.4453	0.0000	0.0000	0.0000	0.0000		CRV1
SST5	0	7.4593	20.000	20.000	20.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : PB Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.2663	1.6884	-0.527868E+01	0.188300E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.2803	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	1.6080	25.000	25.000	25.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : LI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.8292	502.73	-0.536550E+00	0.105551E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.0833	0.0000	0.0000	-0.000	-0.000		CRV1
SST1	0	478.79	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : MG Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.4750	557.69	-0.188454E-01	0.376908E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : MG Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.4750	557.69	-0.188454E-01	0.376908E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.5000	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	531.13	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : MN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.8468	318.57	-0.589288E-01	0.661131E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.8913	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	303.40	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : HG Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.7420	615.20	-0.247532E+00	0.857600E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.8863	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	585.91	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : MO Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.8446	377.45	-0.271535E+00	0.139847E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : MO Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.8446	377.45	-0.271535E+00	0.139847E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.9417	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	359.48	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : ND Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	10.525	51.550	-0.582872E+01	0.526090E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	11.079	0.0000	0.0000	-0.000	-0.000		CRV1
SST5	0	49.096	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : NI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.7715	193.45	-0.440450E+00	0.110944E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.9700	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	184.24	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : P Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.4193	52.271	-0.154698E+01	0.103546E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : P Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.4193	52.271	-0.154698E+01	0.103546E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.4940	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	49.782	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : K Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.9913	15.888	-0.192187E+02	0.457443E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.2013	0.0000	0.0000	0.0000	0.0000		CRV1
SST1	0	15.132	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SM Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	6.1899	17.052	-0.134008E+02	0.205670E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	6.5157	0.0000	0.0000	-0.000	-0.000		CRV1
SST5	0	16.240	20.000	20.000	20.000	0.0000	0.0001	CRV1

Programme name : SST Channel name : SE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.9538	18.537	-0.329636E+01	0.160277E+01		

Name	Number	Int.	Conc	True	Calc	Conc	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : SE Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.9538	18.537	-0.329636E+01	0.160277E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.0567	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	17.655	25.000	25.000	25.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.8440	103.98	-0.212999E+01	0.526401E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.0463	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	99.031	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : AG Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.1541	153.86	-0.768949E+00	0.141733E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	5.4253	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	146.54	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : NA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	7.6614	86.465	-0.542834E+01	0.673101E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : NA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	7.6614	86.465	-0.542834E+01	0.673101E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	8.0647	0.0000	0.0000	0.0000	0.0000		CRV1
SST1	0	82.348	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.3779	649.98	-0.150007E+00	0.325512E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.6083	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	619.02	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : S Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	0.8148	46.202	-0.993943E+00	0.115889E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	0.8577	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	44.002	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : TA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.3532	180.48	-0.136950E+01	0.298865E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : TA Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.3532	180.48	-0.136950E+01	0.298865E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.5823	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	171.88	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : TL2 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.3570	14.408	-0.125511E+02	0.273663E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.5863	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	13.722	25.000	25.000	25.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : TH Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.3715	5.8240	-0.879641E+01	0.609310E+01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.4437	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	5.5467	25.000	25.000	25.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : SN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.6438	103.54	-0.446507E+00	0.258047E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : SN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	1.6438	103.54	-0.446507E+00	0.258047E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	1.7303	0.0000	0.0000	0.0000	0.0000		CRV1
SST4	0	98.612	25.000	25.000	25.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : TI Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.1661	538.53	-0.431203E+00	0.983285E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.3853	0.0000	0.0000	-0.000	-0.000		CRV1
SST3	0	512.89	50.000	50.000	50.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : W Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	3.2186	185.93	-0.975334E+00	0.287879E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	3.3880	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	177.07	50.000	50.000	50.000	-0.000	-0.000	CRV1

Programme name : SST Channel name : U Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	6.5385	9.6404	-0.748554E+02	0.108759E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : U Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	6.5385	9.6404	-0.748554E+02	0.108759E+02		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	6.8827	0.0000	0.0000	-0.000	-0.000		CRV1
SST4	0	9.1813	25.000	25.000	25.000	0.0001	0.0003	CRV1

Programme name : SST Channel name : V1 Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	4.2025	148.49	-0.645810E+00	0.145990E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	4.4237	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	141.42	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : ZN Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	2.7883	806.40	-0.767256E-01	0.261416E-01		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
SST0	0	2.9350	0.0000	0.0000	0.0000	0.0000		CRV1
SST2	0	768.00	20.000	20.000	20.000	0.0000	0.0000	CRV1

Programme name : SST Channel name : ZR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.3380	203.40	-0.149368E+01	0.265826E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve

ICP Calibration - July 9, 1990 - Second Run

Programme name : SST Channel name : ZR Polynomial type : CC

Curve	Min Int	Max Int	Curve Coefficients C0	C1	C2	C3
CRV1	5.3380	203.40	-0.149368E+01	0.265826E+00		

Name	Number	Int. (X)	Conc (Y)	True (Y)	Calc Conc	Conc Error	% Error	Curve
BSTO	0	5.6190	0.0000	0.0000	0.0000	0.0000		CRV1
SST3	0	193.71	50.000	50.000	50.000	-0.000	-0.000	CRV1

Sample name : HNO3
Programme : SST 09-Jul-90 13:28:40

NAME	MV INT	CONCEN	RSD
Al	2.11	0.037	51.63
Sb	0.37	0.008	312.24
As	1.28	0.010	45.40
Ba	5.42	0.003	52.70
Be	0.70	0.000	109.96
Bi	4.57	0.043	47.97
B	5.54	0.005	74.98
Cd	2.89	0.001	74.52
Ca	0.57	0.000	12.37
Ce	6.96	0.105	43.90
Cr	2.22	0.004	107.79
Co	0.20	-0.058	0.00
Cu	3.64	0.007	58.03
Eu	5.28	0.002	67.49
Fe	1.80	0.002	127.58
La	0.45	0.006	104.08
Pb	0.28	-0.056	-50.92
Li	5.14	0.006	42.02
Mg	0.50	0.000	45.83
Mn	0.89	0.000	135.28
Hg	4.41	0.130	0.67
Mo	1.96	0.002	81.34
Nd	11.15	0.040	98.36
Ni	4.01	0.005	43.58
P	1.49	-0.007	-75.60
K	4.25	0.213	39.34
Sm	6.58	0.130	40.35
Se	2.06	0.008	94.51
Si	4.08	0.019	59.67
Ag	5.48	0.008	50.34
Na	8.13	0.046	60.35
Sr	4.64	0.001	58.86
S	0.86	0.000	900.12
Ta	4.62	0.012	52.10
Tl	4.62	0.100	60.74
Th	1.45	0.067	42.96
Sn	1.77	0.009	51.59
Ti	4.42	0.004	58.15
W	3.43	0.011	91.81
U	6.94	0.660	51.24
V	4.45	0.004	81.48
Zn	2.94	0.000	357.89
Zr	5.67	0.012	48.95

ICP Analysis - July 9, 1990 LMCS Check Standard

Sample name : 78C11T
Sample code 1 : SST1
Sample code 2 : DIRECT
Programme : SST 09-Jul-90 13:33:33

NAME	MV INT	CONCEN	RSD
Al	2.16	0.165	16.43
Sb	1.26	10.310	1.13
As	1.36	0.064	7.72
Ba	181.26	10.849	1.36
Be	0.73	0.001	22.19
Bi	4.74	0.175	7.99
B	150.18	10.383	1.15
Cd	208.49	10.299	1.32
Ca	240.78	10.432	1.34
Ce	13.58	9.687	1.50
Cr	50.87	9.082	1.31
Co	0.68	10.445	1.75
Cu	57.10	10.412	1.22
Eu	5.78	0.024	3.22
Fe	63.52	10.643	1.45
La	0.48	0.105	4.72
Pb	0.29	0.107	30.57
Li	102.19	10.250	1.17
Mg	286.08	10.764	1.35
Mn	157.51	10.354	1.43
Hg	4.38	0.128	6.75
Mo	3.08	0.019	13.86
Nd	29.20	9.533	2.01
Ni	96.22	10.234	1.14
P	1.61	0.121	1.48
K	5.48	10.445	1.54
Sm	6.57	0.110	40.61
Se	3.76	2.725	2.50
Si	4.19	0.074	10.51
Ag	5.54	0.016	20.02
Na	23.20	10.190	1.29
Sr	325.89	10.458	1.33
S	1.07	0.346	4.01
Ta	4.72	0.040	13.44
Tl	4.81	0.605	5.53
Th	1.30	0.372	13.94
Sn	21.58	5.122	1.77
Ti	4.43	0.005	22.39
W	4.39	0.287	2.96
U	7.33	4.909	6.00
V	4.47	0.007	12.06
Zn	400.68	10.398	1.34
Zr	5.73	0.029	18.05

ICP Analysis - July 9, 1990 LMCS Check Standard

Sample name : 87B38B
Sample code 1 : SSI2
Sample code 2 : 1-10
Programme : SSI 09-Jul-90 13:38:06

NAME	MV INT	CONCEN	DILCOR	RSD
Al	2.19	0.228	2.503	6.91
Sb	0.37	0.008	0.086	229.13
As	1.30	0.024	0.265	37.37
Ba	5.41	0.002	0.021	11.38
Be	0.70	0.000	0.001	155.89
Bi	5.17	0.495	5.444	1.48
B	5.86	0.028	0.306	49.59
Cd	2.92	0.003	0.030	14.61
Ca	0.94	0.016	0.178	1.53
Ce	6.90	0.011	0.122	169.73
Cr	2.26	0.012	0.127	12.67
Co	0.20	-0.058	-0.642	0.00
Cu	3.67	0.013	0.146	7.22
Eu	14.91	0.437	4.809	0.40
Fe	1.88	0.015	0.164	38.82
La	0.60	0.427	4.694	0.00
Pb	0.31	0.464	5.109	7.02
Li	5.10	0.002	0.020	54.66
Mg	5.56	0.191	2.100	0.20
Mn	0.91	0.001	0.014	10.77
Hg	4.18	0.111	1.220	2.26
Mo	1.95	0.002	0.019	84.41
Nd	11.02	-0.029	-0.322	-90.42
Ni	3.99	0.003	0.028	76.18
P	1.50	0.011	0.118	175.89
K	4.21	0.027	0.302	143.69
Sm	6.73	0.450	4.955	6.17
Se	2.06	-0.001	-0.012	-1522.2
Si	4.16	0.059	0.647	4.10
Ag	8.75	0.472	5.189	0.29
Na	8.09	0.014	0.151	88.66
Sr	4.65	0.001	0.016	6.41
S	0.87	0.015	0.161	98.08
Ta	4.61	0.008	0.088	42.26
Tl	4.66	0.195	2.147	36.16
Th	1.83	2.362	25.983	0.98
Sn	1.78	0.012	0.132	6.43
Ti	4.42	0.003	0.032	33.72
W	3.41	0.005	0.059	152.68
U	7.09	2.309	25.402	7.25
V	4.48	0.008	0.084	38.67
Zn	3.22	0.007	0.082	7.59
Zr	5.65	0.008	0.090	14.70

Dilution factor : 11.0000

LOW ON STD 87B38-B 1-10 Dil

ICP Analysis - July 9, 1990 LMCS Check Standard

Sample name : 77C11I
Sample code 1 : SSST3
Sample code 2 : DIRECT
Programme : SST 09-Jul-90 13:43:07

NAME	NV INT	CONCEN	RSD
Al	6.14	10.194	0.12
Sb	0.40	0.358	9.96
As	33.11	21.712	0.35
Ba	5.58	0.012	8.12
Be	108.37	4.293	0.24
Bi	4.82	0.236	2.25
B	6.69	0.087	0.77
Cd	3.00	0.007	3.79
Ca	0.76	0.008	0.79
Ce	7.00	0.163	23.17
Cr	2.33	0.023	6.97
Co	0.21	-0.029	-43.30
Cu	3.73	0.024	9.82
Eu	5.33	0.004	17.61
Fe	2.12	0.057	4.09
La	0.45	0.011	38.19
Pb	0.28	0.088	21.43
Li	5.19	0.011	13.45
Mg	0.57	0.003	0.84
Mn	1.02	0.009	5.38
Hg	124.21	10.405	0.25
Mo	72.25	9.832	0.31
Nd	11.14	0.034	31.01
Ni	5.24	0.141	1.69
P	12.30	11.186	0.50
K	4.31	0.494	6.02
Sm	6.63	0.228	22.15
Se	14.47	19.895	0.56
Si	21.08	8.964	0.18
Ag	5.94	0.073	3.00
Na	8.33	0.180	12.65
Sr	4.69	0.003	18.62
S	18.39	20.315	0.39
Ta	37.04	9.699	0.32
Tl	11.89	19.982	0.85
Th	1.49	0.286	6.84
Sn	2.09	0.093	5.90
Ti	108.08	10.196	0.52
W	28.66	7.275	0.17
U	7.08	2.186	9.73
V	31.73	3.986	0.57
Zn	3.37	0.011	1.41
Zr	42.06	9.687	0.53

ICP Analysis - July 9, 1990 Reagent Blank

Sample name : F904
Sample code 1 : BLANK
Sample code 2 : 500-10
Sample code 3 : H2ODIG
Programme : SSI 09-Jul-90 13:50:30

NAME	MV INT	CONCEN	DILCOR	RSD
Al	2.11	0.029	0.617	35.69
Sb	0.37	-0.012	-0.245	-360.56
As	1.28	0.012	0.258	69.61
Ba	5.40	0.002	0.035	40.80
Be	0.70	0.000	0.007	26.02
Bi	4.53	0.013	0.269	205.83
B	7.07	0.114	2.399	1.99
Cd	2.89	0.001	0.024	90.37
Ca	1.71	0.049	1.039	0.22
Ce	6.92	0.051	1.064	51.67
Cr	3.21	0.002	0.034	196.83
Co	0.21	-0.015	-0.307	0.00
Cu	3.62	0.004	0.079	52.83
Eu	5.26	0.001	0.017	83.85
Fe	1.85	0.011	0.221	14.13
La	0.45	0.003	0.060	57.73
Pb	0.28	0.019	0.395	152.75
Li	5.11	0.003	0.063	43.85
Mg	1.07	0.021	0.451	0.10
Mn	0.90	0.001	0.012	92.31
Hg	3.31	0.036	0.766	11.22
Mo	1.95	0.001	0.026	61.19
Nd	11.06	-0.010	-0.214	-62.93
Ni	3.97	-0.000	-0.005	-1427.1
P	1.48	-0.013	-0.268	-100.73
K	4.22	0.107	2.241	32.73
Sm	6.55	0.074	1.555	53.09
Se	2.07	0.014	0.303	155.69
Si	4.32	0.143	2.999	3.30
Ag	5.45	0.004	0.079	71.25
Na	8.36	0.195	4.104	5.98
Sr	4.64	0.001	0.019	39.82
S	0.86	0.002	0.049	480.48
Ta	4.60	0.004	0.092	171.54
Tl	4.61	0.072	1.513	83.58
Th	1.45	0.037	0.768	19.24
Sn	1.74	0.003	0.058	67.60
Ti	4.40	0.002	0.034	69.20
W	3.39	0.001	0.026	244.57
U	6.91	0.308	6.470	66.13
V	4.43	0.000	0.006	1805.27
Zn	3.31	0.010	0.207	1.22
Zr	5.65	0.008	0.162	45.61

Dilution factor : 21.0000

9 1 1 2 0 5 9 0 4 7 4

ICP Analysis - July 9, 1990 Core 5 Composite - Water Digestion

Sample name : E905
Sample code 1 : SAMPLE
Sample code 2 : 500-10
Sample code 3 : H2ODIG
Programme : SST 09-Jul-90 13:55:18

NAME	MV INT	CONCEN	DILCOR	RSD
Al	2.89	2.012	42.248	0.83
Sb	0.38	0.054	1.144	61.86
As	1.28	0.008	0.162	58.19
Ba	5.42	0.002	0.051	58.71
Be	0.70	0.000	0.006	57.73
Bi	4.56	0.034	0.718	74.03
B	9.79	0.310	6.500	0.21
Cd	2.89	0.001	0.018	163.81
Ca	1.24	0.029	0.610	0.54
Ce	6.93	0.065	1.368	61.14
Cr	4.21	0.375	7.874	0.73
Co	0.21	-0.007	-0.153	-173.20
Cu	3.63	0.006	0.117	47.49
Eu	5.28	0.001	0.031	74.75
Fe	1.87	0.014	0.285	37.13
La	0.45	0.009	0.180	107.15
Pb	0.28	0.056	1.186	19.25
Li	5.11	0.003	0.061	70.37
Mg	1.63	0.043	0.898	0.42
Mn	0.90	0.001	0.016	92.71
Hg	3.25	0.031	0.647	5.21
Mo	1.97	0.004	0.089	21.62
Nd	11.14	0.033	0.689	60.08
Ni	4.01	0.004	0.091	54.81
P	10.61	9.438	198.20	0.47
K	4.25	0.207	4.355	25.57
Sm	6.56	0.090	1.886	55.36
Se	2.13	0.119	2.491	17.16
Si	8.53	2.358	49.513	0.23
Ag	5.46	0.005	0.100	55.49
Na	96.34	)59.417	)1247.8	0.44
Sr	4.64	0.001	0.023	41.36
S	1.58	0.837	17.571	1.78
Ta	4.62	0.013	0.264	29.58
Tl	4.58	-0.027	-0.575	-61.10
Th	1.45	0.059	1.237	93.87
Sn	1.77	0.009	0.199	91.76
Ti	4.43	0.004	0.089	33.73
W	3.61	0.064	1.352	7.28
U	6.93	0.529	11.114	61.39
V	4.43	0.000	0.007	894.73
Zn	3.27	0.009	0.184	4.97
Zr	5.66	0.012	0.246	45.62

Dilution factor : 21.0000

ICP Analysis - July 9, 1990 Duplicate Core 5 Composite

Sample name : F906
Sample code 1 : DUP
Sample code 2 : 500-10
Sample code 3 : H2ODIG
Programme : SST 09-Jul-90 14:00:11

NAME	MV INT	CONCEN	DILCOR	RSD
Al	3.06	2.425	50.923	0.96
Sb	0.38	0.027	0.572	65.47
As	1.27	0.006	0.124	75.08
Ba	5.40	0.001	0.030	21.45
Be	0.69	-0.000	-0.001	-503.29
Bi	4.54	0.023	0.481	89.21
B	6.79	0.094	1.979	5.58
Cd	2.89	0.001	0.021	48.06
Ca	1.05	0.021	0.442	0.72
Ce	6.92	0.039	0.821	7.41
Cr	4.81	0.486	10.206	1.15
Co	0.21	0.000	0.000	
Cu	3.62	0.004	0.076	45.56
Du	5.26	0.001	0.016	49.11
Fe	1.84	0.009	0.189	36.32
La	0.45	0.000	0.000	2762000
Pb	0.28	0.013	0.264	150.00
Li	5.10	0.002	0.038	18.54
Mg	4.57	0.153	3.218	0.38
Mn	0.89	0.000	0.001	983.74
Hg	3.19	0.026	0.542	12.89
Mo	1.95	0.002	0.036	82.29
Nd	11.03	-0.028	-0.597	-161.12
Ni	4.00	0.003	0.068	15.80
P	4.21	2.815	59.109	2.36
K	4.23	0.151	3.170	16.69
Sm	6.54	0.051	1.080	33.31
Se	2.14	0.126	2.648	8.27
Si	4.85	0.422	8.869	1.20
Ag	5.44	0.003	0.056	45.77
Na	79.70	48.221	1012.6	0.40
Sr	4.63	0.001	0.012	19.51
S	1.24	0.443	9.313	0.80
Ta	4.59	0.002	0.038	141.75
Tl	4.58	-0.006	-0.134	-413.09
Th	1.45	0.030	0.640	11.55
Sn	1.76	0.007	0.155	63.46
Ti	4.40	0.001	0.024	45.35
W	3.73	0.098	2.062	7.54
U	6.91	0.261	5.481	25.12
V	4.42	-0.001	-0.021	-296.35
Zn	3.31	0.010	0.204	0.95
Zr	5.64	0.005	0.114	47.26

Dilution factor : 21.0000

9112590476

ICP Analysis - July 9, 1990 Spike of Core 5 Composite

Sample name : F907
Sample code 1 : SPIKE
Sample code 2 : 500-10
Sample code 3 : H2ODIG
Programme : SST 09-Jul-90 14:04:27

NAME	MV INT	CONCEN	DILCOR	RSD
Al	3.10	2.542	53.374	1.23
Sb	0.44	0.805	16.912	0.00
As	3.66	1.631	34.250	1.77
Ba	18.19	0.790	16.594	1.45
Be	8.73	0.320	6.729	0.31
Bi	5.09	0.436	9.147	2.80
B	19.58	1.012	21.253	1.29
Cd	17.88	0.752	15.784	1.52
Ca	18.72	0.788	16.558	1.69
Ce	7.40	0.741	15.554	4.89
Cr	7.42	0.974	20.458	1.52
Co	0.24	0.730	15.328	0.00
Cu	7.67	0.790	16.596	1.25
Eu	13.05	0.353	7.419	1.12
Fe	6.43	0.800	16.799	1.16
La	0.57	0.354	7.425	1.23
Pb	0.30	0.433	9.095	2.51
Li	12.18	0.749	15.725	1.30
Mg	25.94	0.959	20.139	1.65
Mn	12.32	0.755	15.864	1.59
Hg	11.88	0.771	16.193	1.20
Mo	7.24	0.741	15.567	1.96
Nd	12.33	0.659	13.847	3.34
Ni	10.75	0.752	15.789	0.79
P	8.40	7.151	150.18	1.55
K	4.40	0.907	19.052	8.59
Sm	6.71	0.407	8.537	14.42
Se	3.14	1.737	36.485	0.77
Si	8.58	2.388	50.158	1.30
Ag	8.11	0.381	8.005	0.67
Na	75.04	45.080	946.68	1.65
Sr	28.04	0.763	16.021	1.66
S	2.64	2.067	43.409	2.02
Ta	7.02	0.729	15.303	0.51
Tl	5.28	1.894	39.769	16.93
Th	1.77	1.966	41.287	0.78
Sn	3.26	0.396	8.315	2.27
Ti	12.18	0.766	16.091	1.33
W	5.48	0.602	12.643	0.71
U	7.11	2.462	51.692	11.95
V	6.50	0.302	6.351	1.16
Zn	32.51	0.773	16.237	1.50
Zr	8.38	0.734	15.415	0.86

Dilution factor : 21.0000

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9112590477

ICP Analysis - July 9, 1990 Acid Blank

Sample name : HNO3
Programme : SST 09-Jul-90 14:48:48

NAME	MV INT	CONCEN	RSD
Al	2.16	0.170	10.40
Sb	0.39	0.132	18.37
As	1.32	0.035	12.68
Ba	5.56	0.011	13.18
Be	0.72	0.001	16.21
Bi	4.70	0.142	20.05
B	5.59	0.008	9.57
Cd	2.97	0.005	19.67
Ca	0.58	0.000	8.83
Ce	7.14	0.361	10.63
Cr	2.27	0.012	31.27
Co	0.21	0.022	57.74
Cu	3.73	0.025	11.92
Eu	5.43	0.008	14.10
Fe	1.84	0.009	21.10
La	0.46	0.030	18.75
Pb	0.29	0.138	20.83
Li	5.25	0.017	13.47
Mg	0.51	0.000	5.41
Mn	0.91	0.001	33.61
Hg	3.25	0.031	11.49
Mo	2.00	0.008	20.93
Nd	11.42	0.181	17.71
Ni	4.11	0.015	28.51
P	1.53	0.036	41.03
K	4.33	0.569	7.25
Sm	6.75	0.476	11.62
Se	2.11	0.090	16.93
Si	4.20	0.081	10.38
Ag	5.61	0.027	8.00
Na	8.31	0.168	10.73
Sr	4.74	0.004	12.22
S	0.86	0.003	157.53
Ta	4.75	0.049	21.83
Tl	4.74	0.414	13.35
Th	1.49	0.274	16.68
Sn	1.80	0.018	10.53
Ti	4.54	0.015	12.35
W	3.49	0.030	15.02
U	7.12	2.621	10.60
V	4.57	0.022	0.67
Zn	3.01	0.002	14.74
Zr	5.79	0.044	12.09

ICP Analysis - July 9, 1990 LMCS Check Standard

Sample name : 78C11T
Sample code 1 : SST1
Sample code 2 : DIRECT
Programme : SST 09-Jul-90 14:57:41

NAME	MV INT	CONCEN	RSD
Al	2.22	0.320	6.32
Sb	1.26	10.333	1.14
As	1.40	0.090	7.74
Ba	178.32	10.668	1.49
Be	0.75	0.002	2.78
Bi	4.90	0.292	9.10
B	149.14	10.308	1.68
Cd	208.83	10.317	1.42
Ca	237.26	10.278	1.58
Ce	13.73	9.900	0.96
Cr	50.71	9.053	1.56
Co	0.69	10.474	1.09
Cu	56.40	10.275	1.46
Eu	5.94	0.032	2.16
Fe	63.46	10.633	1.66
La	0.49	0.128	4.63
Pb	0.29	0.239	7.89
Li	100.89	10.112	1.56
Mg	285.56	10.744	1.36
Mn	156.58	10.293	1.50
Hg	3.31	0.036	8.65
Mo	2.16	0.031	10.57
Nd	28.94	9.397	2.57
Ni	96.58	10.275	1.44
P	1.64	0.148	11.64
K	6.54	10.683	1.55
Sm	6.78	0.549	7.50
Se	3.79	2.783	3.44
Si	4.31	0.141	4.37
Ag	5.70	0.039	6.43
Na	23.19	10.179	1.47
Sr	321.45	10.314	1.41
S	1.09	0.265	2.67
Ta	4.88	0.088	1.67
Tl	4.96	1.030	3.83
Th	1.54	0.611	4.34
Sn	21.67	5.146	1.41
Ti	4.58	0.019	7.62
W	4.50	0.319	3.57
U	7.56	7.323	2.63
V	4.63	0.030	8.70
Zn	399.00	10.354	1.33
Zr	5.88	0.069	4.68

ICP Analysis - July 9, 1990 LMCS Check Standard

Sample name : 87B38B
Sample code 1 : SST2
Sample code 2 : 1-10
Programme : SST

X11DF

09-Jul-90 15:02:21

NAME	MV INT	CONCEN	RSD	
Al	2.24	0.370	0.79	
Sb	0.38	0.113	15.80	
As	1.33	0.044	27.03	
Ba	5.55	0.011	10.44	
Be	0.72	0.001	6.64	
Bi	5.28	0.582	3.89	6.40
B	6.01	0.039	17.96	
Cd	2.99	0.006	9.63	
Ca	0.94	0.016	3.28	
Ce	7.10	0.308	10.89	
Cr	2.33	0.023	8.53	
Co	0.21	0.044	28.87	
Cu	3.78	0.034	4.17	
Eu	14.91	0.437	1.51	4.81
Fe	1.93	0.024	12.76	
La	0.60	0.447	1.69	4.92
Pb	0.31	0.552	7.10	6.07
Li	5.24	0.016	10.94	
Mg	5.58	0.191	1.77	
Mn	0.93	0.003	24.46	
Hg	3.34	0.039	4.48	
Mo	2.02	0.010	14.89	
Nd	11.39	0.162	17.18	
Ni	4.12	0.017	14.06	
P	1.53	0.037	78.32	
K	4.29	0.418	18.53	
Sm	6.92	0.841	5.46	~~9.25~~ High RSD
Se	2.11	0.088	21.87	
Si	4.28	0.123	2.58	
Ag	8.88	0.489	0.87	5.38
Na	8.31	0.165	15.47	
Sr	4.76	0.005	5.01	
S	0.89	0.038	16.86	
Ta	4.74	0.048	14.19	
Tl	4.81	0.613	4.22	
Th	1.87	2.579	0.71	28.37
Sn	1.81	0.020	28.87	
Ti	4.55	0.016	8.61	
W	3.51	0.035	6.45	
U	7.29	4.445	4.35	48.90
V	4.60	0.026	6.70	
Zn	3.31	0.010	5.98	
Zr	5.78	0.042	9.51	

ICP Analysis - July 9, 1990 LMCS Check Standard

Sample name : 77C11R
Sample code 1 : SST3
Sample code 2 : DIRECT
Programme : SST 09-Jul-90 15:07:56

NAME	MV INT	CONCEN	RSD
Al	6.16	10.250	0.95
Sb	0.41	0.385	8.02
As	33.26	21.818	1.31
Ba	5.70	0.020	3.53
Be	107.36	4.253	0.51
Bi	4.95	0.331	8.58
D	6.75	0.092	3.42
Cd	3.05	0.009	12.86
Ca	0.77	0.009	0.74
Ce	7.16	0.388	7.82
Cr	2.37	0.032	16.23
Co	0.21	0.051	0.00
Cu	3.80	0.038	3.95
Eu	5.44	0.009	14.18
Fe	2.16	0.064	6.36
La	0.46	0.033	0.00
Pb	0.29	0.157	6.93
Li	5.30	0.023	4.70
Mg	0.58	0.003	10.44
Mn	1.03	0.009	0.42
Hg	125.24	10.493	1.03
Mo	72.31	9.841	1.17
Nd	11.47	0.203	29.02
Ni	5.30	0.148	1.04
P	12.53	11.428	1.75
K	4.37	0.794	5.18
Sm	6.77	0.520	5.49
Se	14.56	20.045	0.80
Si	21.15	9.005	0.76
Ag	6.05	0.088	1.30
Na	8.49	0.285	7.87
Sr	4.78	0.006	6.76
S	18.55	20.498	1.00
Ta	37.25	9.763	0.93
Tl	11.88	19.960	1.45
Th	1.52	0.453	3.56
Sn	2.14	0.105	6.06
Ti	107.91	10.179	1.17
W	28.76	7.305	0.78
U	7.23	3.778	3.96
V	31.34	3.929	0.82
Zn	3.42	0.013	6.17
Zr	42.00	9.670	1.13

ACID DIGESTION TEST ANALYSIS

9 1 1 2 2 5 0 4 1 2

SINGLE SHELL TANK PROJECT

CORE 5 COMPOSITE
ACID DIGESTION
UNITS FOR SAMPLES ARE WET WEIGHT

Tank: 241-U-110
Core: 5
Lab Segment Serial No.: F0893
Customer ID: Composite Core 5

	Check Standard	Blank	Sample	Sample Duplicate	Spike of Sample	Check Standard
Laboratory ID:	N/A	F0910	F0911	F0912	F0991	N/A
Acid Digestion	N/A	N/A	9.7 g/L	13.2 g/L	1.02E+01 g/L	N/A
Laboratory ID:	F0951	F0910	F0911	F0912	F0913	F0914
Arsenic	99.13%	<2.50E-03 ppm	4.84E-01 ug/g	3.71E-01 ug/g	85.59%	99.14%
Laboratory ID:	F0909	F0910	F0911	F0912	F0913	F0914
Mercury	101.56%	<.01 ppm	5.67E-02 ug/g	3.03E-02 ug/g	92.10%	88.52%
Laboratory ID:	F0909	F0910	F0911	F0912	F0913	F0914
Selenium	94.40%	<1.00E-02 ppm	<1.03 ug/g	<7.58E-01 ug/g	84.00%	88.80%

ICP Results Data Summary

		Digested Acid Standard	F0479
Date Analyzed:	March 31.1990	Reagent Blank	F0487
Procedure:	LA-505-151/A-0	Sample Core 5 Comp.	F0911
Analyst:	J. A. White	Duplicate of F0911	F0912
Digestion	Acid Digestion	Spike of F0480	F0482
Procedure:	LA-505-159/A-0	Digested Acid Standard	F0483

	LMCS Standard %	LMCS Standard %	BLANK ppm	Sample ug/g	Sample Duplicate ug/g	Spike Recovery %	ACID Digestion %	LMCS Standard %
Aluminum	106.89%		0.17	105142	105902	NOT CALC.	88.04%	104.70%
Arsenic	105.48%		0.02 LT	196	145	NOT CALC.		104.67%
Barium	99.54%		0.00 LT	73	62	135.89%	81.31%	97.34%
Beryllium	98.55%		0.00	4	3	NOT CALC.		96.92%
Bismuth	106.10%	100.08%	0.35	44549	46161	NOT CALC.		104.56%
Boron	101.92%	87.77%	0.16	71	43	-45.79%		98.99%
Cadmium	103.35%	90.21%	0.01	25	17	40.63%		100.59%
Calcium	102.80%	91.28%	0.08	559	559	37.09%		100.45%
Cerium	101.33%		0.07 LT	1157	718	-52.79%	77.25%	98.41%
Chromium	100.28%		0.00 LT	1371	1200	145.81%	78.74%	97.79%
Copper	100.98%	88.42%	0.01 LT	104	78	24.07%		98.57%
Europium	101.23%		0.00 LT	17	10	NOT CALC.		100.04%
Iron	102.65%		0.05	16978	17952	NOT CALC.	82.27%	100.40%
Lanthanum	96.47%	84.28%	0.09	100	50	20.59%		95.23%
Lead	103.03%	97.96%	0.16	2962	703	246.48%		101.95%
Lithium	98.78%		0.01	29	15	141.46%	81.06%	96.27%
Magnesium	104.28%	91.03%	0.02	716	594	-42.04%		101.51%
Manganese	102.18%		0.02	5421	5272	NOT CALC.	81.24%	99.60%
Mercury	96.81%		0.02	624	293	NOT CALC.		97.59%
Molybdenum	101.70%	96.89%	0.01	68	54	25.27%		100.47%
Neodymium	95.03%		-0.09 LT	68 LT	306 LT	381.28%	74.65%	93.62%
Nickel	103.50%		0.02 LT	623	166	160.17%	80.69%	100.84%
Phosphorous	94.76%	94.46%	0.13	23475	18115	148.31%		97.21%
Potassium	102.77%	92.02%	0.12 LT	20967	705	40.50%		100.29%
Samarium	103.81%		0.06 LT	1206	575	NOT CALC.		102.40%
Selenium	102.21%		0.10	1007	1165	NOT CALC.		100.70%
Silver	104.62%	72.18%	0.01 LT	82	51	23.41%		103.40%
Sodium	99.99%	90.36%	0.27	149969	154636	NOT CALC.		97.44%
Strontium	101.61%	89.46%	0.00	736	698	45.91%		99.25%
Sulfur	98.43%		0.17	2312	1839	NOT CALC.		97.91%
Tantalum	94.36%		0.02 LT	236	161	12.90%	79.69%	93.70%
Thallium	103.48%		0.08	8358	1351	NOT CALC.		102.19%
Thorium	106.80%		0.06	4566	449	NOT CALC.		105.32%
Tin	108.40%		0.06	165	126	181.10%	83.10%	105.29%
Titanium	103.28%		0.06	79	55	148.07%	82.46%	100.95%
Uranium	109.55%		0.27 LT	13060	9775	NOT CALC.		107.79%
Vanadium	100.11%		0.00 LT	88	72	3.74%		98.77%
Zinc	102.09%	87.80%	0.13	248	141	35.82%		99.21%
Zirconium	103.64%		0.01 LT	280	207	187.34%	83.90%	101.52%

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated
Instrument Standards Outside Control Limits

SINGLE SHELL TANK PROJECT

CORE 5 COMPOSITE
ACID DIGESTION
Results on Laboratory Digestions

Tank: 241-U-110
Core: 5
Lab Segment Serial No.: F0893
Customer ID: Composite Core 5

	Check Standard	Blank	Sample	Sample Duplicate	Spike of Sample	Check Standard
Laboratory ID:	N/A	F0910	F0911	F0912	F0991	N/A
Acid Digestion	N/A	N/A	9.7 g/L	13.2 g/L	1.02E+01 g/L	N/A
Laboratory ID:	F0922	F0910	F0911	F0912	F0913	F0914
Arsenic	105.44%	<2.50E-03 ppm	4.70E-03 ppm	4.90E-03 ppm	85.59%	99.14%
Laboratory ID:	F0909	F0910	F0911	F0912	F0913	F0914
Mercury	101.56%	<.01 ppm	5.50E-04 ppm	4.00E-04 ppm	92.10%	88.52%
Laboratory ID:	F0909	F0910	F0911	F0912	F0913	F0914
Selenium	94.40%	<1.00E-02 ppm	<1.00E-02 ppm	<1.00E-02 ppm	84.00%	88.80%

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Acid Digestion

Instrument	N/A
Procedure / Rev	LA-505-159/A-0
Technologist	D.M. Southwick
Date	02-13-90
Temperature	72 F
Starting Time	07:40
Ending Time	14:00
Chemist	S. A. Jones

Note: Sample is not spiked prior to digestion. This procedure provides a sample to be spiked later withe appropriate element.

	Description	Lab. Id.
1	Reagent Blank	F0910
2	Sample Comp 5	F0911
3	Duplicate Comp 5	F0912
4	Sample Comp 7	F0989
5	Duplicate Comp 7	F0990
6	Spike Comp 7	F0991
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
N/A				
Spike (See Note)				

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-25-90

Verified by: Carry M Seidel (Signature) C.M. Seidel (Printed Name) Date: 8-25-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

9 1 1 2 7 5 9 0 4 4 6

Interim 4/04/90 Rev. E SST-102

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Instrument	ICP
Procedure / Rev	LA-505-151
Technologist	J. A. White
Date	03/31/90
Temperature	N/A
Starting Time	07:48
Ending Time	14:15
Chemist	S. A. Jones

ICP

ICP Analysis of Core Composite 5.

Sample analysis after Acid Digestion.

	Description	Lab. Id.
1	LMCS Check Std	N/A
2	Digested Std.	F0479
3	Reagent Blank	F0487
4	Sample 89-072	F0480
5	Duplicate 89-072	F0481
6	Spike 89-072	F0482
7	Digested Std.	F0483
8	LMCS Check Std.	N/A
9	Sample Comp. 6	F0935
10	Duplicate Comp. 6	F0936
11	Sample Comp. 5	F0911

	Description	Lab. Id.
12	Duplicate Comp. 5	F0912
13	LMCS Check Std	N/A
14	Sample 89-083	F0744
15	Duplicate 89-083	F0745
16	Sample 89-084	F0768
17	Duplicate 89-084	F0769
18	Acid Digest Std.	F0771
19	LMCS Check Stds.	N/A
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std.	78C11F/1.0 mL	82B38C/1.0 mL	77C11F/1.0 mL	11.00 mL
Digested LMCS (1)	81C11A/5.0 mL			50.00 mL
Digested LMCS (2)	82C11A/5.0 mL			50.00 mL
Spike	103C15C/5 mL	104C15D/5 mL	89-072/.3935 g	50.00 mL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 07/07/90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 07/07/90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim

Rev.E 4/04/90

SST-102

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ICP Results Raw Data Summary

		Digested Acid Standard	F0479
Date Analyzed:	March 31.1990	Reagent Blank	F0487
Procedure:	LA-505-151/A-0	Sample Core 5 Comp.	F0911
Analyst:	J. A. White	Duplicate of F0911	F0912
Digestion	Acid Digestion	Spike of F0480	F0482
Procedure:	LA-505-159/A-0	Digested Acid Standard	F0483

	LMCS Standard %	LMCS Standard %	BLANK ppm	Sample ug/g	Sample Duplicate ug/g	Spike Recovery %	ACID Digestion %	LMCS Standard %
Aluminum	106.89%		0.17	105142	105902	NOT CALC.	88.04%	104.70%
Antimony	110.63% #		0.24	1054	598	NOT CALC.		106.97%
Arsenic	105.48%		0.02 LT	196	145	NOT CALC.		104.67%
Barium	99.54%		0.00 LT	73	62	135.89%	81.31%	97.34%
Beryllium	98.55%		0.00	4	3	NOT CALC.		96.92%
Bismuth	106.10%	100.08%	0.35	44549	46161	NOT CALC.		104.56%
Boron	101.92%	87.77%	0.16	71	43	-45.79%		98.99%
Cadmium	103.35%	90.21%	0.01	25	17	40.63%		100.59%
Calcium	102.80%	91.28%	0.08	559	559	37.09%		100.45%
Cerium	101.33%		0.07 LT	1157	718	-52.79%	77.25%	98.41%
Chromium	100.28%		0.00 LT	1371	1200	145.81%	78.74%	97.79%
Cobalt	87.77% #		0.04	410	129	265.91%	69.56%	77.48% #
Copper	100.98%	88.42%	0.01 LT	104	78	24.07%		98.57%
Europium	101.23%		0.00 LT	17	10	NOT CALC.		100.04%
Iron	102.65%		0.05	16978	17952	NOT CALC.	82.27%	100.40%
Lanthanum	96.47%	84.28%	0.09	100	50	20.59%		95.23%
Lead	103.03%	97.96%	0.16	2962	703	246.48%		101.95%
Lithium	98.78%		0.01	29	15	141.46%	81.06%	96.27%
Magnesium	104.28%	91.03%	0.02	716	594	-42.04%		101.51%
Manganese	102.18%		0.02	5421	5272	NOT CALC.	81.24%	99.60%
Mercury	96.81%		0.02	624	293	NOT CALC.		97.59%
Molybdenum	101.70%	96.89%	0.01	68	54	25.27%		100.47%
Neodymium	95.03%		-0.09 LT	68 LT	306 LT	381.28%	74.65%	93.62%
Nickel	103.50%		0.02 LT	623	166	160.17%	80.69%	100.84%
Phosphorous	94.76%	94.46%	0.13	23475	18115	148.31%		97.21%
Potassium	102.77%	92.02%	0.12 LT	20967	705	40.50%		100.29%
Samarium	103.81%		0.06 LT	1206	575	NOT CALC.		102.40%
Selenium	102.21%		0.10	1007	1165	NOT CALC.		100.70%
Silicon	85.22% #	56.97%	0.21	5842	3316	-186.81%		82.94% #
Silver	104.62%	72.18%	0.01 LT	82	51	23.41%		103.40%
Sodium	99.99%	90.36%	0.27	149969	154636	NOT CALC.		97.44%
Strontium	101.61%	89.46%	0.00	736	698	45.91%		99.25%
Sulfur	98.43%		0.17	2312	1839	NOT CALC.		97.91%
Tantalum	94.36%		0.02 LT	236	161	12.90%	79.69%	93.70%
Thallium	103.48%		0.08	8358	1351	NOT CALC.		102.19%
Thorium	106.80%		0.06	4566	449	NOT CALC.		105.32%
Tin	108.40%		0.06	165	126	181.10%	83.10%	105.29%
Titanium	103.28%		0.06	79	55	148.07%	82.46%	100.95%
Tungsten	84.98% #		0.04 LT	386	293	NOT CALC.		84.76% #
Uranium	109.55%		0.27 LT	13060	9775	NOT CALC.		107.79%
Vanadium	100.11%		0.00 LT	88	72	3.74%		98.77%
Zinc	102.09%	87.80%	0.13	248	141	35.82%		99.21%
Zirconium	103.64%		0.01 LT	280	207	187.34%	83.90%	101.52%

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated
Instrument Standards Outside Control Limits

ICP Results Raw Data Summary

		Digested Acid Standard	F0479
Date Analyzed:	March 31.1990	Reagent Blank	F0487
Procedure:	LA-505-151/A-0	Sample Core 5 Comp.	F0911
Analyst:	J. A. White	Duplicate of F0911	F0912
Digestion	Acid Digestion	Spike of F0480	F0482
Procedure:	LA-505-159/A-0	Digested Acid Standard	F0483

	SST-1	SST-2	Starting LMCS Instrument Standard ppm	Standard Recovery %		LMCS Acid Digestion Standard ppm	Acid Digestion Standard Recovery %	Reagent Blank ppm
Aluminum			53.44	106.89%				0.17
Antimony	11.06			110.63%	#			0.24
Arsenic			52.74	105.48%				0.02 LT
Barium	9.95			99.54%				0.00 LT
Beryllium			9.86	98.55%				0.00
Bismuth		53.16		106.10%		10.01	100.08%	0.35
Boron	10.19			101.92%		8.78	87.77%	0.16
Cadmium	10.34			103.35%		9.02	90.21%	0.01
Calcium	10.28			102.80%		9.13	91.28%	0.08
Cerium	10.13			101.33%				0.07 LT
Chromium	10.03			100.28%				0.00 LT
Cobalt	8.78			87.77%	#			0.04
Copper	10.10			100.98%		8.84	88.42%	0.01 LT
Europium		10.12		101.23%				0.00 LT
Iron	10.27			102.65%				0.05
Lanthanum		48.33		96.47%		8.43	84.28%	0.09
Lead		51.62		103.03%		9.80	97.96%	0.16
Lithium	9.88			98.78%				0.01
Magnesium	10.43			104.28%		9.10	91.03%	0.02
Manganese	10.22			102.18%				0.02
Mercury			24.20	96.81%				0.02
Molybdenum			50.85	101.70%		9.69	96.89%	0.01
Neodymium	9.50			95.03%				-0.09 LT
Nickel	10.35			103.50%				0.02 LT
Phosphorou			47.38	94.76%		9.45	94.46%	0.13
Potassium	25.69			102.77%		9.20	92.02%	0.12 LT
Samarium		10.38		103.81%				0.06 LT
Selenium			51.11	102.21%				0.10
Silicon			42.61	85.22%	#	5.70	56.97%	0.21
Silver		10.46		104.62%		7.22	72.18%	0.01 LT
Sodium	25.00			99.99%		9.04	90.36%	0.27
Strontium	10.16			101.61%		8.95	89.46%	0.00
Sulfur			49.21	98.43%				0.17
Tantalum			47.18	94.36%				0.02 LT
Thallium			51.74	103.48%				0.08
Thorium		53.51		106.80%				0.06
Tin	54.20			108.40%				0.06
Titanium			51.64	103.28%				0.06
Tungsten			21.25	84.98%	#			0.04 LT
Uranium		54.89		109.55%				0.27 LT
Vanadium			10.01	100.11%				0.00 LT
Zinc	10.21			102.09%		8.78	87.80%	0.13
Zirconium			51.82	103.64%				0.01 LT
Dilution Factor	1.00	1.00	1.00			10.00		1.00

ICP Results Raw Data Summary

	Digestion	0.00967 g/mL		Digestion	0.01320 g/mL		Digestion	0.00787	
	Weight	0.4833 g		Weight	0.6600 g		Weight	0.3935	
	Volume	50.00 mL		Volume	50.00 mL		Volume	50.00	
	Sample	Sample	Sample	Sample	Sample	Sample	Spike of	Spike of	
				Duplicate	Duplicate	Duplicate	Sample	Sample	
	Dilution	Dilution	Dilution	Dilution	Dilution	Dilution	Dilution	Dilution	
	Three	Two	One	Three	Two	One	Three	Two	
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Aluminum		1016.30	999.86		1397.90	1327.10		421.18	
Antimony		39.41	10.19		17.30	7.89		39.89	
Arsenic		6.90	1.90		2.58	1.91		5.81	
Barium		1.87	0.71		0.81	0.81		14.20	
Beryllium		0.20	0.04		0.08	0.04		0.18	
Bismuth		430.61	399.41		609.32	580.72		78.01	
Boron		3.62	0.68		1.21	0.56		5.87	
Cadmium		1.01	0.24		0.18	0.22		4.28	
Calcium		5.41	4.72		7.38	6.29		7.58	
Cerium		59.67	11.19		9.19	9.47		58.97	
Chromium		13.25	12.64		15.84	17.02		20.83	
Cobalt		19.05	3.96		3.81	1.70		30.47	
Copper		3.61	1.01		1.11	1.02		6.50	
Europium		0.94	0.17		0.13	0.13		0.91	
Iron		164.11	160.29		236.96	227.51		76.17	
Lanthanum		4.08	0.96		0.82	0.66		7.71	
Lead		28.63	10.80		19.31	9.28		29.96	
Lithium		1.87	0.28		-0.01	0.20		14.45	
Magnesium		6.92	5.78		7.85	7.38		4.89	
Manganese		52.40	51.33		69.59	66.94		68.16	
Mercury		6.03	1.41		3.87	1.21		5.97	
Molybdenum		2.31	0.66		0.83	0.72		2.72	
Neodymium		33.87	0.66 LT		-6.12	4.04 LT		42.04	
Nickel		5.10	6.03		2.73	2.19		17.86	
Phosphorou		226.91	1.94		239.12	233.29		31.82	
Potassium		70.55	202.67		2.26	9.31		69.67	
Samarium		57.59	11.66		6.57	7.59		54.36	
Selenium		34.64	9.73		17.23	15.38		32.07	
Silicon		56.47	13.79		43.77	35.75		26.16	
Silver		4.25	0.80		0.62	0.67		7.19	
Sodium		1449.60	1446.30		2041.20	1925.50		448.44	
Strontium		7.12	6.61		9.21	8.66		8.73	
Sulfur		22.35	16.70		24.27	22.79		11.00	
Tantalum		11.92	2.28		3.30	2.13		13.21	
Thallium		80.79	16.97		18.26	17.84		69.83	
Thorium		44.14	9.46		7.00	5.93		40.73	
Tin		5.40	1.60		2.44	1.66		19.22	
Titanium		2.63	0.76		0.91	0.73		15.29	
Tungsten		10.68	3.73		5.12	3.86		8.15	
Uranium		413.40	126.24		132.49	129.03		392.78	
Vanadium		3.65	0.85		1.16	0.95		2.76	
Zinc		2.39	1.25		1.86	1.68		4.40	
Zirconium		8.59	2.71		2.90	2.74		20.74	
Dilution Factor	1.00	101.00	21.00	1.00	101.00	21.00	1.00	101.00	

ICP Results Raw Data Summary

g/mL
g

	Spike of Sample Dilution One ppm	Spike Recovery %	Standard LMCS Acid Digestion ppm	Acid Digestion Standard Recovery %	SST-1	SST-2	Ending LMCS Standard	Standard Recovery %
Aluminum	366.06	NOT CALC.	8.80	88.04%			52.35	104.70%
Antimony	4.20	NOT CALC.			10.70			106.97%
Arsenic	1.03	NOT CALC.					52.33	104.67%
Barium	11.84	135.89%	8.13	81.31%	9.73			97.34%
Beryllium	0.02	NOT CALC.					9.69	96.92%
Bismuth	40.75	NOT CALC.				52.38		104.56%
Boron	3.04	-45.79%			9.90			98.99%
Cadmium	2.84	40.63%			10.06			100.59%
Calcium	6.54	37.09%			10.05			100.45%
Cerium	4.73	-52.79%	7.73	77.25%	9.84			98.41%
Chromium	17.25	145.81%	7.87	78.74%	9.78			97.79%
Cobalt	10.41	265.91%	6.96	69.56%	7.75			77.48%
Copper	3.29	24.07%			9.86			98.57%
Europium	0.06 LT	NOT CALC.				10.00		100.04%
Iron	5.20	NOT CALC.	8.23	82.27%	10.04			100.40%
Lanthanum	3.08	20.59%				47.71		95.23%
Lead	6.65	246.48%				51.08		101.95%
Lithium	11.83	141.46%	8.11	81.06%	9.63			96.27%
Magnesium	4.13	-42.04%			10.15			101.51%
Manganese	58.65	NOT CALC.	8.12	81.24%	9.96			99.60%
Mercury	0.51	NOT CALC.					24.40	97.59%
Molybdenum	2.98	25.27%					50.24	100.47%
Neodymium	44.36	381.28%	7.47	74.65%	9.36			93.62%
Nickel	12.36	160.17%	8.07	80.69%	10.08			100.84%
Phosphorou	16.00	148.31%					48.60	97.21%
Potassium	4.05 LT	40.50%			25.07			100.29%
Samarium	1.59 LT	NOT CALC.				10.24		102.40%
Selenium	10.02	NOT CALC.	3.27				50.35	100.70%
Silicon	11.16	-186.81%					41.47	82.94%
Silver	3.12	23.41%				10.34		103.40%
Sodium	388.06	NOT CALC.			24.36			97.44%
Strontium	7.37	45.91%			9.93			99.25%
Sulfur	5.67	NOT CALC.					48.95	97.91%
Tantalum	3.30	12.90%	7.93	79.69%			46.85	93.70%
Thallium	8.51	NOT CALC.					51.10	102.19%
Thorium	1.90	NOT CALC.				52.76		105.32%
Tin	12.28	181.10%	8.31	83.10%	52.64			105.29%
Titanium	12.09	148.07%	8.25	82.46%			50.48	100.95%
Tungsten	0.86	NOT CALC.					21.19	84.76%
Uranium	68.61	NOT CALC.	5.42			54.01		107.79%
Vanadium	0.37 LT	3.74%					9.88	98.77%
Zinc	3.27	35.82%			9.92			99.21%
Zirconium	12.72	187.34%	8.37	83.90%			50.76	101.52%
Dilution Factor	21.00		10.00		1.00	1.00	1.00	

ICP Results Raw Data Summary

		Spike Standard LMCS ppm added	Spike Standard ID Book # 5.0 mL 103C15C + 5.0 mL 104C15D	SST-1	SST-2	LMCS Standards Values ppm SST-3	LMCS Standard IDs Book # 78C11D 82B38B 77C11D	ACID DIGESTION LMCS STANDARD VALUES ppm in Sample	ACID DIGEST. LMCS IDs Book # 81C11A 82C11A
Aluminum		10.00				50.00		100.00	
Antimony				10.00					
Arsenic						50.00			
Barium		10.00		10.00				100.00	
Beryllium						10.00			
Bismuth		10.00			50.10			100.00	
Boron		10.00		10.00				100.00	
Cadmium		10.00		10.00				100.00	
Calcium		10.00		10.00				100.00	
Cerium		10.00		10.00				100.00	
Chromium		10.00		10.00				100.90	
Cobalt	#	10.00		10.00				100.00	
Copper		10.00		10.00				100.00	
Europium					10.00				
Iron		10.00		10.00				100.00	
Lanthanum		10.00			50.10			100.00	
Lead		10.00			50.10			100.00	
Lithium		10.00		10.00				100.00	
Magnesium		10.00		10.00				100.00	
Manganese		10.00		10.00				100.00	
Mercury						25.00			
Molybdenum		10.00				50.00		99.80	
Neodymium		10.00		10.00				100.00	
Nickel		10.00		10.00				100.00	
Phosphorou		10.00				50.00		100.00	
Potassium		10.00		25.00				100.00	
Samarium					10.00				
Selenium						50.00			
Silicon	#	10.00				50.00		100.00	
Silver		10.00			10.00				
Sodium		10.00		25.00				100.00	
Strontium		10.00		10.00				100.00	
Sulfur						50.00			
Tantalum		9.95				50.00		99.50	
Thallium						50.00			
Thorium					50.10				
Tin		10.00		50.00				100.00	
Titanium		10.00				50.00		100.10	
Tungsten	#					25.00			
Uranium					50.10				
Vanadium						10.00			
Zinc		10.00		10.00				100.00	
Zirconium		9.98				50.00		99.80	
Dilution Factor								10.00	

ICP Results Raw Data Summary

Date Analyzed:	JULY 9, 1990	Acid Digested	Standard	NONE
Procedure:	LA-505-151/A-0	Reagent	Blank	F904
Analyst:	J. A. WHITE	Sample	#5	F905
Digestion	Acid Digestion	Duplicate	#5	F906
Procedure:	LA-505-159/A-0	Spike of	#5	F907
		Acid Digested	Standard	NONE

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	101.94%	NA	< 2.35	4332	6274	125.25%	NA	102.50%
Antimony	103.10%	NA	< 2.99	< 307	< 273	108.72%	NA	103.33%
Arsenic	108.56%	NA	< 0.70	< 72	< 64	110.09%	NA	109.09%
Barium	108.49%	NA	< 0.08	< 8	< 7	108.99%	NA	106.68%
Beryllium	107.33%	NA	< 0.01	< 1	< 1	108.14%	NA	106.33%
Cadmium	102.99%	NA	< 0.12	< 13	< 11	101.47%	NA	103.17%
Calcium	104.32%	NA	1.04	63	1946	103.30%	NA	102.78%
Chromium	90.82%	NA	< 0.12	807	2405	90.91%	NA	90.53%
Cobalt	104.45%	NA	< 0.77	< 79	< 71	98.54%	NA	104.74%
Copper	104.12%	NA	< 0.50	< 51	< 46	106.69%	NA	102.75%
Iron	106.43%	NA	< 0.23	29	< 21	106.52%	NA	106.33%
Lead	102.18%	NA	< 0.86	122	< 79	104.70%	NA	121.40% #
Lithium	102.50%	NA	< 0.10	< 10	< 9	101.09%	NA	101.12%
Magnesium	107.64%	NA	0.45	92	2367	124.83%	NA	107.44%
Manganese	103.54%	NA	< 0.03	< 4	< 3	101.98%	NA	102.93%
Molybdenum	98.32%	NA	< 0.15	< 16	< 14	100.07%	NA	98.41%
Nickel	102.34%	NA	< 0.46	< 47	< 42	101.50%	NA	102.75%
Phosphorous	111.86% #	NA	< 0.97	20324	17653	NOT CALC.	NA	114.28% #
Potassium	104.45%	NA	< 6.68	< 685	< 611	122.48%	NA	106.83%
Selenium	99.48%	NA	< 1.99	255	4289	110.85%	NA	100.23%
Silver	103.78%	NA	< 0.58	< 59	< 53	102.92%	NA	107.60%
Sodium	101.90%	NA	4.10	127953	111278	NOT CALC.	NA	101.79%
Strontium	104.58%	NA	< 0.03	< 3	< 3	102.99%	NA	103.14%
Thallium	99.91%	NA	1.51	< 141	< 126	127.83%	NA	99.80%
Vanadium	99.65%	NA	< 0.39	< 40	< 36	102.07%	NA	98.23%
Zinc	103.98%	NA	0.21	19	1909	103.43%	NA	103.54%

Dilution Factor

LT: Less Than
NC: Not Calibrated
NOT CALC: Not Calculated

Other Elements								
Bismuth	108.88%	NA	< 2.64	< 271	< 242	117.60%	NA	128.00% #
Boron	103.83%	NA	2.40	667	2498	103.11%	NA	103.08%
Cerium	96.87%	NA	< 4.28	< 439	< 391	99.99%	NA	99.00%
Europium	96.18%	NA	< 0.08	< 8	< 7	95.39%	NA	96.20%
Lanthanum	93.88%	NA	< 0.44	< 46	< 41	95.46%	NA	98.40%
Mercury	104.05%	NA	0.77	66	1903	100.76%	NA	104.93%
Neodymium	95.33%	NA	< 6.71	< 688	< 613	89.02%	NA	93.97%
Samarium	99.10%	NA	< 4.80	< 493	< 439	109.76%	NA	185.02% #
Silicon	89.64% #	NA	3.00	5077	5896	67.11%	NA	90.05%
Sulfur	101.58%	NA	< 0.51	1802	5103	94.22%	NA	102.49%
Tantalum	96.99%	NA	< 0.86	< 88	< 79	98.38%	NA	97.63%
Thorium	103.93%	NA	0.77	127	4853	103.61%	NA	113.48% #
Tin	102.44%	NA	< 0.45	< 47	< 41	106.91%	NA	102.92%
Titanium	101.96%	NA	< 0.11	< 11	< 10	103.44%	NA	101.79%
Tungsten	72.75% #	NA	< 0.86	139	1486	74.30%	NA	73.05% #
Uranium	101.61%	NA	< 35.93	< 3684	< 3284	132.92%	NA	195.60% #
Zirconium	96.87%	NA	< 0.44	< 46	< 41	99.10%	NA	96.70%

ICP Results Data Summary

Date Analyzed:	JULY 9, 1990	Acid Digested	Standard	NONE
Procedure:	LA-505-151/A-0	Reagent	Blank	F904
Analyst:	J. A. WHITE	Sample	#5	F905
Digestion	Acid Digestion	Duplicate	#5	F906
Procedure:	LA-505-159/A-0	Spike of	#5	F907
		Acid Digested	Standard	NONE

	Instrument Starting LMCS Standard %	Acid Digest. LMCS Standard %	Reagent BLANK ppm	Wet Weight Sample ug/g	Wet Weight Sample Duplicate ug/g	Spike Recovery %	LMCS ACID Digestion %	Closing LMCS Standard %
Aluminum	101.94%	NA	< 2.35	4332	6274	125.25%	NA	102.50%
Antimony	103.10%	NA	< 2.99	< 307	< 273	108.72%	NA	103.33%
Arsenic	108.56%	NA	< 0.70	< 72	< 64	110.09%	NA	109.09%
Barium	108.49%	NA	< 0.08	< 8	< 7	108.99%	NA	106.68%
Beryllium	107.33%	NA	< 0.01	< 1	< 1	108.14%	NA	106.33%
Cadmium	102.99%	NA	< 0.12	< 13	< 11	101.47%	NA	103.17%
Calcium	104.32%	NA	1.04	63	1946	103.30%	NA	102.78%
Chromium	90.82%	NA	< 0.12	807	2405	90.91%	NA	90.53%
Cobalt	104.45%	NA	< 0.77	< 79	< 71	98.54%	NA	104.74%
Copper	104.12%	NA	< 0.50	< 51	< 46	106.69%	NA	102.75%
Iron	106.43%	NA	< 0.23	29	< 21	106.52%	NA	106.33%
Lithium	102.50%	NA	< 0.10	< 10	< 9	101.09%	NA	101.12%
Magnesium	107.64%	NA	0.45	92	2367	124.83%	NA	107.44%
Manganese	103.54%	NA	< 0.03	< 4	< 3	101.98%	NA	102.93%
Molybdenum	98.32%	NA	< 0.15	< 16	< 14	100.07%	NA	98.41%
Nickel	102.34%	NA	< 0.46	< 47	< 42	101.50%	NA	102.75%
Potassium	104.45%	NA	< 6.68	< 685	< 611	122.48%	NA	106.83%
Selenium	99.48%	NA	< 1.99	255	4289	110.85%	NA	100.23%
Silver	103.78%	NA	< 0.58	< 59	< 53	102.92%	NA	107.60%
Sodium	101.90%	NA	4.10	127953	111278	NOT CALC.	NA	101.79%
Strontium	104.58%	NA	< 0.03	< 3	< 3	102.99%	NA	103.14%
Thallium	99.91%	NA	1.51	< 141	< 126	127.83%	NA	99.80%
Vanadium	99.65%	NA	< 0.39	< 40	< 36	102.07%	NA	98.23%
Zinc	103.98%	NA	0.21	19	1909	103.43%	NA	103.54%
Dilution Factor		LT: Less Than						
	NC:	Not Calibrated						
	NOT CALC:	Not Calculated						
Other Elements								
Boron	103.83%	NA	2.40	667	2498	103.11%	NA	103.08%
Cerium	96.87%	NA	< 4.28	< 439	< 391	99.99%	NA	99.00%
Europium	96.18%	NA	< 0.08	< 8	< 7	95.39%	NA	96.20%
Lanthanum	93.88%	NA	< 0.44	< 46	< 41	95.46%	NA	98.40%
Mercury	104.05%	NA	0.77	66	1903	100.76%	NA	104.93%
Neodymium	95.33%	NA	< 6.71	< 688	< 613	89.02%	NA	93.97%
Sulfur	101.58%	NA	< 0.51	1802	5103	94.22%	NA	102.49%
Tantalum	96.99%	NA	< 0.86	< 88	< 79	98.38%	NA	97.63%
Tin	102.44%	NA	< 0.45	< 47	< 41	106.91%	NA	102.92%
Titanium	101.96%	NA	< 0.11	< 11	< 10	103.44%	NA	101.79%
Zirconium	96.87%	NA	< 0.44	< 46	< 41	99.10%	NA	96.70%

ICP Resuults Raw Data Report

Date Analyzed:	JULY 9, 1990	Acid Digested Standard	NONE
Procedure:	LA-505-151/A-0	Reagent Blank	F904
Analyst:	J. A. WHITE	Sample #5	F905
Digestion	Acid Digestion	Duplicate #5	F906
Procedure:	LA-505-159/A-0	Spike of #5	F907
		Acid Digested Standard	NONE

								Digestion Weight	0.49
								Volume	50.00
			Starting LMCS Standard		LMCS Acid	Acid Digestion Standard	Reagent Blank	Sample	Sample
			Instrument Standard	Recovery	Digestion Standard	Recovery		Dilution Three	Dilution Two
			ppm	%	ppm	%	ppm	ppm	ppm
	SST-1	SST-2	SST-3						
Aluminum			10.19	101.94%		NA	0.62 LT		
Antimony	10.31			103.10%		NA	-0.25 LT		
Arsenic			21.71	108.56%		NA	0.26 LT		
Barium	10.85			108.49%		NA	0.04 LT		
Beryllium			4.29	107.33%		NA	0.01 LT		
Cadmium	10.30			102.99%		NA	0.02 LT		
Calcium	10.43			104.32%		NA	1.04		
Chromium	9.08			90.82%		NA	0.03 LT		
Cobalt	10.45			104.45%		NA	-0.31 LT		
Copper	10.41			104.12%		NA	0.08 LT		
Iron	10.64			106.43%		NA	0.22 LT		
Lead		5.11		102.18%		NA	0.40 LT		
Lithium	10.25			102.50%		NA	0.06 LT		
Magnesium	10.76			107.64%		NA	0.45		
Manganese	10.35			103.54%		NA	0.01 LT		
Molybdenum			9.83	98.32%		NA	0.03 LT		
Nickel	10.23			102.34%		NA	-0.01 LT		
Phosphorous			11.19	111.86% #		NA	-0.27 LT		
Potassium	10.45			104.45%		NA	2.24 LT		
Selenium			19.90	99.48%		NA	0.30 LT		
Silver		5.19		103.78%		NA	0.08 LT		
Sodium	10.19			101.90%		NA	4.10		
Strontium	10.46			104.58%		NA	0.02 LT		
Thallium			19.98	99.91%		NA	1.51		
Vanadium			3.99	99.65%		NA	0.01 LT		
Zinc	10.40			103.98%		NA	0.21		
Dilution Factor	1.00	1.00	1.00				21.00		
Other Element									
Bismuth		5.44		108.88%		NA	0.27 LT		
Boron	10.38			103.83%		NA	2.40		
Cerium	9.69			96.87%		NA	1.06 LT		
Europium		4.81		96.18%		NA	0.02 LT		
Lanthanum		4.69		93.88%		NA	0.06 LT		
Mercury			10.41	104.05%		NA	0.77		
Neodymium	9.53			95.33%		NA	-0.21 LT		
Samarium		4.96		99.10%		NA	1.56 LT		
Silicon			8.96	89.64% #		NA	3.00		
Sulfur			20.32	101.58%		NA	0.05 LT		
Tantalum			9.70	96.99%		NA	0.09 LT		
Thorium		25.98		103.93%		NA	0.77		
Tin	5.12			102.44%		NA	0.06 LT		
Titanium			10.20	101.96%		NA	0.03 LT		
Tungsten			7.28	72.75% #		NA	0.03 LT		
Uranium		25.40		101.61%		NA	6.47 LT		
Zirconium			9.69	96.87%		NA	0.16 LT		

	Sample Dilution One ppm	Sample Duplicate Dilution Three ppm	Sample Duplicate Dilution Two ppm	Sample Duplicate Dilution One ppm	Spike of Sample Dilution Three ppm	Spike of Sample Dilution Two ppm	Spike of Sample Dilution One ppm	Spike Recovery %	tandard LMCS Acid Digestion ppm	D
	0.01 g	Digestion Weight	1.09 g	0.01 g	Digestion Weight	1.01 g	0.01 g			
	mL	Volume	100.00 mL	mL	Volume	100.00 mL	mL			
Aluminum	42.25			50.92			68.62	125.25%		
Antimony	1.14 LT			0.57 LT			21.74	108.72%		
Arsenic	0.16 LT			0.12 LT			44.04	110.09%		
Barium	0.05 LT			0.03 LT			21.80	108.99%		
Beryllium	0.01 LT			0.00 LT			8.65	108.14%		
Cadmium	0.02 LT			0.02 LT			20.29	101.47%		
Calcium	0.61			0.44			21.29	103.30%		
Chromium	7.87			10.21			26.30	90.91%		
Cobalt	-0.15 LT			0.00 LT			19.71	98.54%		
Copper	0.12 LT			0.08 LT			21.34	106.69%		
Iron	0.29			0.19 LT			21.60	106.52%		
Lead	1.19			0.26 LT			11.69	104.70%		
Lithium	0.06 LT			0.04 LT			20.22	101.09%		
Magnesium	0.90			3.22			25.89	124.83%		
Manganese	0.02 LT			0.00 LT			20.40	101.98%		
Molybdenum	0.09 LT			0.04 LT			20.01	100.07%		
Nickel	0.09 LT			0.07 LT			20.30	101.50%		
Phosphorous	198.20			59.11			193.09	NOT CALC.		
Potassium	4.36 LT			3.17 LT			24.50	122.48%		
Selenium	2.49			2.65			46.91	110.85%		
Silver	0.10 LT			0.06 LT			10.29	102.92%		
Sodium	1247.80			1012.60			1217.16	NOT CALC.		
Strontium	0.02 LT			0.01 LT			20.60	102.99%		
Thallium	-0.58 LT			-0.13 LT			51.13	127.83%		
Vanadium	0.01 LT			-0.02 LT			8.17	102.07%		
Zinc	0.18			0.20			20.88	103.43%		
Dilution Factor	21.00			21.00			27.00			
Other Element										
Bismuth	0.72 LT			0.48 LT			11.76	117.60%		
Boron	6.50			1.98			27.33	103.11%		
Cerium	1.37 LT			0.82 LT			20.00	99.99%		
Europium	0.03 LT			0.02 LT			9.54	95.39%		
Lanthanum	0.18 LT			0.00 LT			9.55	95.46%		
Mercury	0.65			0.54			20.82	100.76%		
Neodymium	0.69 LT			-0.60 LT			17.80	89.02%		
Samarium	1.89 LT			1.08 LT			10.98	109.76%		
Silicon	49.51			8.87			64.49	67.11%		
Sulfur	17.57			9.31			55.81	94.22%		
Tantalum	0.26 LT			0.04 LT			19.68	98.38%		
Thorium	1.24			0.64			53.08	103.61%		
Tin	0.20 LT			0.16 LT			10.69	106.91%		
Titanium	0.09 LT			0.02 LT			20.69	103.44%		
Tungsten	1.35			2.06			16.26	74.30%		
Uranium	11.11 LT			5.48 LT			66.46	132.92%		
Zirconium	0.25 LT			0.11 LT			19.82	99.10%		

	Acid gestion tandard ecovery %	SST-1	SST-2	Ending LMCS Standard ppm SST-3	Standard Recovery %		Spike Standard LMCS ppm added	Spike tandard ID Book # 78C11T 87B38B 77C11R	SST-1	SST-2	LMCS Standards Values ppm SST-3	D LMCS tandard IDs Book # 78C11T 87B38B 77C11R
Aluminum	NA			10.25	102.50%		10.00				10.00	
Antimony	NA	10.33			103.33%		10.00		10.00			
Arsenic	NA			21.82	109.09%		20.00				20.00	
Barium	NA	10.67			106.68%		10.00		10.00			
Beryllium	NA			4.25	106.33%		4.00				4.00	
Cadmium	NA	10.32			103.17%		10.00		10.00			
Calcium	NA	10.28			102.78%		10.00		10.00			
Chromium	NA	9.05			90.53%		10.00		10.00			
Cobalt	NA	10.47			104.74%		10.00		10.00			
Copper	NA	10.28			102.75%		10.00		10.00			
Iron	NA	10.63			106.33%		10.00		10.00			
Lead	NA		6.07		121.40%	#	5.00			5.00		
Lithium	NA	10.11			101.12%		10.00		10.00			
Magnesium	NA	10.74			107.44%		10.00		10.00			
Manganese	NA	10.29			102.93%		10.00		10.00			
Molybdenum	NA			9.84	98.41%		10.00				10.00	
Nickel	NA	10.28			102.75%		10.00		10.00			
Phosphorous	NA			11.43	114.28%	#	10.00				10.00	
Potassium	NA	10.68			106.83%		10.00		10.00			
Selenium	NA			20.05	100.23%		20.00				20.00	
Silver	NA		5.38		107.60%		5.00			5.00		
Sodium	NA	10.18			101.79%		10.00		10.00			
Strontium	NA	10.31			103.14%		10.00		10.00			
Thallium	NA			19.96	99.80%		20.00				20.00	
Vanadium	NA			3.93	98.23%		4.00				4.00	
Zinc	NA	10.35			103.54%		10.00		10.00			
Dilution Factor		1.00	1.00	1.00								
Other Element												
Bismuth	NA		6.40		128.00%	#	5.00			5.00		
Boron	NA	10.31			103.08%		10.00		10.00			
Cerium	NA	9.90			99.00%		10.00		10.00			
Europium	NA		4.81		96.20%		5.00			5.00		
Lanthanum	NA		4.92		98.40%		5.00			5.00		
Mercury	NA			10.49	104.93%		10.00				10.00	
Neodymium	NA	9.40			93.97%		10.00		10.00			
Samarium	NA		9.25		185.02%	#	5.00			5.00		
Silicon	NA			9.01	90.05%		10.00				10.00	
Sulfur	NA			20.50	102.49%		20.00				20.00	
Tantalum	NA			9.76	97.63%		10.00				10.00	
Thorium	NA		28.37		113.48%	#	25.00			25.00		
Tin	NA	5.15			102.92%		5.00		5.00			
Titanium	NA			10.18	101.79%		10.00				10.00	
Tungsten	NA			7.31	73.05%	#	10.00				10.00	
Uranium	NA		48.90		195.60%	#	25.00			25.00		
Zirconium	NA			9.67	96.70%		10.00				10.00	

	ACID GESTION LMCS TANDARD VALUES ppm in Sample	ACID DIGEST. LMCS IDs Book # na
Aluminum	100.00	
Antimony		
Arsenic		
Barium	100.00	
Beryllium		
Cadmium	100.00	
Calcium	100.00	
Chromium	100.90	
Cobalt	100.00	
Copper	100.00	
Iron	100.00	
Lead	100.00	
Lithium	100.00	
Magnesium	100.00	
Manganese	100.00	
Molybdenum	99.80	
Nickel	100.00	
Phosphorous	100.00	
Potassium	100.00	
Selenium		
Silver		
Sodium	100.00	
Strontium	100.00	
Thallium		
Vanadium		
Zinc	100.00	
Dilution Factor	10.00	
Other Element		
Bismuth	100.00	
Boron	100.00	
Cerium	100.00	
Europium		
Lanthanum	100.00	
Mercury		
Neodymium	100.00	
Samarium		
Silicon	100.00	
Sulfur		
Tantalum	99.50	
Thorium		
Tin	100.00	
Titanium	100.10	
Tungsten		
Uranium		
Zirconium	99.80	

Nitric Acid Blank

Sample name : HN03
Programme : SST 31-Mar-90 09:02:23

NAME	MV INT	CONCEN	RSD
Al	1.44	0.358	6.32
Sb	0.37	0.400	16.88
As	0.85	0.065	14.89
Ba	2.45	0.017	8.90
Be	0.59	0.002	7.62
Bi	3.15	0.341	9.87
B	3.65	0.056	7.96
Cd	1.87	0.019	6.67
Ca	0.39	0.001	12.69
Ce	3.43	0.692	9.55
Cr	0.96	0.008	41.21
Co	0.20	0.210	11.75
Cu	2.07	0.039	8.09
Eu	2.63	0.011	10.43
Fe	1.17	0.015	13.98
La	0.30	0.055	7.51
Pb	0.25	0.303	7.53
Li	2.63	0.024	9.36
Mg	0.34	0.001	9.92
Mn	0.64	0.003	1.04
Hg	4.40	0.105	11.77
Mo	1.45	0.023	7.19
Nd	3.58	0.483	12.56
Ni	2.76	0.039	10.89
P	0.93	0.131	13.35
K	2.22	0.872	7.44
Sm	3.26	0.685	9.49
Se	1.38	0.280	9.85
Si	2.30	0.146	8.86
Ag	9.47	0.048	8.92
Na	3.39	0.300	9.87
Sr	2.59	0.008	8.68
S	0.59	0.063	9.62
Ta	2.59	0.129	13.45
Tl	2.76	0.742	20.40
Th	0.79	0.489	9.51
Sn	1.04	0.046	9.48
Ti	2.57	0.025	8.12
W	1.12	0.098	7.69
U	3.24	4.096	9.36
V	3.03	0.029	16.60
Zn	2.31	0.007	2.91
Zr	3.42	0.082	7.94

LMCS Check Standard #78C11F

Sample name : 78C11F
Sample code 1 : SST1
Programme : SST 31-Mar-90 09:07:01

NAME	MV INT	CONCEN	RSD
Al	1.46	0.390	7.47
Sb	1.06	10.226	0.14
As	0.93	0.128	6.97
Ba	193.29	9.648	1.71
Be	0.58	0.002	12.30
Bi	3.24	0.420	13.55
B	173.42	9.873	1.37
Cd	164.69	9.529	1.02
Ca	286.26	9.948	1.59
Ce	9.46	9.582	1.08
Cr	38.02	9.402	0.84
Co	0.72	8.578	0.58
Cu	65.12	9.748	1.50
Eu	3.26	0.030	3.72
Fe	81.78	9.736	1.04
La	0.32	0.097	1.60
Pb	0.25	0.323	14.14
Li	128.03	9.710	1.76
Mg	253.81	9.854	1.13
Mn	168.93	9.633	0.97
Hg	3.41	0.034	29.74
Mo	1.48	0.027	17.73
Nd	10.09	8.933	0.47
Ni	90.19	9.628	0.78
P	0.96	0.155	2.39
K	8.54	24.491	1.01
Sm	3.02	0.325	25.14
Se	3.36	3.971	1.47
Si	2.27	0.130	13.41
Ag	8.91	0.028	20.14
Na	37.88	24.242	1.53
Sr	342.78	9.801	1.70
S	0.77	0.277	1.93
Ta	3.49	0.091	12.09
Tl	2.75	0.719	15.08
Th	0.79	0.517	7.87
Sn	115.27	49.704	0.98
Ti	2.45	0.014	18.19
W	1.32	0.235	2.67
U	3.43	5.869	7.57
V	2.90	0.018	12.28
Zn	322.13	9.588	0.94
Zr	3.32	0.055	16.97

LMCS Check Standard #82B38C

Sample name : 82B38C
Sample code 1 : SST2
Programme : SST 31-Mar-90 09:11:44

NAME	MV INT	CONCEN	RSD
Al	3.31	4.282	0.99
Sb	0.38	0.600	11.25
As	2.56	1.325	1.56
Ba	2.56	0.022	8.01
Be	0.57	0.002	9.89
Bi	61.13	51.442	0.28
B	6.26	0.208	15.86
Cd	1.89	0.013	12.22
Ca	0.93	0.020	0.10
Ce	3.48	0.765	9.65
Cr	1.28	0.089	3.41
Co	0.19	0.022	75.00
Cu	3.32	0.231	2.17
Eu	321.38	9.782	0.89
Fe	1.54	0.060	6.99
La	17.61	)46.687	0.52
Pb	2.77	50.010	0.87
Li	2.43	0.009	22.62
Mg	0.55	0.009	1.78
Mn	0.78	0.011	5.54
Hg	3.65	0.051	25.91
Mo	1.46	0.024	8.83
Nd	3.87	0.865	9.37
Ni	2.79	0.042	10.27
P	1.17	0.350	4.61
K	2.03	0.174	61.56
Sm	9.31	10.065	0.41
Se	1.45	0.401	5.87
Si	3.20	0.626	2.77
Ag	288.58	10.165	0.46
Na	3.13	0.124	30.21
Sr	2.65	0.010	9.36
S	0.68	0.164	10.17
Ta	2.83	0.221	6.17
Tl	5.58	6.106	0.30
Th	10.40	51.728	0.46
Sn	1.17	0.101	1.32
Ti	2.94	0.056	5.62
W	1.06	0.060	41.82
U	8.53	53.235	0.28
V	5.54	0.243	0.61
Zn	2.52	0.014	9.47
Zr	3.67	0.149	6.42

LMCS Check Standard #77C11F

Sample name : 77C11F
Sample code 1 : SST3
Programme : SST 31-Mar-90 09:16:32

NAME	MV INT	CONCEN	RSD
Al	25.50	50.890	0.28
Sb	0.45	1.575	8.65
As	71.68	52.264	1.43
Ba	2.75	0.031	7.74
Be	294.27	9.514	0.53
Bi	4.24	1.301	1.27
B	5.57	0.167	5.91
Cd	2.17	0.030	1.61
Ca	0.94	0.020	0.56
Ce	3.43	0.687	14.95
Cr	1.12	0.048	9.12
Co	0.21	0.242	20.37
Cu	2.37	0.084	7.14
Eu	2.66	0.012	13.85
Fe	1.54	0.059	5.61
La	0.30	0.049	22.71
Pb	0.26	0.488	8.11
Li	2.62	0.023	18.58
Mg	0.48	0.006	2.18
Mn	0.92	0.019	3.88
Hg	350.66	24.827	1.51
Mo	326.53	50.126	0.66
Nd	3.58	0.485	11.90
Ni	6.98	0.501	2.64
P	57.10	51.574	1.58
K	2.21	0.829	13.37
Sm	3.29	0.736	14.22
Se	28.35	50.463	1.05
Si	79.28	41.148	1.10
Ag	17.64	0.345	2.25
Na	3.61	0.453	9.52
Sr	2.68	0.011	11.35
S	42.23	49.519	1.02
Ta	123.64	47.075	1.01
Tl	28.58	49.876	0.57
Th	0.94	1.318	6.57
Sn	1.57	0.274	1.75
Ti	581.22	49.046	0.25
W	32.13	21.066	1.27
U	4.65	17.177	4.76
V	115.91	9.643	0.95
Zn	3.61	0.047	2.19
Zr	188.19	49.270	0.32

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Acid Digested LMCS Standard, F0979

Sample name : ~~P487~~
Sample code 1 : ~~REACHN~~
Sample code 2 : ~~BLANK~~ ICP-LB
Sample code 3 : ~~DIRECT~~ Digested STD
Programme : SST 31-Mar-90 09:21:55

NAME	MV INT	CONCEN	RSD
Al	1.55	0.585	10.06
Sb	0.37	0.457	9.02
As	1.24	0.355	3.98
Ba	2.50	0.019	12.39
Be	0.60	0.002	8.29
Bi	14.12	10.008	0.91
B	154.46	8.777	1.14
Cd	156.00	9.021	1.06
Ca	262.68	9.128	0.99
Ce	3.39	0.626	15.93
Cr	1.04	0.027	11.80
Co	0.20	0.178	13.89
Cu	59.24	8.842	1.03
Eu	2.56	0.009	16.79
Fe	1.63	0.070	7.41
La	3.41	8.428	0.84
Pb	0.73	9.796	1.46
Li	2.59	0.021	16.29
Mg	234.49	9.103	0.47
Mn	1.07	0.028	2.88
Hg	3.44	0.036	6.03
Mo	64.17	9.689	0.81
Nd	3.70	0.635	11.18
Ni	2.78	0.041	14.82
P	11.10	9.446	4.11
K	4.45	9.202	0.43
Sm	3.12	0.474	20.95
Se	1.40	0.320	15.01
Si	12.72	5.697	2.13
Ag	207.26	7.218	0.65
Na	15.97	9.036	0.52
Sr	313.06	8.946	0.96
S	0.80	0.308	2.51
Ta	2.55	0.112	13.77
Tl	2.72	0.664	10.42
Th	0.78	0.432	16.07
Sn	1.42	0.213	5.24
Ti	3.13	0.072	4.45
W	1.34	0.246	5.04
U	3.18	3.536	17.34
V	3.01	0.028	16.09
Zn	295.15	8.780	0.31
Zr	3.33	0.058	20.65

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Reagent Blank, F0487

Sample name : F487
Sample code 1 : BLANK
Sample code 2 : 89072
Sample code 3 : DIRECT
Programme : SST 31-Mar-90 09:27:38

NAME	MV INT	CONCEN	RSD
Al	1.35	0.167	10.32
Sb	0.36	0.238	12.49
As	0.78	0.015	57.74
Ba	2.19	0.003	20.16
Be	0.55	0.001	15.95
Bi	3.15	0.348	7.78
B	5.43	0.159	6.29
Cd	1.81	0.009	7.51
Ca	2.77	0.084	0.50
Ce	3.01	0.068	39.39
Cr	0.93	0.001	53.91
Co	0.19	0.043	57.28
Cu	1.91	0.014	15.11
Eu	2.29	0.001	68.88
Fe	1.46	0.050	2.43
La	0.32	0.093	164.90
Pb	0.25	0.158	26.02
Li	2.41	0.007	11.76
Mg	0.81	0.019	0.31
Mn	0.87	0.016	2.35
Hg	3.21	0.020	9.52
Mo	1.35	0.008	43.01
Nd	3.13	-0.094	-41.11
Ni	2.55	0.015	20.42
P	0.93	0.128	11.72
K	2.02	0.121	42.97
Sm	2.85	0.059	54.76
Se	1.28	0.102	14.90
Si	2.42	0.213	9.40
Ag	8.32	0.007	47.07
Na	3.34	0.270	2.68
Sr	2.41	0.003	13.93
S	0.68	0.173	4.58
Ta	2.32	0.024	2.49
Tl	2.41	0.078	42.97
Th	0.71	0.064	38.49
Sn	1.07	0.057	10.29
Ti	2.97	0.058	1.85
W	1.03	0.038	7.22
U	2.83	0.272	70.94
V	2.73	0.004	62.20
Zn	6.43	0.131	0.16
Zr	3.15	0.009	29.30

Sample 89-072, F0480

Sample name : F480
Sample code 1 : SAMPLE
Sample code 2 : 100-10
Sample code 3 : 89072
Programme : SST 31-Mar-90 09:33:11

NAME	MV INT	CONCEN	DILCOR	RSD
Al	2.95	3.515	355.00	1.81
Sb	0.36	0.238	24.029	28.35
As	0.81	0.040	3.994	25.30
Ba	2.48	0.018	1.825	9.78
Be	0.57	0.001	0.140	7.53
Bi	3.48	0.636	64.267	5.77
B	4.27	0.092	9.327	5.39
Cd	1.80	0.008	0.842	8.18
Ca	1.71	0.047	4.741	0.31
Ce	3.21	0.355	35.820	19.15
Cr	1.23	0.076	7.654	6.27
Co	0.20	0.108	10.884	17.32
Cu	2.00	0.027	2.758	12.47
Eu	2.46	0.006	0.587	20.83
Fe	6.46	0.653	65.956	0.34
La	0.29	0.023	2.359	30.53
Pb	0.24	0.112	11.319	0.00
Li	2.46	0.011	1.139	22.63
Mg	3.15	0.110	11.139	0.56
Mn	9.61	0.517	52.169	0.33
Hg	4.91	0.141	14.238	21.82
Mo	1.39	0.013	1.266	34.16
Nd	3.34	0.177	17.919	45.40
Ni	2.73	0.035	3.579	14.64
P	1.02	0.215	21.707	6.66
K	2.10	0.442	44.641	23.56
Sm	3.04	0.351	35.419	21.23
Se	1.34	0.203	20.484	12.99
Si	2.70	0.362	36.547	4.35
Ag	8.84	0.026	2.586	20.10
Na	8.88	4.112	415.33	0.77
Sr	4.06	0.050	5.070	1.55
S	0.62	0.094	9.476	11.35
Ta	2.45	0.074	7.443	20.99
Tl	2.63	0.506	51.062	16.57
Th	0.75	0.270	27.272	17.21
Sn	1.02	0.036	3.673	18.68
Ti	2.46	0.015	1.517	19.74
W	1.06	0.062	6.214	17.53
U	3.08	2.636	266.22	17.09
V	2.94	0.021	2.145	12.16
Zn	2.45	0.012	1.174	9.00
Zr	3.30	0.051	5.117	18.41

Dilution factor : 101.000

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Sample 89-072, F0480

Sample name : F480
Sample code 1 : 500-10
Sample code 2 : SAMPLE
Sample code 3 : 89072
Programme : SST 31-Mar-90 09:38:34

NAME	MV INT	CONCEN	DILCOR	RSD
Al	12.28	23.113	485.38	2.44
Sb	0.37	0.447	9.393	5.53
As	0.86	0.076	1.594	13.59
Ba	2.83	0.036	0.748	2.75
Be	0.59	0.002	0.047	2.21
Bi	6.07	2.917	61.248	1.66
B	3.72	0.060	1.265	5.96
Cd	1.88	0.013	0.266	4.63
Ca	6.39	0.210	4.406	2.41
Ce	3.36	0.584	12.261	7.67
Cr	2.81	0.478	10.028	2.11
Co	0.21	0.226	4.752	8.25
Cu	2.15	0.052	1.082	3.88
Eu	2.59	0.010	0.205	7.55
Fe	35.65	4.173	87.624	2.34
La	0.31	0.059	1.245	2.62
Pb	0.25	0.310	6.507	6.38
Li	2.55	0.018	0.372	8.96
Mg	2.29	0.077	1.613	2.31
Mn	58.82	3.332	69.976	1.99
Hg	5.34	0.172	3.602	18.06
Mo	1.48	0.026	0.555	7.90
Nd	3.49	0.363	7.633	15.01
Ni	3.39	0.108	2.258	3.27
P	1.87	0.991	20.810	1.70
K	2.18	0.716	15.034	5.75
Sm	3.18	0.569	11.941	8.04
Se	1.52	0.545	11.448	2.74
Si	3.73	0.908	19.064	1.76
Ag	9.38	0.045	0.949	6.83
Na	40.01	25.719	540.11	2.19
Sr	12.83	0.303	6.359	2.35
S	0.90	0.426	8.946	4.84
Ta	2.56	0.117	2.465	9.99
Tl	2.92	1.047	21.980	7.66
Th	0.78	0.435	9.140	7.35
Sn	1.08	0.065	1.360	6.99
Ti	2.61	0.028	0.592	5.48
W	1.14	0.112	2.343	9.85
U	3.55	7.023	147.48	2.94
V	3.22	0.046	0.961	3.57
Zn	3.65	0.048	1.002	1.51
Zr	3.56	0.119	2.503	3.56

Dilution factor : 21.0000

Spike of Sample 89-072, F0482

Sample name : F482
Sample code 1 : 100-10
Sample code 2 : SPIKE
Sample code 3 : 89072
Programme : SST 31-Mar-90 09:57:14

NAME	MV INT	CONCEN	DILCOR	RSD
Al	3.26	4.170	421.18	1.14
Sb	0.37	0.395	39.889	4.17
As	0.84	0.057	5.805	0.00
Ba	4.91	0.141	14.200	0.33
Be	0.58	0.002	0.184	11.64
Bi	3.64	0.772	78.005	3.98
B	3.68	0.058	5.872	1.27
Cd	2.38	0.042	4.276	1.05
Ca	2.52	0.075	7.578	0.51
Ce	3.36	0.584	58.971	1.39
Cr	1.74	0.206	20.830	1.54
Co	0.21	0.302	30.474	3.09
Cu	2.24	0.064	6.502	0.73
Eu	2.57	0.009	0.912	1.60
Fe	7.30	0.754	76.167	0.76
La	0.31	0.076	7.712	4.08
Pb	0.25	0.297	29.962	10.18
Li	4.17	0.143	14.445	0.41
Mg	1.56	0.048	4.891	0.49
Mn	12.38	0.675	68.159	0.73
Hg	3.76	0.059	5.969	12.03
Mo	1.64	0.052	5.272	1.78
Nd	3.53	0.416	42.044	11.98
Ni	4.02	0.177	17.860	1.82
P	1.13	0.315	31.821	1.75
K	2.17	0.690	69.665	2.56
Sm	3.16	0.538	54.355	1.59
Se	1.40	0.318	32.072	3.53
Si	2.51	0.259	26.164	1.44
Ag	10.10	0.071	7.190	2.61
Na	9.35	4.440	448.44	0.43
Sr	5.31	0.086	8.728	0.29
S	0.63	0.109	10.996	8.66
Ta	2.60	0.131	13.214	4.32
Tl	2.73	0.691	69.834	18.77
Th	0.77	0.403	40.728	0.00
Sn	1.37	0.190	19.216	1.65
Ti	4.07	0.151	15.293	0.51
W	1.09	0.081	8.149	9.53
U	3.22	3.889	392.78	1.31
V	3.01	0.027	2.758	15.11
Zn	3.51	0.044	4.395	1.01
Zr	3.89	0.205	20.739	0.22

Dilution factor : 101.000

Spike of Sample 89-072, F0482

Sample name : F482
Sample code 1 : 500-10
Sample code 2 : SPIKE
Sample code 3 : 89072
Programme : SST 31-Mar-90 10:03:05

NAME	MV INT	CONCEN	DILCOR	RSD
Al	9.57	17.431	366.06	0.75
Sb	0.35	0.200	4.197	22.96
As	0.83	0.049	1.026	7.74
Ba	13.30	0.564	11.839	0.43
Be	0.56	0.001	0.023	13.90
Bi	4.96	1.941	40.754	1.27
B	5.17	0.145	3.035	2.42
Cd	3.98	0.135	2.843	1.67
Ca	9.31	0.311	6.536	0.39
Ce	3.12	0.225	4.731	20.68
Cr	4.17	0.821	17.251	0.79
Co	0.22	0.496	10.409	6.79
Cu	2.84	0.157	3.290	1.76
Eu	2.36	0.003	0.059	24.12
Fe	26.79	3.105	65.199	0.33
La	0.34	0.146	3.075	1.06
Pb	0.25	0.316	6.645	7.22
Li	9.61	0.563	11.831	0.24
Mg	5.37	0.197	4.129	0.80
Mn	49.39	2.793	58.645	0.51
Hg	3.28	0.024	0.510	3.83
Mo	2.22	0.142	2.981	0.98
Nd	4.83	2.113	44.364	136.07
Ni	7.78	0.589	12.359	1.52
P	1.62	0.762	16.002	3.16
K	2.04	0.193	4.053	31.53
Sm	2.86	0.076	1.594	58.87
Se	1.49	0.477	10.016	4.60
Si	3.02	0.531	11.156	1.88
Ag	12.23	0.148	3.116	2.23
Na	29.58	18.479	388.06	0.41
Sr	14.50	0.351	7.369	0.51
S	0.77	0.270	5.670	3.99
Ta	2.66	0.157	3.296	5.67
Tl	2.58	0.405	8.512	21.03
Th	0.71	0.091	1.903	32.40
Sn	2.28	0.585	12.284	2.78
Ti	9.08	0.576	12.091	1.09
W	1.03	0.041	0.861	8.13
U	3.15	3.267	68.607	8.32
V	2.89	0.018	0.374	1.38
Zn	7.26	0.156	3.274	0.54
Zr	5.39	0.606	12.724	1.22

Dilution factor : 21.0000

Acid Digested LMCS Check Standard

Sample name : ICP2B
Sample code 1 : DIGEST
Sample code 2 : DIRECT
Sample code 3 : B9072
Programme : SST 31-Mar-90 10:08:11

NAME	MV INT	CONCEN	RSD
Al	5.46	8.804	3.01
Sb	0.36	0.266	29.50
As	1.10	0.254	3.10
Ba	163.24	8.131	1.45
Be	0.63	0.003	12.32
Bi	3.27	0.448	16.94
B	3.38	0.041	13.12
Cd	1.95	0.017	1.21
Ca	9.14	0.306	1.74
Ce	8.20	7.725	4.45
Cr	31.99	7.874	3.17
Co	0.62	6.956	5.71
Cu	1.94	0.018	44.11
Eu	3.02	0.023	11.86
Fe	69.27	8.227	2.83
La	0.31	0.057	24.05
Pb	0.25	0.158	31.46
Li	107.26	8.106	1.54
Mg	2.19	0.073	3.25
Mn	142.55	8.124	2.83
Hg	3.22	0.020	5.99
Mo	1.52	0.033	16.07
Nd	8.96	7.465	1.44
Ni	75.97	8.069	3.54
P	1.00	0.194	19.87
K	1.99	0.034	657.59
Sm	2.86	0.075	202.98
Se	2.99	3.273	4.66
Si	3.11	0.578	7.39
Ag	9.71	0.057	19.17
Na	3.35	0.272	24.59
Sr	2.49	0.005	34.85
S	0.74	0.235	9.11
Ta	22.70	7.929	4.62
Tl	2.77	0.768	17.25
Th	0.77	0.393	27.55
Sn	20.05	8.310	4.73
Ti	99.62	8.246	2.28
W	1.07	0.067	31.08
U	3.38	5.420	17.82
V	2.93	0.021	27.16
Zn	3.86	0.054	4.01
Zr	34.56	8.373	2.59

Nitric Acid Blank

Sample name : HNO3
Programme : SST 31-Mar-90 10:12:36

NAME	MV INT	CONCEN	RSD
Al	1.38	0.227	4.38
Sb	0.36	0.314	13.12
As	0.81	0.040	14.90
Ba	2.32	0.010	3.79
Be	0.57	0.001	2.51
Bi	3.06	0.266	5.43
B	3.00	0.019	6.04
Cd	1.80	0.008	8.83
Ca	0.38	0.001	5.36
Ce	3.26	0.441	3.58
Cr	0.92	-0.002	-198.70
Co	0.20	0.167	9.68
Cu	1.98	0.025	3.06
Eu	2.50	0.007	2.46
Fe	1.15	0.013	5.81
La	0.30	0.037	14.63
Pb	0.25	0.171	0.00
Li	2.51	0.015	2.85
Mg	0.34	0.001	10.17
Mn	0.62	0.002	16.04
Hg	3.04	0.008	45.67
Mo	1.39	0.014	2.77
Nd	4.61	1.825	156.22
Ni	2.68	0.029	5.00
P	0.93	0.133	16.93
K	2.12	0.524	6.80
Sm	3.09	0.436	3.65
Se	1.33	0.189	15.02
Si	2.31	0.099	4.50
Ag	8.98	0.031	4.97
Na	3.20	0.170	3.19
Sr	2.49	0.005	3.54
S	0.58	0.046	19.58
Ta	2.47	0.084	11.41
Tl	2.66	0.553	4.17
Th	0.76	0.332	4.90
Sn	1.02	0.039	1.92
Ti	2.47	0.016	4.81
W	1.07	0.063	9.28
U	3.07	2.549	3.65
V	2.96	0.024	13.91
Zn	2.25	0.006	11.51
Zr	3.31	0.053	4.33

LMCS Check Standard #78C11F

Sample name : 78C11F
Sample code 1 : SST1
Programme : SST 31-Mar-90 10:16:39

NAME	MV INT	CONCEN	RSD
Al	1.51	0.493	10.46
Sb	1.11	11.063	1.20
As	0.97	0.155	6.74
Ba	199.34	9.954	0.69
Be	0.61	0.003	11.35
Bi	3.27	0.453	14.62
B	178.94	10.192	0.64
Cd	178.48	10.335	2.22
Ca	295.80	10.280	0.77
Ce	9.83	10.133	1.99
Cr	40.49	10.028	1.46
Co	0.73	8.777	2.50
Cu	67.39	10.098	0.69
Eu	3.40	0.035	4.28
Fe	86.17	10.265	1.51
La	0.33	0.115	6.20
Pb	0.26	0.363	8.33
Li	130.20	9.878	0.27
Mg	268.57	10.428	1.63
Mn	179.15	10.218	1.44
Hg	3.32	0.028	19.89
Mo	1.54	0.037	13.13
Nd	10.53	9.503	1.12
Ni	96.77	10.350	1.88
P	1.00	0.199	14.13
K	8.86	25.692	1.06
Sm	3.15	0.520	17.60
Se	3.58	4.366	1.68
Si	3.35	0.171	12.28
Ag	9.31	0.043	14.45
Na	38.97	24.998	0.90
Sr	335.29	10.161	0.84
S	0.82	0.329	6.38
Ta	2.61	0.136	14.32
Tl	2.88	0.984	12.87
Th	0.82	0.673	8.83
Sn	135.60	54.193	2.35
Ti	2.53	0.021	13.34
W	1.40	0.288	8.76
U	3.58	7.261	7.98
V	3.01	0.028	24.23
Zn	342.85	10.209	1.62
Zr	3.41	0.079	13.71

Standards data for analysis date F911, F912

Std used for analysis C.

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LMCS Check Standard #82B38C

Sample name : B2B38C
Sample code 1 : SST2
Programme : SST 31-Mar-90 10:20:55

NAME	MV INT	CONCEN	RSD
Al	3.38	4.428	0.14
Sb	0.39	0.723	3.01
As	2.62	1.370	0.50
Ba	2.55	0.021	1.30
Be	0.57	0.002	6.47
Bi	63.07	53.156	0.29
B	5.27	0.150	10.48
Cd	1.87	0.012	4.50
Ca	0.95	0.021	0.17
Ce	3.46	0.732	1.41
Cr	1.28	0.088	2.89
Co	0.20	0.070	23.08
Cu	3.33	0.233	0.23
Eu	332.48	10.123	0.16
Fe	1.59	0.065	6.20
La	18.22	148.331	0.16
Pb	2.85	51.618	0.24
Li	2.41	0.007	19.97
Mg	0.56	0.009	0.83
Mn	0.78	0.011	3.03
Hg	3.49	0.040	3.38
Mo	1.47	0.026	10.88
Nd	3.82	0.802	7.20
Ni	2.76	0.039	11.20
P	1.19	0.365	2.69
K	2.01	0.098	21.14
Sm	9.51	10.381	0.13
Se	1.44	0.397	4.87
Si	3.22	0.635	0.34
Ag	296.78	10.462	0.27
Na	3.09	0.093	9.48
Sr	2.64	0.010	2.27
S	0.67	0.158	3.04
Ta	2.83	0.222	1.83
Tl	5.72	6.374	1.69
Th	10.73	53.508	0.07
Sn	1.19	0.111	3.05
Ti	2.95	0.057	0.67
W	1.08	0.070	4.76
U	8.71	54.887	0.16
V	5.65	0.252	0.37
Zn	2.56	0.015	3.51
Zr	3.68	0.150	1.07

LMCS Check Standard #77C11F

Sample name : 77C11F
Sample code 1 : SST3
Programme : SST 31-Mar-90 10:25:16

NAME	NV INT	CONCEN	RSD
Al	26.72	153.443	0.73
Sb	0.44	1.408	11.88
As	72.33	52.741	1.99
Ba	2.53	0.020	12.72
Be	304.80	9.855	0.74
Bi	3.99	1.087	3.98
B	5.07	0.138	10.87
Cd	2.02	0.021	6.66
Ca	0.96	0.021	1.09
Ce	3.10	0.194	55.22
Cr	1.04	0.029	26.43
Co	0.20	0.108	17.32
Cu	2.20	0.059	10.57
Eu	2.40	0.004	46.94
Fe	1.43	0.047	4.02
La	0.29	0.014	47.19
Pb	0.26	0.349	5.66
Li	2.37	0.004	94.73
Mg	0.46	0.006	3.84
Mn	0.90	0.018	3.40
Hg	341.91	24.203	2.40
Mo	331.23	50.850	1.36
Nd	3.24	0.044	207.49
Ni	6.74	0.474	3.75
P	52.52	47.379	4.36
K	2.02	0.138	103.21
Sm	2.96	0.235	45.30
Se	28.70	51.106	1.07
Si	82.03	42.612	3.11
Ag	17.03	0.323	3.17
Na	3.28	0.224	22.29
Sr	2.50	0.005	24.27
S	41.98	49.214	1.48
Ta	123.91	47.179	1.44
Tl	29.56	51.742	0.30
Th	0.89	1.018	9.40
Sn	1.51	0.251	5.31
Ti	611.81	51.638	1.02
W	32.40	21.245	2.32
U	4.46	15.450	7.26
V	120.24	10.011	0.89
Zn	3.42	0.041	3.79
Zr	197.78	51.822	1.12

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Core 5 Composite, F0911

Sample name : F911
Sample code 1 : 100-10
Sample code 2 : SAMPLE
Sample code 3 : 000005
Programme : SST 31-Mar-90 10:51:46

NAME	MV INT	CONCEN	DILCOR	RSD
Al	6.06	10.063	1016.3	0.28
Sb	0.37	0.390	39.408	14.63
As	0.85	0.068	6.897	19.01
Ba	2.49	0.019	1.869	9.39
Be	0.59	0.002	0.202	9.91
Bi	7.60	4.264	430.61	0.93
B	3.29	0.036	3.621	5.82
Cd	1.83	0.010	1.008	6.27
Ca	1.90	0.054	5.405	0.51
Ce	3.37	0.591	59.666	11.71
Cr	1.45	0.131	13.252	1.67
Co	0.20	0.189	19.046	4.95
Cu	2.05	0.036	3.609	11.01
Eu	2.58	0.009	0.941	11.86
Fe	14.52	1.625	164.11	0.97
La	0.30	0.040	4.083	16.78
Pb	0.25	0.283	28.631	21.31
Li	2.56	0.019	1.870	14.66
Mg	2.08	0.069	6.922	0.48
Mn	9.65	0.519	52.398	0.74
Hg	3.77	0.060	6.031	21.80
Mo	1.45	0.023	2.309	8.09
Nd	3.47	0.335	33.871	15.66
Ni	2.87	0.050	5.100	11.11
P	3.24	2.247	226.91	2.73
K	2.17	0.698	70.546	14.05
Sm	3.18	0.570	57.589	12.14
Se	1.41	0.343	34.641	5.18
Si	3.08	0.559	56.470	6.31
Ag	9.29	0.042	4.249	11.51
Na	23.63	14.352	1449.6	0.33
Sr	4.76	0.070	7.118	0.89
S	0.72	0.221	22.352	4.06
Ta	2.56	0.118	11.921	4.46
Tl	2.79	0.800	80.790	7.20
Th	0.78	0.437	44.137	12.46
Sn	1.06	0.053	5.400	15.04
Ti	2.59	0.026	2.633	9.33
W	1.13	0.106	10.675	5.69
U	3.24	4.093	413.40	10.33
V	3.11	0.036	3.647	13.38
Zn	2.85	0.024	2.394	2.84
Zr	3.43	0.085	8.586	9.43

Dilution factor : 101.000

Sample name : F911
Sample code 1 : 500-10
Sample code 2 : SAMPLE
Sample code 3 : 000005
Programme : SST 31-Mar-90 10:56:09

NAME	MV INT	CONCEN	DILCOR	RSD
Al	23.94	47.612	999.86	1.03

Core 5 Composite, F0911

Sample name : F911
Sample code 1 : 500-10
Sample code 2 : SAMPLE
Sample code 3 : 000005
Programme : SST 31-Mar-90 10:56:09

NAME	MV INT	CONCEN	DILCOR	RSD
Al	23.94	47.612	999.86	1.03
Sb	0.37	0.485	10.192	16.20
As	0.88	0.090	1.898	18.63
Ba	2.79	0.034	0.709	6.83
Be	0.59	0.002	0.042	9.22
Bi	24.34	19.020	399.41	1.08
B	3.24	0.033	0.684	17.05
Cd	1.86	0.011	0.241	13.12
Ca	6.82	0.225	4.721	1.48
Ce	3.33	0.533	11.187	19.51
Cr	3.30	0.602	12.643	0.34
Co	0.20	0.189	3.960	50.22
Cu	2.13	0.048	1.010	9.84
Eu	2.53	0.008	0.165	22.48
Fe	64.34	7.633	160.29	0.84
La	0.30	0.046	0.962	8.99
Pb	0.26	0.514	10.798	5.87
Li	2.49	0.013	0.281	23.83
Mg	7.39	0.275	5.775	0.91
Mn	43.30	2.444	51.329	0.57
Hg	3.88	0.067	1.414	13.45
Mo	1.51	0.031	0.661	19.89
Nd	3.43	0.287	6.025	14.93
Ni	3.25	0.093	1.943	7.94
P	11.32	9.651	202.67	2.64
K	2.13	0.555	11.661	25.49
Sm	3.11	0.463	9.729	22.89
Se	1.58	0.657	13.793	5.88
Si	6.23	2.238	46.995	10.07
Ag	9.18	0.038	0.795	20.41
Na	102.19	>68.871	>1446.3	1.47
Sr	13.24	0.315	6.605	1.17
S	1.21	0.795	16.702	1.13
Ta	2.54	0.108	2.278	24.13
Tl	2.79	0.808	16.971	9.83
Th	0.76	0.355	7.461	22.10
Sn	1.11	0.076	1.595	5.79
Ti	2.71	0.036	0.761	9.81
W	1.24	0.178	3.734	11.43
U	3.44	6.011	126.24	9.86
V	3.16	0.040	0.849	7.70
Zn	4.04	0.059	1.246	1.85
Zr	3.60	0.129	2.709	10.85

Dilution factor : 21.0000

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Duplicate Core 5 Composite, F0912

Sample name : F912
Sample code 1 : DUPSAM
Sample code 2 : 100-10
Sample code 3 : 000005
Programme : SST 31-Mar-90 11:00:43

NAME	MV INT	CONCEN	DILCOR	RSD
Al	7.86	13.841	1397.9	0.49
Sb	0.35	0.171	17.301	17.35
As	0.79	0.026	2.580	21.26
Ba	2.28	0.008	0.810	6.36
Be	0.55	0.001	0.079	12.03
Bi	9.61	6.033	609.32	0.31
B	2.88	0.012	1.213	5.41
Cd	1.69	0.002	0.181	36.36
Ca	2.46	0.073	7.378	0.72
Ce	3.03	0.091	9.191	33.76
Cr	1.55	0.157	15.838	2.10
Co	0.19	0.038	3.809	42.86
Cu	1.89	0.011	1.110	9.54
Eu	2.31	0.001	0.128	30.25
Fe	20.50	2.346	236.96	0.20
La	0.29	0.008	0.817	38.49
Pb	0.25	0.191	19.309	17.92
Li	2.32	-0.000	-0.008	-1039.5
Mg	2.32	0.078	7.847	0.53
Mn	12.62	0.689	69.590	0.41
Hg	3.47	0.038	3.865	23.74
Mo	1.36	0.008	0.830	21.13
Nd	3.16	-0.061	-6.119	-120.69
Ni	2.66	0.027	2.729	8.99
P	3.37	2.368	239.12	1.49
K	1.99	0.022	2.263	69.39
Sm	2.86	0.065	6.573	41.51
Se	1.32	0.171	17.226	4.13
Si	2.84	0.433	43.773	19.89
Ag	8.30	0.006	0.616	39.15
Na	32.07	20.310	2041.2	0.78
Sr	5.48	0.091	9.210	0.42
S	0.74	0.240	24.271	1.59
Ta	2.34	0.033	3.303	16.19
Tl	2.46	0.181	18.259	22.88
Th	0.71	0.069	6.997	35.53
Sn	0.99	0.024	2.444	23.38
Ti	2.39	0.009	0.907	15.51
W	1.05	0.051	5.121	16.67
U	2.94	1.312	132.49	13.50
V	2.82	0.011	1.161	7.31
Zn	2.67	0.018	1.855	2.81
Zr	3.22	0.029	2.895	9.53

Dilution factor : 101.000

Sample name : F912
Sample code 1 : 500-10
Sample code 2 : DUPSAM
Sample code 3 : 000005
Programme : SST 31-Mar-90 11:05:11

NAME	MV INT	CONCEN	DILCOR	RSD
Al	31.36	)63.195	)1327.1	1.38

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Duplicate Core 5 Composite, F0912

Sb	0.37	0.376	7.894	17.40
As	0.88	0.091	1.914	15.05
Ba	2.89	0.039	0.812	8.14
Be	0.59	0.002	0.042	16.16
Bi	34.14	27.653	580.72	0.50
B	3.14	0.027	0.564	19.61
Cd	1.84	0.011	0.224	26.77
Ca	8.97	0.300	6.290	1.47
Ce	3.27	0.451	9.472	34.41
Cr	4.13	0.811	17.024	1.00
Co	0.20	0.081	1.697	30.35
Cu	2.14	0.049	1.023	16.32
Eu	2.48	0.006	0.132	41.97
Fe	90.88	10.834	227.51	0.25
La	0.30	0.031	0.660	30.90
Pb	0.26	0.442	9.275	11.27
Li	3.44	0.010	0.200	63.89
Mg	9.36	0.352	7.384	0.46
Mn	56.29	3.188	66.939	0.25
Hg	3.74	0.058	1.212	7.26
Mo	1.52	0.034	0.715	17.23
Nd	3.36	0.192	4.035	79.74
Ni	3.36	0.104	2.192	10.77
P	12.92	11.109	233.29	3.38
K	2.10	0.443	9.308	41.77
Sm	3.05	0.362	7.592	43.96
Se	1.62	0.732	15.382	8.04
Si	5.22	1.702	35.749	7.90
Ag	9.01	0.032	0.667	34.99
Na	135.06	)91.689	)1925.5	1.54
Sr	16.63	0.412	8.657	1.06
S	1.45	1.085	22.788	2.59
Ta	2.52	0.101	2.128	30.10
Tl	2.81	0.849	17.837	10.76
Th	0.75	0.282	5.931	37.28
Sn	1.12	0.079	1.658	6.84
Ti	2.69	0.035	0.731	15.17
W	1.24	0.184	3.862	6.18
U	3.46	6.144	129.03	13.78
V	3.22	0.045	0.954	5.87
Zn	4.73	0.080	1.682	1.85
Zr	3.60	0.130	2.736	12.92

Dilution factor : 21.0000

Nitric Acid Blank

Sample name : HNO3
Programme : SST 31-Mar-90 11:10:47

NAME	MV INT	CONCEN	RSD
Al	1.43	0.330	6.64
Sb	0.36	0.347	4.11
As	0.85	0.063	10.46
Ba	2.42	0.015	6.48
Be	0.59	0.002	4.37
Bi	3.18	0.374	6.56
B	3.11	0.025	10.07
Cd	1.85	0.011	2.81
Ca	0.38	0.000	16.01
Ce	3.39	0.635	5.74
Cr	0.95	0.006	46.22
Co	0.20	0.205	9.12
Cu	2.03	0.033	6.83
Eu	2.61	0.010	5.19
Fe	1.19	0.017	8.30
La	0.30	0.048	11.32
Pb	0.25	0.283	10.66
Li	2.57	0.020	8.17
Mg	0.34	0.001	7.64
Mn	0.63	0.003	10.99
Hg	3.47	0.038	12.63
Mo	1.45	0.023	9.84
Nd	3.48	0.355	16.26
Ni	2.77	0.040	4.69
P	0.95	0.153	1.51
K	2.19	0.782	7.04
Sm	3.22	0.630	6.38
Se	1.38	0.271	5.84
Si	2.29	0.140	4.91
Ag	9.37	0.045	5.49
Na	3.33	0.259	7.13
Sr	2.56	0.007	5.76
S	0.58	0.053	28.14
Ta	2.58	0.124	4.25
Tl	2.79	0.801	6.66
Th	0.78	0.464	7.65
Sn	1.06	0.052	6.95
Ti	2.56	0.023	6.42
W	1.12	0.098	1.38
U	3.20	3.743	6.46
V	3.08	0.034	5.23
Zn	2.29	0.007	6.50
Zr	3.40	0.077	6.23

LMCS Check Standard #78C11F

Sample name : 78C11F
Sample code 1 : SST1
Programme : SST 31-Mar-90 11:14:56

NAME	MV INT	CONCEN	RSD
Al	1.50	0.482	7.67
Sb	1.09	10.697	0.35
As	0.96	0.146	3.91
Ba	195.00	9.734	0.30
Be	0.60	0.002	11.40
Bi	3.26	0.442	13.69
B	173.85	9.899	0.18
Cd	173.75	10.059	1.16
Ca	289.04	10.045	0.15
Ce	9.63	9.841	1.26
Cr	39.51	9.779	0.49
Co	0.67	7.748	0.83
Cu	65.82	9.857	0.25
Eu	3.37	0.034	3.18
Fe	84.30	10.040	0.37
La	0.32	0.109	5.73
Pb	0.26	0.369	5.36
Li	126.95	9.627	0.61
Mg	261.45	10.151	0.69
Mn	174.63	9.960	0.38
Hg	3.38	0.031	19.39
Mo	1.52	0.034	11.32
Nd	10.42	9.362	1.98
Ni	94.34	10.084	0.47
P	0.99	0.190	5.29
K	8.70	25.072	0.28
Sm	3.12	0.482	17.49
Se	3.52	4.253	0.26
Si	2.33	0.163	10.10
Ag	9.24	0.040	15.11
Na	38.05	24.360	0.05
Sr	347.08	9.925	0.10
S	0.80	0.310	3.85
Ta	2.60	0.132	12.93
Tl	2.84	0.905	13.74
Th	0.81	0.625	9.11
Sn	122.04	52.644	1.22
Ti	2.52	0.020	14.72
W	1.39	0.284	3.21
U	3.54	6.902	6.56
V	3.03	0.030	8.41
Zn	333.22	9.921	0.72
Zr	3.39	0.074	13.27

LMCS Check Standard #82B38C

Sample name : 82B38C
Sample code 1 : SST2
Programme : SST 31-Mar-90 11:19:04

NAME	MV INT	CONCEN	RSD
Al	3.35	4.363	0.44
Sb	0.39	0.685	1.20
As	2.59	1.346	0.66
Ba	2.53	0.020	3.53
Be	0.57	0.001	9.83
Bi	62.20	52.383	0.24
B	5.08	0.139	21.61
Cd	1.84	0.011	8.64
Ca	0.94	0.020	0.10
Ce	3.43	0.691	4.41
Cr	1.27	0.085	2.57
Co	0.19	0.038	42.86
Cu	3.30	0.227	1.19
Eu	328.60	10.004	0.03
Fe	1.54	0.059	4.72
La	17.99	>47.711	0.07
Pb	2.82	51.078	0.67
Li	2.40	0.006	48.78
Mg	0.55	0.009	1.06
Mn	0.78	0.011	5.49
Hg	3.50	0.040	8.61
Mo	1.45	0.023	7.18
Nd	3.78	0.746	1.57
Ni	2.77	0.039	8.47
P	1.20	0.375	3.46
K	2.00	0.065	66.54
Sm	9.42	10.240	0.19
Se	1.44	0.390	7.39
Si	3.19	0.623	1.26
Ag	293.40	10.340	0.14
Na	3.06	0.076	15.65
Sr	2.63	0.009	4.56
S	0.66	0.149	1.59
Ta	2.83	0.222	4.53
Tl	5.63	6.211	0.80
Th	10.60	52.763	0.08
Sn	1.17	0.101	3.24
Ti	2.92	0.054	1.76
W	1.05	0.053	10.20
U	8.62	54.005	0.17
V	5.59	0.248	0.60
Zn	2.51	0.014	0.79
Zr	3.65	0.144	2.89

LMCS Check Standard #77C11F

Sample name : 77C11E
Sample code 1 : SST3
Programme : SST 31-Mar-90 11:23:00

NAME	MV INT	CONCEN	RSD
Al	26.20	52.351	0.35
Sb	0.44	1.442	12.73
As	71.78	52.333	2.17
Ba	2.61	0.024	13.23
Be	299.75	9.692	0.28
Bi	4.10	1.183	1.02
B	4.97	0.133	11.00
Cd	2.07	0.024	11.45
Ca	0.95	0.020	1.03
Ce	3.22	0.373	35.18
Cr	1.06	0.033	25.53
Co	0.20	0.124	32.83
Cu	2.25	0.066	12.00
Eu	2.49	0.007	32.13
Fe	1.49	0.053	11.02
La	0.30	0.029	40.86
Pb	0.25	0.343	12.01
Li	2.45	0.010	43.59
Mg	0.47	0.006	4.65
Mn	0.90	0.018	6.53
Hg	344.63	24.397	3.26
Mo	327.24	50.235	1.70
Nd	3.37	0.208	70.90
Ni	6.82	0.483	4.49
P	53.86	48.604	7.57
K	2.07	0.339	51.31
Sm	3.08	0.418	31.03
Se	28.29	50.350	1.73
Si	79.88	41.470	2.07
Ag	17.36	0.334	2.71
Na	3.39	0.302	19.01
Sr	2.57	0.007	21.65
S	41.76	48.954	2.74
Ta	123.05	46.848	1.84
Tl	29.32	51.095	1.22
Th	0.91	1.133	8.93
Sn	1.53	0.260	6.45
Ti	598.10	50.476	0.85
W	32.32	21.194	2.81
U	4.57	16.416	7.28
V	118.67	9.877	1.20
Zn	3.45	0.042	4.13
Zr	193.79	50.761	1.17

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Arsenic Analysis

Acid Digestion

Instrument	Perkins-Elmer AA
Procedure / Rev	LA-355-131 / A-2
Technologist	J.A. Hopkins
Date	03-15-90
Temperature	70 F
Starting Time	09:00
Ending Time	10:00
Chemist	R. K. Fuller

	Description	Lab. Id.
1	Initial LMCS Check Std	F0951
2	Reagent Blank	F0952
3	Sample Comp 8	F0953
4	Duplicate Comp 8	F0954
5	Spike Comp 8	F0955
6	LMCS Check Std	F0956
7	Sample Comp 7	F0989
8	Duplicate Comp 7	F0990
9	Spike Comp 7	F0991
10	LMCS Check Std	F0992
11	Reagent Blank	F0910

	Description	Lab. Id.
12	Sample Comp 5	F0911
13	Duplicate Comp 5	F0912
14	Spike Comp 5	F0913
15	Final LMCS Check Std	F0914
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11BR/35uL			35 mL
Spike	58C11BR/35uL	F0911/100 uL		35 mL

Prepared by: D.K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-29-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-29-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

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9 1 1 2 3 5 9 0 4 3 4

Single Shell Tank Calibration Record

Phase I-A

Analyte:	As		
Procedure	LA-355-131	Revision:	A-2
Instrument:	Perkins & Elmer AA	Property Number:	WA77479
Technologist:	J. A. Hopkins	Payroll Number:	
Date:	3-15-90		

Calibration Standard ID: Book number	38C9-B
Analyte Concentration:	1.00 ppm
Type of Calibration:	Linear Regression

	Dilution	Concentration	Instrument Reading Units =
1	0	0	2
2	25 uL	25 ng	43
3	50 uL	50 ng	82
4	75 uL	75 ng	116
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-27-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-27-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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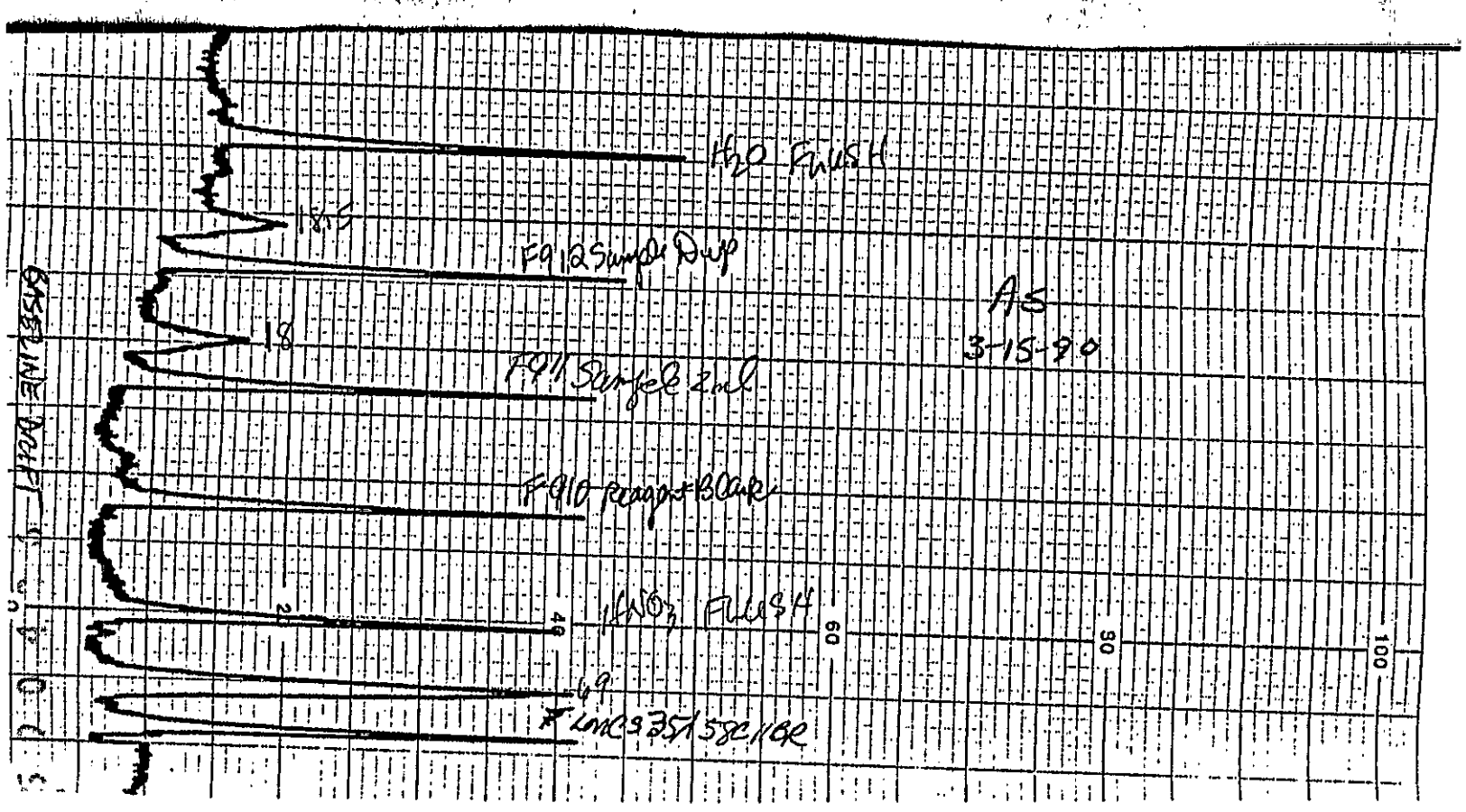
9112590435


H2O FLUSH
18.5
F912 Sample Dup
18
F911 Sample 2nd
F910 Reagent Blank
HNO3 FLUSH
69
LMCS 35/58C 11BR
AS
3-15-90
BASELINE DRIFT
40
60
80
100

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Mercury Analysis

Acid Digestion

Instrument	Perkin-Elmer AA
Procedure / Rev	LA-325-102 / A-1
Technologist	J. A. Hopkins
Date	02-20-90
Temperature	70 F
Starting Time	08:00
Ending Time	15:00
Chemist	R. K. Fuller

	Description	Lab. Id.
1	Intial LMCS Check Std	F0987
2	Reagent Blank	F0988
3	Sample Comp 7	F0989
4	Duplicate Comp 7	F0990
5	Spike Comp 7	F0991
6	LMCS Check Std	F0957
7	Sample Comp 8	F0959
8	Duplicate Comp 8	F0960
9	Spike Comp 8	F0961
10	LMCS Check Std	F0981
11	Sample Comp 7	F0983

	Description	Lab. Id.
12	Duplicate Comp 7	F0984
13	Spike Comp 7	F0985
14	LMCS Check Std	F0909
15	Reagent Blank	F0910
16	Sample Comp 5	F0911
17	Duplicate Comp 5	F0912
18	Spike Comp 5	F0913
19	Final LMCS Check Std	F0914
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11BN/25uL			25 uL
Spike	58C11BN/25uL	F0911/3.0 mL		25 uL

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-28-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-28-90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim Rev.E 4/04/90 SST-102

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9 1 1 2 5 9 0 4 7

Single Shell Tank Calibration Record

Phase I-A

Analyte:	HG		
Procedure	LA-325-102	Revision:	A-1
Instrument:	Perk & Elmer AA	Property Number:	WA77479
Technologist:	J. A. Hopkins	Payroll Number:	
Date:	2-20-90		

Calibration Standard ID: Book number	102C3T
Analyte Concentration:	1.01 ppm
Type of Calibration:	HG

	Dilution	Concentration	Instrument Reading Units =
1	0	0	6
2	10 uL	10 ng	42.5
3	20 uL	20 ng	79.0
4	40 uL	40 ng	145.5
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-20-90

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-20-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

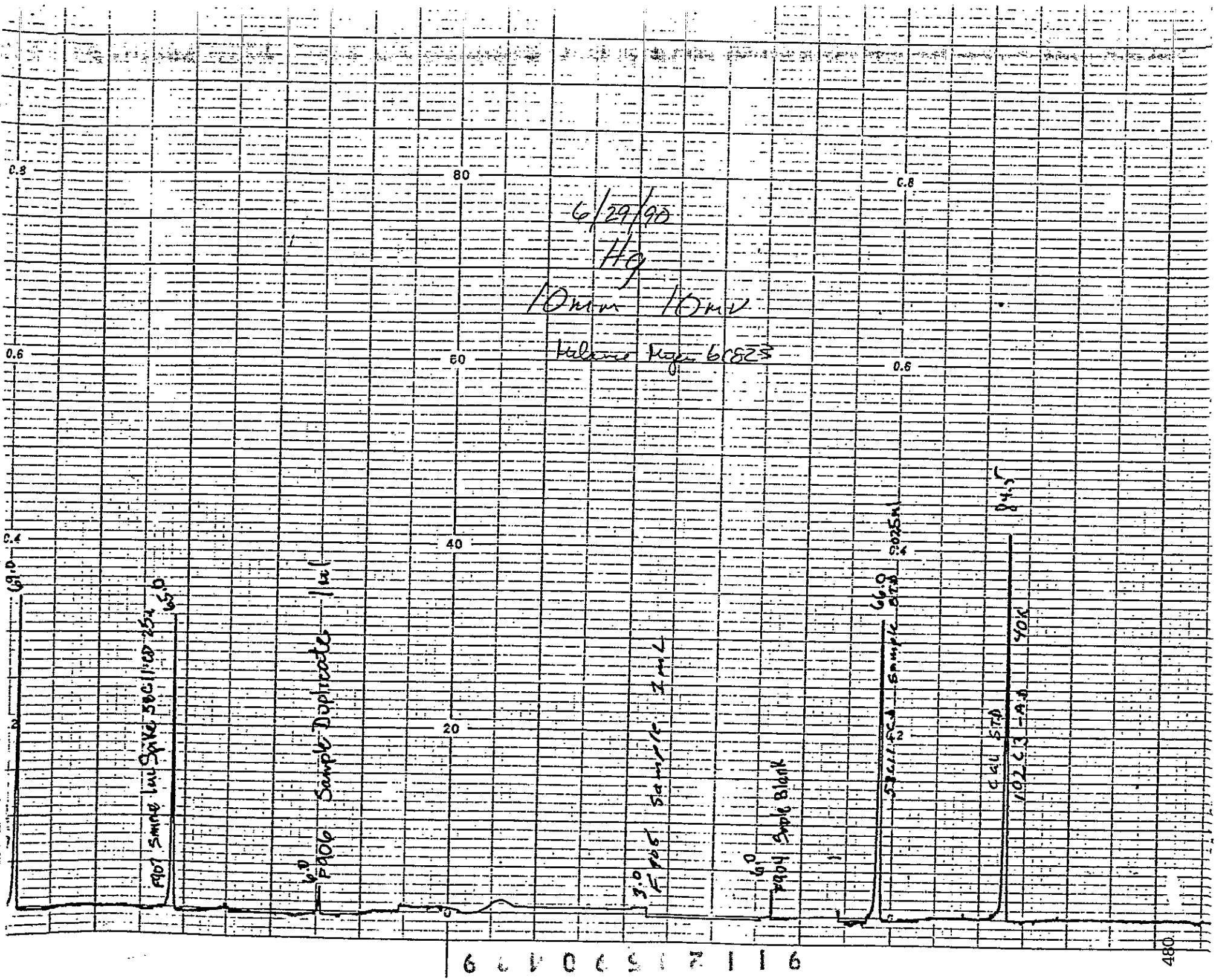
Interim

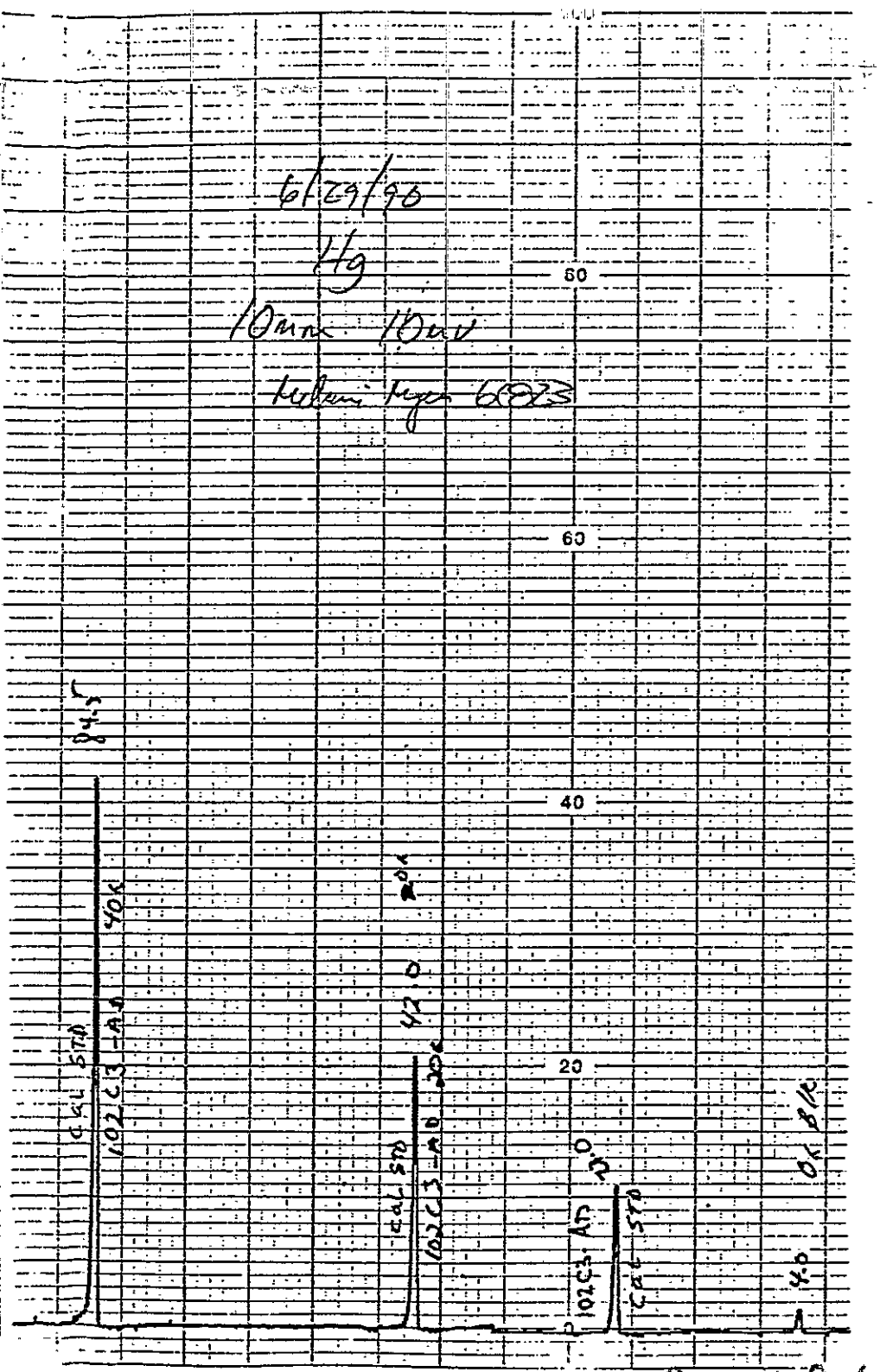
Rev.(Draft) 1/18/89

SST-103

479

9 1 1 2 1 5 9 0 4 1 3


6/29/90
Hg
10mm 10mV
Melanie Meyer 6C823
0.8
0.6
0.4
0.2
80
60
40
20
0
69.0
F907 Smoke 1mL Spike 58C11-CD 25u
65.0
6.0
F906 Sample Duplicate 1ml
3.0
F905 Sample 2mL
6.0
F904 Smoke Blank
66.0
58C11-CD Sample STD
0.025ml
84.5
Cal STD
102C3-AD 40K



0 0 0 0 6 5 0 7 1 1 6

Analytical Batch

Lab Segment Serial No.: F0893

Customer ID.: 000005

Selenium Analysis

Acid Digestion

Instrument	Perkin-Elmer AA
Procedure / Rev	LA-365-131 / A-3
Technologist	M. Meyers
Date	07-20-90
Temperature	21 C
Starting Time	1300
Ending Time	1400
Chemist	R.K. Fuller

	Description	Lab. Id.
1	Intial LMCS Check	F0909
2	Reagent Blank	F0910
3	Sample Comp 5	F0911
4	Duplicate Comp 5	F0912
5	Spike Comp 5	F0913
6	Final LMCS Check Std	F0914
7		
8		
9		
10		
11		

	Description	Lab. Id.
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		

Standard Type	Primary Book No. & Aliquot	Second Book No. & Aliquot	Third Book No. & Aliquot	Final Volume of Standard
LMCS Check Std	58C11CE/35uL			35 uL
Spike	58C11CE/35uL	F0911/50 uL		35 uL

Prepared by: D.K. Sato (Signature) D.K. Sato (Printed Name) Date: 8-27-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 8-27-90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9-17-90

Interim 4/04/90 Rev.E SST-102

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9 1 1 2 9 5 9 0 4 9 1

Single Shell Tank Calibration Record

Phase I-A

Analyte:	Se		
Procedure	LA-315-121	Revision:	
Instrument:	Perkin Elmer	Property Number:	WA77479
Technologist:	M. Myers	Payroll Number:	
Date:	7-20-90		

Calibration Standard ID: Book number	102C3-AG
Analyte Concentration:	1.00 ppm
Type of Calibration:	Linear Regression

	Dilution	Concentration	Instrument Reading Units =
1	0	0 ng	3
2	25 uL	25 ng	49.5
3	50 uL	50 ng	90.0
4	75 uL	75 ng	139.0
5			
6			
7			
8			
9			
10			

Comments:

Prepared by: D. K. Sato (Signature) D. K. Sato (Printed Name) Date: 8-20-90

Verified by: Carry M Seidel (Signature) C.M. Seidel (Printed Name) Date: 8-20-90

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-17-90

Interim Rev. (Draft) 1/18/89 SST-103

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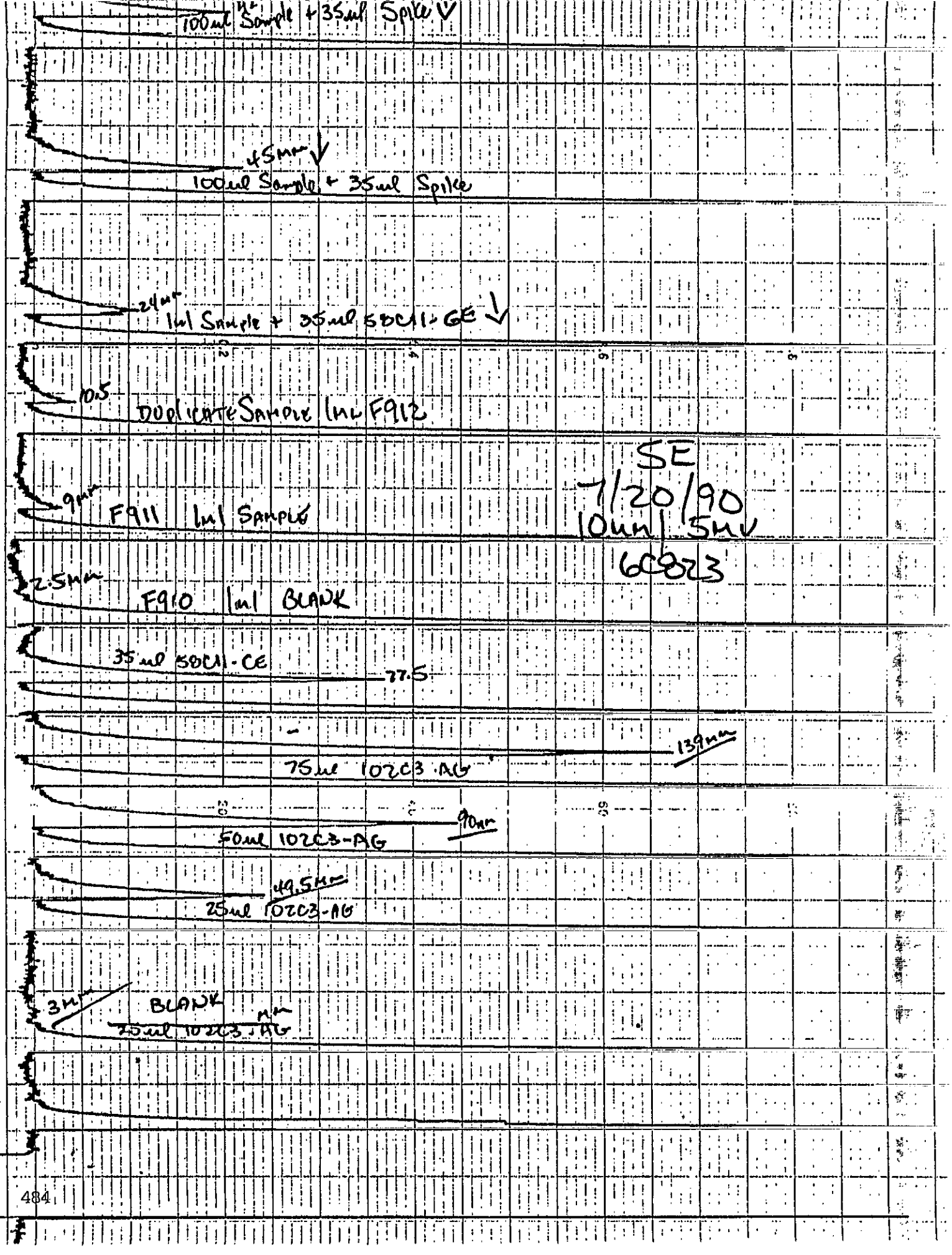
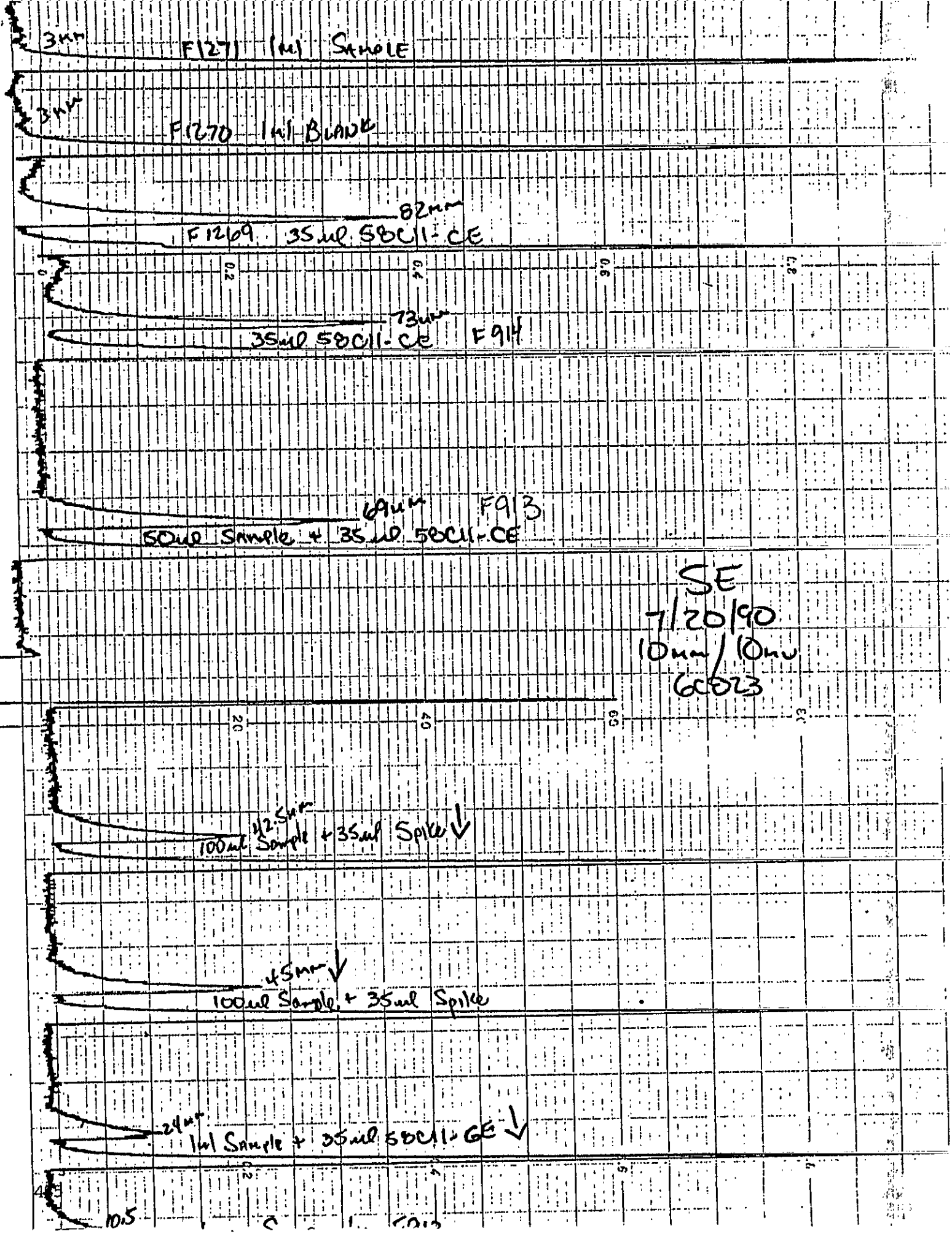
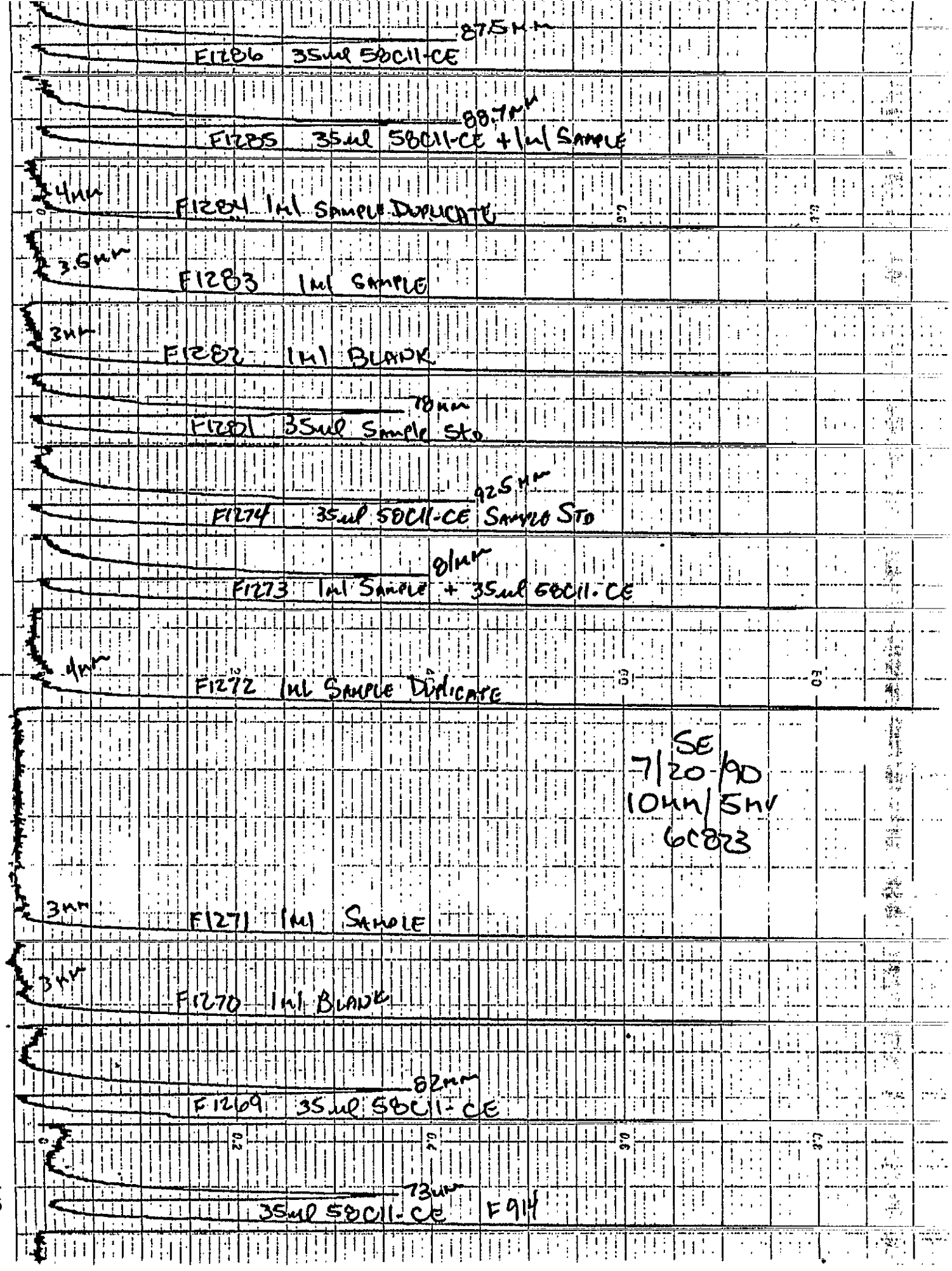
9 1 1 2 5 9 0 4 7 2


100ul Sample + 35ul Spike
45mm
100ul Sample + 35ul Spike
24mm
1ml Sample + 35ul 58C11-GE
10.5
Duplicate Sample 1ml F912
9mm
F911 1ml Sample
SE
7/20/90
10um 5mV
6C823
2.5mm
F910 1ml BLANK
35ul 58C11-CE
77.5
139mm
75ul 102C3-AG
90mm
50ul 102C3-AG
49.5mm
25ul 102C3-AG
3mm
BLANK
mm
25ul 102C3-AG


3nm
F1271 1ml SAMPLE
3nm
F1270 1ml BLANK
82nm
F1269 35ul 58CU-CE
0.2
0.4
0.6
0.8
73nm
35ul 58CU-CE F914
69nm F913
50ul Sample + 35ul 58CU-CE
SE
7/20/90
10nm/10mv
60823
2.0
4.0
6.0
8.0
42.5nm
100ul Sample + 35ul Spike
45nm
100ul Sample + 35ul Spike
24nm
1ml Sample + 35ul 58CU-CE
10.5


87.5 mm
F1286 35ul 58C11-CE
88.7 mm
F1285 35ul 58C11-CE + 1ml SAMPLE
4mm
F1284 1ml SAMPLE DUPLICATE
3.6mm
F1283 1ml SAMPLE
3mm
F1282 1ml BLANK
78mm
F1281 35ul Sample Std
92.5 mm
F1274 35ul 58C11-CE SAMPLE STD
81mm
F1273 1ml Sample + 35ul 58C11-CE
4mm
F1272 1ml SAMPLE DUPLICATE
SE
7/20/90
10mm/5mV
6C823
3mm
F1271 1ml SAMPLE
3mm
F1270 1ml BLANK
82mm
F1269 35ul 58C11-CE
0.2
0.4
0.6
0.8
73mm
35ul 58C11-CE F914

APPENDIX A
ANALYTICAL ANALYSIS CARDS

9 1 1 2 2 5 0 4 2 6

UNDIGESTED SAMPLE ANALYSIS

APPENDIX A

9 1 1 2 1 5 2 0 4 2 7

9 1 1 2 9 5 9 0 4 9 8

Physical Properties

Serial No.	Sample Point	Date	Time Issued	Priority
F 941.-5080	SEG.COMP#3	1-30-90	10:36	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TGA	LI-000-200	NONE	WB75L	0

Sample Size	Customer ID
?	000008

Remarks, Calculations, Results: see attached (1)

bottle 298
6.81 mg
damp, light beige, granular; used as-is

event	begin	peak	end	% of sample
H_2O/NPH loss	<40°	124°	149°	5.68
decomp./wt. loss (endothermic)	240°	333°	368°	26.5
decomp./wt loss (endothermic)	368°	>500°	>500°	—

total to 500°: 35
sample became white, powdery; did not fuse

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
PBB 54168				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/13/90			DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 941.-1831	SEG.COMP#3	1-30-90	10:36	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-112	EXOTHERMS	E21D1	0

Sample Size	Customer ID
?	00008

Remarks, Calculations, Results: see attached (1)

Bottle 298
~~8.05 mg~~
2.35 Mg
damp, light beige, granular; used as-is

event	begin	peak	end	cal/gm (+ endo)
H_2O/NPH loss	—	—	—	0
decomp/wt loss	239°	320°	361°	+296.5
decomp/wt. loss	361°	>500°	>500°	+—

sample turned white, powdery; did not fuse

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
PBB 54168				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/13/90			DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 893.-5080	SEG.COMP#3	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TGA	LI-000-200	NONE	WB75L	0

Sample Size	Customer ID
?	000005

Remarks, Calculations, Results: see attached (1)

Bottle 307
8.46 mg
dry, hard, dark brown; pulverized

event	begin	peak	end	% of sample
H_2O/NPH loss	<40°	95°	136°	11.1%
decomp./wt. loss	235°	305°	348°	2.8%
total ~~decomp~~/wt. loss to 500°	<40°	—	>500°	18.7%

sample did not fuse

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
PBB 54168				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/13/90			DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 893.-1831	SEG.COMP#3	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-112	EXOTHERMS	E21D1	0

Sample Size	Customer ID
?	00005

Remarks, Calculations, Results: see attached (1)

bottle 307
~~2.38 mg~~
7.24 Mg
dry, hard, dark brown; pulverized

event	begin	peak	end	cal/gm (+ means endo)
H_2O, NPH loss	<50°C	104	143	>+91.6
decomp/wt loss	250	300	350	+13.3
decomp/wt. loss	300	495	>500	+—

sample did not fuse

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
PBB 54168				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/13/90			DMS

54-6800-061 (R-10-83)

9 1 1 2 ? 5 ? 0 4 ? 9

pH Analysis of Solid Sample

Serial No.	Sample Point	Date	Time Issued	Priority
F 892.-5315	SEG.COMP#2	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
pH	LA-212-103	NONE	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK [illegible]

5.59

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Brandt
[illegible]	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	DMS

54-0000-001 (R-10-89)

Serial No.	Sample Point	Date	Time Issued	Priority
F 891.-5515	SEG.COMP#1	1-24-90	8: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
pH	LA-212-103	% RECOVERY	WB75L	0

Sample Size: ?

Customer ID: Std

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
pH FOUND 10.09
STD ID 72C11
SAMPLE TEMP 23.2

100.9% DMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Brandt
[illegible]	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	DMS

54-0000-001 (R-10-89)

Serial No.	Sample Point	Date	Time Issued	Priority
F 894.-5115	SEG.COMP#4	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
pH	LA-212-103	NONE	WB75L	0

Sample Size: ? 2.840g / 2.840 ml

Customer ID: 000005

Remarks, Calculations, Results:
pH 12.92
SAMPLE TEMP 23.3

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Brandt
[illegible]	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	DMS

54-0000-001 (R-10-89)

Serial No.	Sample Point	Date	Time Issued	Priority
F 893.-5015	SEG.COMP#3	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
pH	LA-212-103	NONE	WB75L	0

Sample Size: ? 2.910g / 2.910 ml

Customer ID: 000005

Remarks, Calculations, Results:
pH 12.89
SAMPLE TEMP 23.2

#308 8.59g

WHCN 3134

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Brandt
[illegible]	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	DMS

54-0000-001 (R-10-89)

9 1 1 2 0 5 9 0 5 0 0

pH Analysis of Solid Sample

Serial No.	Sample Point	Date	Time Issued	Priority
F 896.-5515	SEG.COMP#6	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
pH	LA-212-103	% RECOVERY	WB75L	0

Sample Size	Customer ID
?	000005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
pH FOUND 10.04
STD ID TRPH
SAMPLE TEMP 23.6

100.4%
DMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
LC269				RE Sample
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
1-26-90			DMS	

54-6803-081 (R-10-83)

9 1 1 2 1 5 7 0 5 0 1

Percent Water Analysis

Serial No.	Sample Point	Date	Time Issued	Priority
F 916.-5310	SEG.COMP#2	1-24-90	8:37	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
% H2O	LA-564-101	%	WB75L	0

Sample Size	Customer ID
?	

Remarks, Calculations, Results:

REAGENT BLANK

21.3162 G 21.4360
21.3162 T. 21.4360
21.3095 W1 21.4293
21.3095 W2 21.4288

-.0005

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6BS98/RH				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 891.-5510	SEG.COMP#1	1-24-90	8: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
% H2O	LA-564-101	% RECOVERY	WB75L	0

Sample Size	Customer ID
?	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 11C11AH

56.49 56.4%
56.38
23.2606 G. 22.9496 58.98
21.8685 T. 21.5659
22.4758 W1 22.1679
22.4635 W2 22.1536
95.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6BS98/RH				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 894.-5110	SEG.COMP#4	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
% H2O	LA-564-101	%	WB75L	0

Sample Size	Customer ID
?	000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

G. 22.1710
T. 21.4140
W1 21.9169
W2 21.9173

33.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6BS98/RH				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 893.-5010	SEG.COMP#3	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
% H2O	LA-564-101	%	WB75L	0

Sample Size	Customer ID
?	000005

Remarks, Calculations, Results:

#270 3.53g

G. 22.3345
T. 21.5487
W1 22.0722
W2 22.0722

33.4%

WHC N 3134

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6BS98/RH				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

9 1 1 2 0 5 9 0 5 0 2

Percent Water Analysis

Serial No.	Sample Point	Date	Time Issued	Priority
F 920.-5510	SEG.COMP#6	1-24-90	8:38	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
% H20	LA-564-101	% RECOVERY	WB75L	0

Sample Size	Customer ID
?	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID ACIIAH

22.7040 G. 22.6777 56.37
21.3111 T. 21.2928
21.9082 W1 21.8966
21.9000 W2 21.8900

~~[illegible]~~ 96.2%
56.75% / 8.98
~~[illegible]~~
~~[illegible]~~ / 2

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GBS98/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	[illegible]

54-6800-061 (R-10-83)

9 1 1 2 0 5 9 0 5 0 3

Mercury Analysis - Undigested Sample

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-5397	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	PPM	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

6.5 blank calculated in Curve

<.6ng

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date: 2-8-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-5597	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	% RECOVERY	WB75L	0

Sample Size: ? 25λ

Customer ID: 000005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 5[illegible]

pk HT 98

$\frac{28.16}{25} = \frac{1.13}{1.25} = 90.10\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date: 2-8-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-5197	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	PPM	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

pk HT-31

$\frac{7.31ng}{62.6mg} = .1168ppm$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date: 2-8-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-5097	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	PPM	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

pk HT. 25

$\frac{5.44ng}{55.2mg} = .0986ppm$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date: 2-8-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Mercury Analysis - Undigested Sample

```
**********************
** JET_WT  ** REV 0 **
**********************

SEQUENCE # : 19
WT 1:   26.6764
WT 2:   26.7316

NET WEIGHT:
---> 0.0552 GRAMS

02/07/90 @ 10:21:15
**********************
```

F 906.-5097

```
**********************
** JET_WT  ** REV 0 **
**********************

SEQUENCE # : 20
WT 1:   25.8895
WT 2:   25.9521

NET WEIGHT:
---> 0.0626 GRAMS

02/07/90 @ 10:22:55
**********************
```

F 906.-5197

9 1 1 2 0 5 7 0 5 0 5

Mercury Analysis - Undigested Sample

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7297	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	% RECOVERY	WB75L	0

Sample Size: ? 25 l 58C11BM

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE

103.5 pK HT

29.87 ng

$\frac{(44.3\,ng)\,6.37\,ng}{58.70\,ng} = \frac{4.79\,ng}{44.3\,ng}$ [illegible]

$\frac{29.87\,ng - 5.44\,ng}{31.25\,ng} = .80\,26\,5 \times 100$ 80.26 5 %

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
LA543				RK 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date	Time Completed	Lab Unit Mgr
2-8-90		[signature]

84-0000-001 (R-10-88)

Serial No.	Sample Point	Date	Time Issued	Priority
F 927.-5597	SEG.COMP#13	1-24-90	8:42	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	% RECOVERY	WB75L	0

Sample Size: ? 25 l

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE

LMCS ID 58C11BM

104 pK HT

$\frac{30.02}{25} = \frac{1.20}{1.25} = 96.07\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
LA543				RK 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date	Time Completed	Lab Unit Mgr
2-8-90		[signature]

84-0000-001 (R-10-88)

Mercury Analysis - Undigested Sample

****
** JET_WT ** REV 0 **
****

SEQUENCE # : 21
WT 1: 26.5408
WT 2: 26.5851

NET WEIGHT:

--> 0.0443 GRAMS

02/07/90 @ 10:24:37
****

F 907.-7297

9112059056

9 1 1 2 0 5 9 0 5 0 7

Cyanide Analysis - Undigested Sample

Serial No.	Sample Point	Date	Time Issued	Priority
F 892.-5378	SEG.COMP#2	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-101	G/L	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

ABS .009

~~.5mg~~ K-1 <.3 ~~mg~~ mg R&B

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				R E Bennett
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date: 2-2-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 891.-5578	SEG.COMP#1	1-24-90	8: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-101	% RECOVERY	WB75L	0

Sample Size: ? 100-10 - 1mL

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 75C11B 900ppm

ABS .683 K1

95.7%

$\frac{(.683-.009)-.016827}{.076317} = 8.611$ ~~g/l~~ / 9.00

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				R E Bennett
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date: 2-2-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 894.-5178	SEG.COMP#4	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-101	G/L	WB75L	0

Sample Size: ? .2019g

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

ABS .017

$\frac{(.017-.009)-.016827}{.076317} = -1.1566^{-1} = \frac{.5}{.2019} = 2.48$

<2.72x10^-5 g/l <2.50 ~~mg~~ mg/gm CN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				R E Bennett
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date: 2-2-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 893.-5078	SEG.COMP#3	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-101	G/L	WB75L	0

Sample Size: ? .3105g

Customer ID: 000005

Remarks, Calculations, Results:

#307 2.45 g ABS: .018
#273 2.96 g <1.53x10^-5 g/l

$\frac{(.018-.009)-.016827}{.076317} = -1.164^{-1} = .5$

$\frac{.5}{.3105} = 1.61 = <1.65$ ~~mg~~ mg/gm CN

WHC N 313 4

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				R E Bennett
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date: 2-2-90 | Time Completed: | Lab Unit Mgr: [signature]

54-6800-061 (R-10-83)

9 1 1 2 0 5 7 0 5 0 3

Cyanide Analysis - Undigested Sample

Serial No.	Sample Point	Date	Time Issued	Priority
F 896.-5578	SEG.COMP#6	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-101	% RECOVERY	WB75L	0

Sample Size: ? 100uL-10mL-1mL

Customer ID: 000005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 75C11B 900ppm

ABS .711 KH

$\frac{(.711 - .009) - .016827}{.076317} = 8.978/9.00$ 99.8%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				R E Burnett
Hrs: Ed Cole	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-2-90		[signature] KH

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 895.-5278	SEG.COMP#5	1-24-90	8: 4	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-101	% RECOVERY	WB75L	0

Sample Size: ? .2083g

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE

ABS. .687

SPIKE# 75C11B 100-10-1mL

$\frac{(.687 - .009) - .016827}{.076317} = \frac{8.664 - (-1.164)}{9.97} \times 100$ 88.1%

$\frac{8.664 - (-1.164)}{9.97} \times 100 = 88.1\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80027				R E Burnett
Hrs: Ed Cole	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-2-90		[signature] KH

54-6600-061 (R-10-83)

KOH FUSION ANALYSIS

APPENDIX A

Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6000	SEG.COMP#9	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
FUSION	LA-549-141	G/L	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

GRAMS SAMPLE .5091 #:
VOLUME ON
COMPLETION 200 ml

2.55^{-3} g/ml

W4CN 3134

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				GL
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-25-90		GM	GMS

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 898.-6300	SEG.COMP#8	1-24-90	8: 5	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
FUSION	LA-549-141	G/L	WB75L	0

Sample Size: ? 200mL

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

Completed

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				GL
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-25-90		GM	GMS

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6100	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
FUSION	LA-549-141	G/L	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE ANALYSIS
GRAMS SAMPLE .4777
VOLUME ON
COMPLETION 200 ml

2.39^{-3} g/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				GL
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-25-90		GM	GMS

54-6600-061 (R-10-83)

9 1 1 2 7 5 9 0 5 1 1

Total Alpha Analysis on the Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 922.-6320	SEG.COMP#8	1-24-90	8:39	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 100-10-100

Customer ID:

Remarks, Calculations, Results:

REAGENT BLANK

< 8.520 -1 uci/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/AH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6520	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-508-101	% RECOVERY	WB75L	0

Sample Size: ? 10mL

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102844

89.6%

8.978 -3 uci/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/AH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6120	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 100-10-100

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

GW

~~1.337 uci/l~~

< 1.5

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/AH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6025	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 100-10-100

Customer ID: 000005

Remarks, Calculations, Results:

~~< 1.712 uci/l~~ GW

< 2.0

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/AH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-6800-061 (R-10-83)

12/2

405/10 - .3

460/10 -

Alpha Calculation by VR on 01-26-1990 at 18:30:10
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : 10 mL Dilution : 1

Mount # 1

$\frac{405}{10}$ - 0.3 = 8.4028E-03 uCi/L alpha

Mount # 2

$\frac{460}{10}$ - 0.3 = 9.5525E-03 uCi/L alpha

F 897.-6520

12/2

1/10

1/10

Alpha Calculation by RAI on 01-26-1990 at 14:59:21
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : .1 mL Dilution : 101

Mount # 1

$\frac{1}{10}$ - 0.3 < 8.5200E-01 uCi/L alpha

Mount # 2

$\frac{1}{10}$ - 0.3 < 8.5200E-01 uCi/L alpha

F 922.-6320

12 2" 1-26-90 VR

7/10 - .3

18/10 -

Alpha Calculation by VR on 01-26-1990 at 18:31:19
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : 1 mL Dilution : 1010

Mount # 1

$\frac{7}{10}$ - 0.3 < 1.9460E+00 uCi/L alpha

Mount # 2

$\frac{16}{10}$ - 0.3 = 1.4778E+00 uCi/L alpha

F 899.-6025

12 2" 1-26-90 VR

5/10 - .3

9/10 -

Alpha Calculation by VR on 01-26-1990 at 21:48:32
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : 1 mL Dilution : 1010

Mount # 1

$\frac{5}{10}$ - 0.3 < 1.4075E+00 uCi/L alpha

Mount # 2

$\frac{9}{10}$ - 0.3 = 1.2667E+00 uCi/L alpha

F 900.-6120

9 1 1 2 0 5 9 0 5 1 2

9 1 1 2 ? 5 9 0 5 1 3

Total Alpha Analysis on the Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 926.-6520	SEG.COMP#12	1-24-90	8:41	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-509-101	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 10mL [redacted]	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102344

89.1%

8.925 -3 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	DMS

54-6800-061 (R-10-83)

Total Alpha Analysis on the Fusion Dissolution

12 2" 1-26-90 VR

Alpha Calculation by [illegible] on 01/26/1990 at 10:25:22

Sample size : 10 mL Dilution : 1

$\frac{409}{10} - .3$

$\frac{451}{10} -$

Mount # 1

$\frac{409}{10} - 0.3 = 8.4864E-03$ uCi/L alpha

Mount # 2

$\frac{451}{10} - 0.3 = 9.3644E-03$ uCi/L alpha

9 1 1 2 5 3 0 5 1 4

Total Beta Analysis on the Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6125	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 100-10-100

Customer ID:

Remarks, Calculations, Results:

DUPLICATE SAMPLE

3.254^{3} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 927.-6325	SEG.COMP#8	1-24-90	8:39	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 100-10-100

Customer ID:

Remarks, Calculations, Results:

REAGENT BLANK

< 3.251 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 926.-6525	SEG.COMP#12	1-24-90	8:41	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	% RECOVERY	WB75L	0

Sample Size: ? 10mL

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102B44

93.3%

1.292^{-1} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6020	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 100-10-100

Customer ID: 000005

Remarks, Calculations, Results:

3.395^{3} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[signature]	DMS

54-8800-081 (R-10-83)

Total Beta Analysis on the Fusion Dissolution

12/2

405/10 - .3

460/10 -

Alpha Calculation by VR on 01-26-1990 at 18:30:10
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : 10 mL Dilution : 1

Mount # 1

$\frac{405}{10}$ - 0.3 = 8.4028E-03 uCi/L alpha

Mount # 2

$\frac{460}{10}$ - 0.3 = 9.5525E-03 uCi/L alpha

F 897.-6520

12/2

1/10

1/10

Alpha Calculation by MAX on 01-26-1990 at 14:59:21
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : .1 mL Dilution : 101

Mount # 1

$\frac{1}{10}$ - 0.3 (8.5200E-01 uCi/L alpha

Mount # 2

$\frac{1}{10}$ - 0.3 (8.5200E-01 uCi/L alpha

F 922.-6320

12 2" 1-26-90 VR

7/10 - .3

10/10 -

Alpha Calculation by VR on 01-26-1990 at 18:31:19
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : 1 mL Dilution : 1010

Mount # 1

$\frac{7}{10}$ - 0.3 (1.9460E+00 uCi/L alpha

Mount # 2

$\frac{10}{10}$ - 0.3 = 1.4778E+00 uCi/L alpha

F 899.-6025

12 2" 1-26-90 VR

5/10 - .3

9/10 -

Alpha Calculation by VR on 01-26-1990 at 21:48:32
Det #12 2 -inch mount Alpha eff. : .2155
Sample size : 1 mL Dilution : 1010

Mount # 1

$\frac{5}{10}$ - 0.3 (1.4075E+00 uCi/L alpha

Mount # 2

$\frac{9}{10}$ - 0.3 = 1.2667E+00 uCi/L alpha

F 900.-6120

9 1 1 2 7 5 9 0 5 1 7

Total Beta Analysis on the Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6525	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 10mL	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102844

98.2%

1.359 mile

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GB598/RH				ml
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit No.	
1-26-90		[illegible]	DMF

54-6808-061 (R-10-83)

Total Beta Analysis on the Fusion Dissolution

12/2

1-26-4

$\frac{9864}{10} - 9$

$\frac{9441}{10} -$

Beta Calculation by VR on 01-26-1990 at 18:30:08
Det #12 2 -inch mount Beta eff. : .317
Sample size : 10 mL Dilution : 1

Mount # 1

$$\frac{9864}{10} - 9.0 = 1.3889E-01 \text{ uCi/L beta}$$

Mount # 2

$$\frac{9441}{10} - 9.0 = 1.3288E-01 \text{ uCi/L beta}$$

F 897.-6525

9112059051 8

2872

Serial No.	Sample Point	Date	Time Issued	Priority
F 922.-6330	SEG.COMP#8	1-24-90	8:39	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	WB75L	0

Sample Size: ? 1mL

Customer ID:

Remarks, Calculations, Results:
REAGENT BLANK

<5.22⁻² uci/l Cs137

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B598/RH				SAL
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	GMS

54-6600-061 (R-10-83)

1669

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6530	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	WB75L	0

Sample Size: ? 500λ

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 87344

2.24'/2.2253' Co60 100.7%

3.75'/3.813' Cs137 98.3%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B598/RH				SAL
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	GMS

54-6600-061 (R-10-83)

1670

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6130	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	WB75L	0

Sample Size: ? 50λ

Customer ID:

Remarks, Calculations, Results:
DUPLICATE SAMPLE
Cs137 8.94' uci/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B598				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	GMS

54-6600-061 (R-10-83)

2871

Serial No	Sample Point	Date	Time Issued	Priority
F 899.-6030	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	WB75L	0

Sample Size: ? 50λ

Customer ID: 000005

Remarks, Calculations, Results:

1.00² uci/l Cs137

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B598/RH				SAL
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	GMS

54-6600-061 (R-10-83)

9 1 1 2 ? 5 ? 0 5 ? 0

Gamma Engery Analysis of the Fusion Dissolution

2873

Serial No.	Sample Point	Date	Time Issued	Priority
F 926.-6530	SEG.COMP#12	1-24-90	8:41	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 500λ	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 89844

2.32' vcile Co 60 104.9%

3.95' vcile Cs137 103.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GB598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	Dms

54-6800-061 (R-10-83)

1671

Serial No.	Sample Point	Date	Time Issued	Priority
F 925.-6230	SEG.COMP#11	1-24-90	8:41	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 50λ	

Remarks, Calculations, Results:

SPIKE SAMPLE F923 (over)
SPIKE ID 89844
SPIKE VOLUME 500λ

~~8.87%~~ ~~97.6%~~ 97.56%

~~431~~ − ~~69~~ = ~~3.72~~

$2.16^{-2} - 3.0^{-3} = 1.86^{-2} \times 1000 \times 2 = 3.72 / 3.81$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GB598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90		[illegible]	Dms

54-6800-061 (R-10-83)

9 1 1 2 0 5 9 0 5 2 1

Uranium Analysis of the Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 922.-6340	SEG.COMP#8	1-24-90	8:39	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	G/L	WB75L	0

Sample Size: ? (0.050ml)

Customer ID:

Remarks, Calculations, Results: REAGENT BLANK spk ID= 54B38 spk Vol = 0.100ml

0.00 <.02
0.285

$$\frac{\left(\frac{5.5}{5.6}\right)(<0.02)(5.62\times10^{-4})(.1)}{\left[0.285-\frac{5.5}{5.6}(<0.02)\right](0.05)} = \cancel{<4.01\times10^{-5}}\ <8.32\ Eg/l$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: ~~8-7-90~~ 1-26-90 CSJ

Time Completed:

Lab Unit Mgr: [signature]

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6540	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	WB75L	0

Sample Size: ? (0.100+10ml)(0.100ml)

Customer ID:

Remarks, Calculations, Results: LMCS CHECK SAMPLE spk ID 54B38 spk Vol. 0.100ml
LMCS ID 58B38

0.140
0.425

$$\frac{\left(\frac{5.5}{5.6}\right)(0.14)(5.62\times10^{-4})(.1)(101)}{\left[.425-\frac{5.5}{5.6}(.14)\right](.1)} = \frac{2.71\times10^{-2}}{2.99\times10^{-2}}\quad 90.8\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: ~~8-7-90~~ 1-26-90 CSJ

Time Completed:

Lab Unit Mgr: [signature]

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6140	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	G/L	WB75L	0

Sample Size: ? (0.100+10ml)(0.100ml)

Customer ID: 000005

Remarks, Calculations, Results: DUPLICATE SAMPLE spk ID=54B38 spk Vol. 0.100ml

0.060
0.330

$$\frac{\left(\frac{5.5}{5.6}\right)(0.06)(5.62\times10^{-4})(.1)(101)}{\left[0.33-\frac{5.5}{5.6}(0.06)\right](.1)} = 1.23\times10^{-2}$$

(Over)

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: ~~8-7-90~~ 1-26-90 CSJ

Time Completed:

Lab Unit Mgr: [signature]

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6040	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	G/L	WB75L	0

Sample Size: ? (0.100ml+10m)(0.100ml)

Customer ID: 000005

Remarks, Calculations, Results: Spike ID. 54B38 spk Vol = 0.100ml

0.070
0.350

$$\frac{\left(\frac{5.5}{5.6}\right)(0.07)(5.62\times10^{-4})(.1)(101)}{\left[0.35-\frac{5.5}{5.6}(0.07)\right](.1)} = 1.39\times10^{-2}\ g/L$$

(Over)

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: ~~8-7-90~~ 1-26-90 CSJ

Time Completed:

Lab Unit Mgr: [signature]

54-6800-081 (R-10-83)

Uranium Analysis of the Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 926.-6540	SEG.COMP#12	1-24-90	8:41	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	WB75L	0

Sample Size: ? (0.100ml+10ml)(0.100ml)

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE spk. ID 54838 spk Vol 0.100ml
LMCS ID 58838

0.140
0.425

$$\frac{\left(\frac{5.5}{56}\right)(0.14)(5.62\times10^{-4})(.1)(101)}{\left[0.425-\frac{5.5}{56}(0.14)\right](.1)} = \frac{2.71\times10^{-2}}{2.99\times10^{-2}}$$

90.1%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98				
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hab				

Date	Time Completed	Lab Unit Mgr
~~8-7-90~~ 1-26-90		

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 925.-6240	SEG.COMP#11	1-24-90	8:41	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	WB75L	0

Sample Size: ? 100-10-100

Customer ID:

Remarks, Calculations, Results:
SPIKE SAMPLE F 899
SPIKE ID 58838
SPIKE VOLUME 100-10-100

$$\frac{4.81\times10^{-2}-1.42\times10^{-2}}{2.99\times10^{-2}}$$

~~113.3%~~ ~~116.6~~ /6

.210 $(.210)(5.62^{-4})(.1)(1010)$ ~~4.97-2~~

.450 $\left(\frac{5.5}{56}\right)(.45)$ ~~$\frac{5.6}{56}$~~ $(.21)$

~~3.55-2 / 2.97-2~~ =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/12#				am
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-90			DMS

54-6600-061 (R-10-83)

ICP Analysis - Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 1084.-8350	SEG.COMP#20	2-16-90	8:16	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	PPM	E21D1	0

Sample Size: ? Direct

Customer ID: 000013

Remarks, Calculations, Results:
REAGENT BLANK

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
J. White		Karl N. Pool		

Date	Time Completed	Lab Unit Mgr	
4-19-90		JP	Dyanne Southick

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 1083.-8550	SEG.COMP#19	2-16-90	8:15	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	% RECOVERY	E21D1	0

Sample Size: ? Direct

Customer ID: 000013

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 81C11A

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
4-19-90		Karl N. Pool		

Date	Time Completed	Lab Unit Mgr	
J. White		JP	Dyanne Southick

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6050	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	PPM	WB75L	0

Sample Size: ? 100-ID & 500-ID

Customer ID: 000005

Remarks, Calculations, Results:

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
J. White		Karl N. Pool		

Date	Time Completed	Lab Unit Mgr	
4-19-90		JP	Dyanne Southick

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 1088.-8550	SEG.COMP#24	2-16-90	8:16	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	% RECOVERY	E21D1	0

Sample Size: ? Direct

Customer ID: 000013

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 82C11A

Digested STD.
Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
J. White		Karl N. Pool		

Date	Time Completed	Lab Unit Mgr	
4-19-90		JP	Dyanne Southick

54-6800-061 (R-10-83)

9 1 1 2 ? 5 ? 0 5 ? 4

ICP Analysis - Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6150	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	PPM	WB75L	0

Sample Size	Customer ID
? 100-10 & 500-10	000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
J White		Karl M Pool		

Date	Time Completed	Lab Unit Mgr	
4-19-90		JP	Dayanne Southard

54-6800-081 (R-10-83)

#2 2714 8hrs.

Serial No.	Sample Point	Date	Time Issued	Priority
F 940.-6381	SEG.COMP#8	1-30-90	10:38	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 1ml + 50λ [redacted] Am spike 10843-B

Customer ID: 000008

Remarks, Calculations, Results:
REAGENT BLANK
1200 con HNO_3

<7.29-3

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				ow
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-6600-061 (R-10-83)

3.3 3947

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6081	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 250λ + 50λ [redacted] Pu spike 10843-B

Customer ID: 000005

Remarks, Calculations, Results:
380λ HNO_3 con 10843-B

"AEA-480 MIN"
ATTACH PRINT OUT

8.83-1 pci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				ow
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-6600-061 (R-10-83)

#7 3946 8hrs.

Serial No.	Sample Point	Date	Time Issued	Priority
F 950.-6581	SEG.COMP#12	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-100 50λ

Customer ID: 000008

Remarks, Calculations, Results:
[redacted] Pu spike 10843-B
LMCS CHECK SAMPLE
LMCS ID ~~100~~ 16843

"AEA-480 MIN"
ATTACH PRINT OUT

1.0312 / 9.7329' 105.9%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				ow
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-6600-061 (R-10-83)

#4 4709 8hrs

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7581	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-100

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE 50λ 10843-B
LMCS ID 16843

~~"AEA-480 MIN"~~
ATTACH PRINT OUT

109.5%

1.0662 / 9.7329'

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 8598/RH				ow
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-6600-061 (R-10-83)

3.3 2715

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6181	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 250λ + 50λ [redacted] Pu spike 10843-B

Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
380 λ con HNO3

"AEA-480 MIN"
ATTACH PRINT OUT

8.00 -1 well

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				one
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-0600-061 (R-10-83)

3.3 3954

Serial No.	Sample Point	Date	Time Issued	Priority
F 947.-6281	SEG.COMP#11	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 100-10-100 Pu spike std

Customer ID: 000008

Remarks, Calculations, Results:
SPIKED SAMPLE
890λ HNO3 [redacted] Pu spike 10843-B
E294
F947

"AEA-480 MIN"
ATTACH PRINT OUT

no spike recovery

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				one
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-0600-061 (R-10-83)

Americium 241 Analysis - Fusion Dissolution

3.3 3958

Serial No.	Sample Point	Date	Time Issued	Priority
F 949.-6282	SEG.COMP#11	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 100-10-1000 std + 100% spike
Customer ID: 000008

Remarks, Calculations, Results:
SPIKED SAMPLE
890% HNO3
No spike recovery

"AEA-480 MIN"
ATTACH PRINT OUT

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		GW / RH

54-6600-061 (R-10-83)

3.2 2724

Serial No.	Sample Point	Date	Time Issued	Priority
F 950.-6582	SEG.COMP#12	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-1000 + 100% spike
Customer ID: 000008

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 16643 9543

"AEA-480 MIN"
ATTACH PRINT OUT

1.663'/1.5712'
105.8%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		GW / RH

54-6600-061 (R-10-83)

3.2 2726

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6582	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-1000
Customer ID:

Remarks, Calculations, Results: SPIKE 9543 100%
LMCS CHECK SAMPLE
LMCS ID 16543

"AEA-480 MIN"
ATTACH PRINT OUT

1.592'/1.5712'
101.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		GW / RH

54-6600-061 (R-10-83)

3.3 3956

Serial No.	Sample Point	Date	Time Issued	Priority
F 946.-6382	SEG.COMP#8	1-30-90	10:38	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 1ml + 100% Am spike
Customer ID: 000008

Remarks, Calculations, Results: 9543
REAGENT BLANK
1200 cpm HNO3

"AEA-480 MIN"
ATTACH PRINT OUT

$<1.50^{-2}$ uCi/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		GW / RH

54-6600-061 (R-10-83)

11.4 8074

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6082	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 250λ + 100λ 9843

Customer ID: 000005

Remarks, Calculations, Results:
380λ HNO_3

"AEA-480 MIN"
ATTACH PRINT OUT

3.34^{-1} neil

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/RH				gw
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		

54-6800-061 (R-10-83)

11.2 8024

Serial	Sample Point	Date	Time Issued	Priority
F 900.-6182	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	uCI/L	WB75L	0

Sample Size: ? ~~100λ~~ 250λ + 100λ 9843

Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
380λ HNO_3

"AEA-480 MIN"
ATTACH PRINT OUT

3.17^{-2} neil

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/RH				gw
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		

54-6800-061 (R-10-83)

9 1 1 2 0 5 9 0 5 0 9

Neptunium 237 Analysis - Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 898.-6383	SEG.COMP#8	1-24-90	8: 5	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	uCI/L	WB75L	0

Sample Size: ? 250 λ mT 5ml

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

<1.08 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 3-12-90 | Time Completed: | Lab Unit Mgr: [signature] Kathy Homdeke

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6583	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	% RECOVERY	WB75L	0

Sample Size: ? 100 λ mT 500

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 148833

1.031² / 1.2811² 80.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 3-12-90 | Time Completed: | Lab Unit Mgr: [signature] Kathy Homdeke

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6183	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	uCI/L	WB75L	0

Sample Size: ? 250 λ mT 500 λ

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

<1.08 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 3-12-90 | Time Completed: | Lab Unit Mgr: [signature] Kathy Homdeke

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6083	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	uCI/L	WB75L	0

Sample Size: ? 250 λ mT 500

Customer ID: 000005

Remarks, Calculations, Results:

<1.08 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 3-12-90 | Time Completed: | Lab Unit Mgr: [signature] Kathy Homdeke

54-6800-061 (R-10-83)

Neptunium 237 Analysis - Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 980.-6583	SEG.COMP#12	2- 7-90	10:45	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	% RECOVERY	WB75L	0

Sample Size: ? 100 λ MT500

Customer ID: 000007

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 148833

8.104' / 1.2811² 63.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 859 RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-12-90		

84-6600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 979.-6283	SEG.COMP#11	2- 7-90	10:45	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	% RECOVERY	WB75L	0

Sample Size: ? 250 MT500

Customer ID: 000007

Remarks, Calculations, Results:
SPIKED SAMPLE 550 100λ 148833
F 947

9.125' / 1.2811 E² 71.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 859 RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-12-90		

84-6600-081 (R-10-83)

3-4

Serial No.	Sample Point	Date	Time Issued	Priority
F 898.-6384	SEG.COMP#8	1-24-90	8: 5	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	uCI/L	WB75L	0

Sample Size: ? 1ml + 500 100λ Tc99 spike

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

< 2.6687 $^{-2}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lin				
Date	Time Completed	Lab Unit Mgr		
2-15-90			DMS	

54-8800-081 (R-10-83)

1-2

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6584	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	% RECOVERY	WB75L	0

Sample Size: ? 250λ + 100λ spike

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 49839
STD: 148839

3.38 uci/l / 3.6166

93.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lin				
Date	Time Completed	Lab Unit Mgr		
2-15-90			DMS	

54-8800-081 (R-10-83)

7-8

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6184	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	uCI/L	WB75L	0

Sample Size: ? 500λ + 100λ spike

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

< 5.45 $^{-2}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lin				
Date	Time Completed	Lab Unit Mgr		
2-15-90			DMS	

54-8800-081 (R-10-83)

5-6

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6084	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	uCI/L	WB75L	0

Sample Size: ? 500λ + 100λ Tc spike

Customer ID: 000005

Remarks, Calculations, Results:

< 5.21 $^{-2}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lin				
Date	Time Completed	Lab Unit Mgr		
2-15-90				

54-8800-081 (R-10-83)

9 1 1 2 9 5 9 0 5 3 2

Technetium 99 Analysis - Fusion Dissolution

11-12

Serial No.	Sample Point	Date	Time Issued	Priority
F 902.-6584	SEG.COMP#12	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	% RECOVERY	WB75L	0

Sample Size: ?250λ & 100λ spike 49B39

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID_____

STD: 148B39 3.659 uci/l / 3.6166

101.2% DMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916				[signature]
Hrs Sue Lai	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-15-90		[signature]

54-6800-081 (R-10-83)

9-10

Serial No.	Sample Point	Date	Time Issued	Priority
F 901.-6284	SEG.COMP#11	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	% RECOVERY	WB75L	0

Sample Size: ?500λ + 250λ std + 100λ spike

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE

100.0%

1.861 uci/l − 5.45⁻² = 1.807 x 2 = 3.61 uci/l / 3.616

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916				[signature]
Hrs Sue Lai	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-15-90		[signature]	DMS

54-6800-081 (R-10-83)

A4925

Serial No.	Sample Point	Date	Time Issued	Priority
F 898.-6385	SEG.COMP#8	1-24-90	8: 5	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	uCI/L	WB75L	0

Sample Size: ? ml

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

g. 2.0919
+. 2.0907
n. .0012 / .0305

$\frac{(<1.01^{-5})(1000)}{3.93^{-2}} = <2.57^{-1}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				
Shirley Constantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-14-90			DMG

54-6600-081 (R-10-83)

A4924

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6585	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I-129	LA-378-103	% RECOVERY	WB75L	0

Sample Size: ? ml

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 73839

g. 2.1143
+. 2.1112
n. .0035 / .0305

$\frac{(9.68^{-5})(1000)}{1148} = 8.43^{-2}$ uci/l / 7.229^{-2} = 114.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				
Shirley Constantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-14-90			DMG

54-6600-081 (R-10-83)

A4929

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6185	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	uCI/L	WB75L	0

Sample Size: ? ml

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

g. 2.0883
+. 2.0796
n. .0087 / .0305

$\frac{(<9.71^{-6})(1000)}{2.295^{-2}} = <4.23^{-1}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				
Shirley Constantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-14-90			DMG

54-6600-081 (R-10-83)

A4928

Serial No.	Sample Point	Date	Time Issued	Priority
F 899.-6085	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	uCI/L	WB75L	0

Sample Size: ? ml

Customer ID: 000005

Remarks, Calculations, Results:

g. 2.1211
+. 2.1201
n. .0010 / .0305

$\frac{(<1.09^{-5})(1000)}{3.28^{-2}} = <3.32^{-1}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				
Shirley Constantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-14-90			DMG

54-6600-081 (R-10-83)

Iodine 129 Analysis - Fusion Dissolution

A4933

Serial No.	Sample Point	Date	Time Issued	Priority
F: 902.-6585	SEG.COMP#12	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I-129	LA-378-103	% RECOVERY	WB75L	0

Sample Size: ? 1ml

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 73B39

g. 2.1270
+. 2.1189
n. .0081
.0305

$\frac{(1.95^{-4})(1000)}{.27} = 7.222^{-2} / 7.229 = 99.9\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[signature]
Hrs: Shirley Cavanta	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-14-90		[signature]	DMS

54-5800-081 (R-10-83)

A4931

Serial No.	Sample Point	Date	Time Issued	Priority
F. 901.-6285	SEG.COMP#11	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	% RECOVERY	WB75L	0

Sample Size: ? 1ml (F899) + 1ml std (73B39)

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE

104.0%

g. 2.1078
+. 2.1043
n. .0030
.0305

$\frac{(.740^{-4})(1000)}{9.84^{-2}} = 7.52^{-2}$ uci/l / 7.229^{-2}

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[signature]
Hrs: Shirley Cavanta	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-14-90		[signature]	DMS

54-5800-081 (R-10-83)

9 1 1 2 9 5 9 0 5 3 5

Strontium 90 Analysis - Fusion Dissolution

Serial No.	Sample Point	Date	Time Issued	Priority
F 898.-6386	SEG.COMP#8	1-24-90	8: 5	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	uCI/L	WB75L	0

Sample Size: ? 1ml + 1ml Sr carrier — Customer ID: 000005

Remarks, Calculations, Results: REAGENT BLANK

	1	2
Date 03 08 90	7.8483 G	8.1237
Sep. time 2000	7.7667 T	8.0462
3.22 -2 weak	0.0816 N	0.0775
	.816	.775

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
66461				[illegible]
1530 Hrs 2330 Mattie Sim	Hrs	Hrs	Hrs	Hrs

Date: 03-08-90 — Time Completed: — Lab Unit Mgr: [illegible]

54-8860-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6586	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 1ml Sr carrier — Customer ID: 000005

Remarks, Calculations, Results: LMCS CHECK SAMPLE
LMCS ID 106B44 — 103.3% 1 — 2 [illegible]

	1	2
Date 03-08-90	7.9772 G	8.0489
Sep. time 2000	7.8898 T	7.9745
1.4305 / 1.3847	0.0874 N	0.0744
	.874	.744

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
66461				[illegible]
1530 Hrs 2330 Mattie Sim	Hrs	Hrs	Hrs	Hrs

Date: 03-08-90 — Time Completed: — Lab Unit Mgr: [illegible]

54-8860-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 900.-6186	SEG.COMP#10	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	uCI/L	WB75L	0

Sample Size: ? 250λ + 1ml Sr carrier — Customer ID: 000005

Remarks, Calculations, Results: DUPLICATE SAMPLE

	1	2
Date 03-08-90	8.0110 G	8.0133
Sep. time 2000	7.9292 T	7.9217
8.50 2 weak	0.0818 N	0.0916
	.818	.916

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
66461				[illegible]
1530 Hrs 2330 Mattie Sim	Hrs	Hrs	Hrs	Hrs

Date: 03-08-90 — Time Completed: — Lab Unit Mgr: [illegible]

54-8860-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
F 899.-6086	SEG.COMP#9	1-24-90	8: 6	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	uCI/L	WB75L	0

Sample Size: ? 250λ + 1ml Sr carrier — Customer ID: 000005

Remarks, Calculations, Results:

	1	2
Date 03-08-90	8.0790 G	8.1305
Sep. time 2000	7.9908 T	8.0378
9.46 2 weak	0.0882 N	0.0927
	.882	.927

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
66461				[illegible]
1530 Hrs 2330 Mattie Sim	Hrs	Hrs	Hrs	Hrs

Date: 03-08-90 — Time Completed: — Lab Unit Mgr: [illegible]

54-8860-061 (R-10-83)

Strontium 90 Analysis - Fusion Dissolution

10 2" 3-9-90 VR 0055 ΔT 4.92 DF 4

1860438 VR / 10 - 26

2 947466 / 5 -

1 956881 / 5 - 26

Sr Calculation by VR on 03-09-1990 at 05:34:11
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 4 Method : 1

Mount # 1 Decay time = 4.92 hrs

956881 / 5 - 26.0 = 8.5968E+02 uCi/L strontium

9.27²

.927

Mount # 2 Decay time = 4.92 hrs

947466 / 5 - 26.0 = 8.5122E+02 uCi/L strontium

9.65²

.882

12 2" 3-9-90 VR 0320 ΔT 7.33 DF 4

361523 / 2 VR - 9

389468 / 2 -

Sr Calculation by VR on 03-09-1990 at 03:39:02
Det #12 2 -inch mount Sr eff : .4233 Y eff : .4719

Sample size : 1 mL Dilution : 4 Method : 1

Mount # 1 Decay time = 7.33 hrs

361523 / 2 - 9.0 = 7.0911E+02 uCi/L strontium

8.67²

.818

Mount # 2 Decay time = 7.33 hrs

389468 / 2 - 9.0 = 7.6392E+02 uCi/L strontium

.916

8.34²

10/2 3-8-90 C 2250 ΔT 2.83

11357 / 10 - 26

9333 / 10

Sr Calculation by VR on 03-09-1990 at 05:31:58
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 2.83 hrs

11357 / 10 - 26.0 = 1.2755E+00 uCi/L strontium

1.4594

.874

Mount # 2 Decay time = 2.83 hrs

9333 / 10 - 26.0 = 1.0428E+00 uCi/L strontium

1.4016

.744

10 2" 3-9-90 VR 0020 ΔT 4.33

400 / 10 - 26

577 / 10

Sr Calculation by VR on 03-09-1990 at 05:32:50
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 4.33 hrs

400 / 10 - 26.0 = 1.5825E-02 uCi/L strontium

2.04⁻²

.775

Mount # 2 Decay time = 4.33 hrs

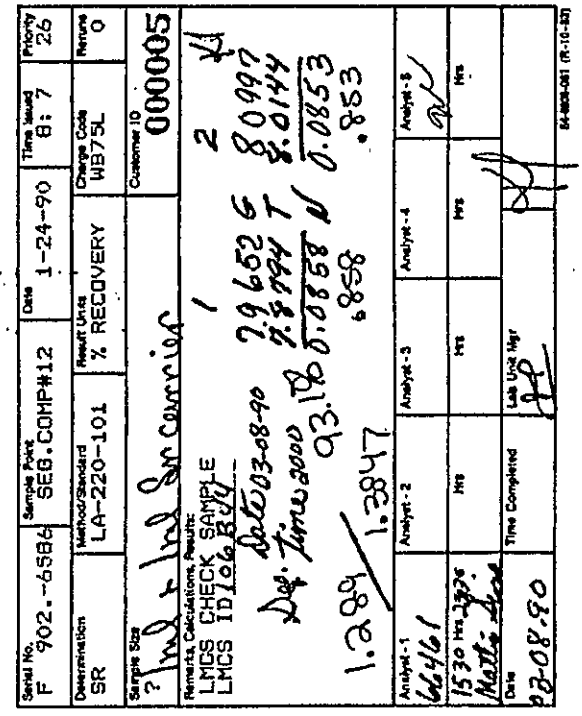
577 / 10 - 26.0 = 3.5833E-02 uCi/L strontium

4.39⁻²

.816

9 1 1 2 0 5 3 0 5 3 6

Strontium 90 Analysis - Fusion Dissolution



Serial No.	Sample Point	Date	Time Issued	Priority
F 902.-6586	SEG.COMP#12	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
SR	LA-220-101	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 1ml Sr carrier

Customer ID: 000005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 106B44

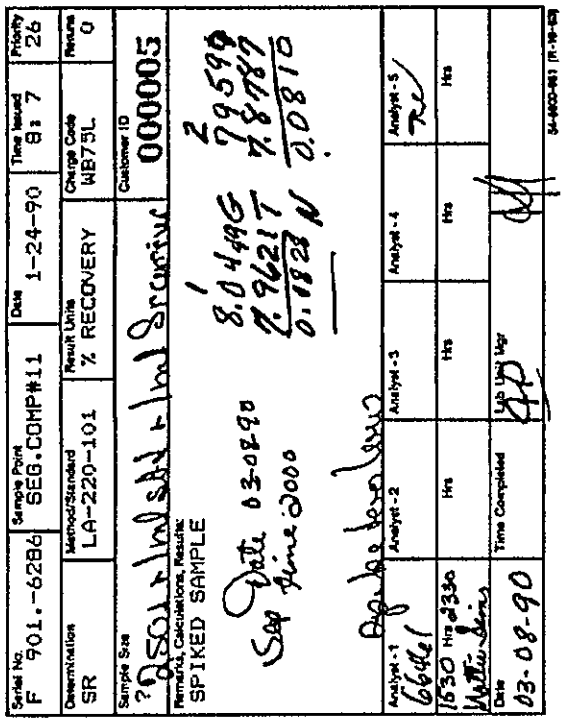
	1	2
Date 03-08-90	7.9652 G	8.0997
Sep. Time 2000	7.8794 T	8.0144
93.1%	0.0858 N	0.0853
	.858	.853

1.289 / 1.3847

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
66461				
1530 Hrs 2330 Mattie Sims	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
03-08-90		

54-6600-061 (R-10-83)



Serial No.	Sample Point	Date	Time Issued	Priority
F 901.-6286	SEG.COMP#11	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
SR	LA-220-101	% RECOVERY	WB75L	0

Sample Size: ? 2501 + 1ml std + 1ml Sr carrier

Customer ID: 000005

Remarks, Calculations, Results:
SPIKED SAMPLE

	1	2
Sep Date 03-08-90	8.0449 G	7.9599
Time 2000	7.9621 T	7.8787
	0.0828 N	0.0810

Spike tracer

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
66461				
1530 Hrs 2330 Mattie Sims	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
03-08-90		

54-6600-061 (R-10-83)

Strontium 90 Analysis - Fusion Dissolution

11 2" 3-9-90 VR 0320 ΔT 7.33 DF 4

$\frac{411545}{2}$ - 17

$\frac{393529}{2}$ -

Sr Calculation by VR on 03-09-1990 at 03:38:00
Det #11 2 -inch mount Sr eff : .3919 Y eff : .4443

Sample size : 1 mL Dilution : 4 Method : 1

Mount # 1 Decay time = 7.33 hrs

$\frac{411545}{2}$ - 17.0 = 8.7071E+02 uCi/L strontium

Mount # 2 Decay time = 7.33 hrs

$\frac{393529}{2}$ - 17.0 = 8.3259E+02 uCi/L strontium

10 2" 3-9-90 VR 0555 ΔT 9.92

$\frac{10904}{10}$ - 26

$\frac{10272}{10}$ -

Sr Calculation by VR on 03-09-1990 at 06:18:22
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 9.92 hrs

$\frac{10904}{10}$ - 26.0 = 1.1359E+00 uCi/L strontium 1.332 .853

Mount # 2 Decay time = 9.92 hrs

$\frac{10272}{10}$ - 26.0 = 1.0684E+00 uCi/L strontium 1.245 .858

WATER DIGESTION ANALYSIS

APPENDIX A

6 7 5 0 6 5 1 2 1 1 6

Water Digestion - First Leach

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7000	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H20-DGST	LA-504-101	G/L	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

GRAMS SAMPLE .9257
VOLUME ON COMPLETION 100 ml
9.3-3 g/ml
108.03 DF

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80725 J.C.				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-90		

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7300	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H20-DGST	LA-504-101	G/L	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

Completed

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80725 J.C.				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-90		

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7200	SEG.COMP#17	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H20-DGST	LA-504-101	% RECOVERY	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED ANALYSIS
GRAMS SAMPLE 1.0650
VOLUME ON COMPLETION 100 ml
VOLUME SPIKE
SPIKE ID
1.07-2 g/ml
DF 93.897

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80725 J.C.				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-90		

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7100	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H20-DGST	LA-504-101	G/L	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

#310 4.54

DUPLICATE ANALYSIS
GRAMS SAMPLE 1.0938
VOLUME ON COMPLETION 100 ml
1.09-2 g/ml
DF 91.42

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80725 J.C.				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-90		

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7000	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H2O-DGST	LA-504-101	G/L	E21D1	1

Sample Size: ? 1.0019 g

Customer ID: #5-Comp-2 Bottle # 378

Remarks, Calculations, Results:
GRAMS SAMPLE 1.0019 g
VOLUME ON COMPLETION 100 ml
1.002 E^{-2} g/ml
1.002 E^{1} g/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				
Hrs	Hrs	Hrs	Hrs	Hrs
Date: 5-29-90	Time Completed	Lab Unit Mgr		

54-0600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7200	SEG.COMP#17	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H2O-DGST	LA-504-101	% RECOVERY	E21D1	1

Sample Size: ? 1.0058 g

Customer ID: #5-378 Comp-2

Remarks, Calculations, Results:
SPIKED ANALYSIS
GRAMS SAMPLE 1.0058 g
VOLUME ON COMPLETION 100 ml
VOLUME SPIKE
SPIKE ID
1.006 E^{-2} g/ml
1.006 E^{1} g/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				
Hrs	Hrs	Hrs	Hrs	Hrs
Date: 5-29-90	Time Completed	Lab Unit Mgr		

54-0600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7100	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
H2O-DGST	LA-504-101	G/L	E21D1	1

Sample Size: ? 1.0100 g

Customer ID: #5-378 Comp-2

Remarks, Calculations, Results:
DUPLICATE ANALYSIS
GRAMS SAMPLE 1.0100 g
VOLUME ON COMPLETION 100 ml
1.01 E^{-2} g/ml
1.01 E^{1} g/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				
Hrs	Hrs	Hrs	Hrs	Hrs
Date: 5-29-90	Time Completed	Lab Unit Mgr		

54-0600-081 (R-10-83)

9 1 1 2 ? 5 9 0 5 4 2

pH Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7314	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PH	LA-211-102	% RECOVERY	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005

Remarks, Calculations, Results:
Blank
21.9°C
5.94

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R & Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
F 903.-7514	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PH	LA-211-102	% RECOVERY	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005 72C11

Remarks, Calculations, Results:
LMCS
21.9°C
101.1%
10.11/10.00

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R & Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7114	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PH	LA-211-102	NONE	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005

Remarks, Calculations, Results:
pH
SAMPLE TEMP 21.9
11.85

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R & Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7014	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PH	LA-211-102	NONE	WB75L	0

Sample Size: ? ~~400X~~ 1ml

Customer ID: 000005

Remarks, Calculations, Results:
21.9°C
11.46

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R & Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-6800-061 (R-10-83)

9 1 1 2 9 5 9 0 5 1 3

pH Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7514	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PH	LA-211-102	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 1 ml	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
pH FOUND 10.10
STD ID 72C11
SAMPLE TEMP 21.9

KY

101.0%

10.10/10.00

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
4C269				R.B. [illegible]
[illegible]	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[illegible]	DMS

64-6800-081 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Fluoride

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7371	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	PPM	WB75L	0

Sample Size: ? Direct
Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

<.1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 932.-7571	SEG.COMP#18	1-24-90	8:48	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10
Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11HI

7.18' ppm / 7.20' = 99.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7171	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10
Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

1.55² ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7571	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10
Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11HI

6.85' ppm / 72.0 = 95.1%
DMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-6600-061 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Fluoride

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7271	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	% RECOVERY	NB75L	0

Sample Size: ? 0.1mL - 10mL

Customer ID: CORE Comp 5

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 35C9-67
SPIKE VOLUME .300/5mL

$$\frac{\left(\frac{5.3mL}{5.0mL}\right)(3.621 \times 100ppm) - \left(\frac{10.7g/L}{9.3g/L}\right)(4.07 \times 100 ppm)}{\left(\frac{.3mL}{5.3mL}\right)(47 ppm)(101)} \times 100\% = 125.5\%$$

$$= 141.10\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				
Hrs: .5	Hrs	Hrs	Hrs	Hrs
Date: 2/20/90	Time Completed	Lab Unit Mgr		

84-6800-061 (R-10-85)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7071	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	PPM	WB75L	0

Sample Size: ? 100.0

Customer ID: 000005

Remarks, Calculations, Results:

4.07 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				
Hrs: .5	Hrs	Hrs	Hrs	Hrs
Date: 2/20/90	Time Completed	Lab Unit Mgr		

84-6800-061 (R-10-85)

Ion Chromatographic Analysis of the Water Digestion - Chloride

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7372	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	PPM	WB75L	0

Sample Size: ? Direct

Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

1.776-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 Chemist
68107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 932.-7572	SEG.COMP#18	1-24-90	8:48	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID EC1141

103.5%

9.01 ppm / 87.0 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 Chemist
68107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7172	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

< 10.1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 Chemist
68107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7572	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID EC1141

8.60 ppm / 87.0 = 98.9%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 Chemist
68107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Chloride

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7272	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ?0.1mL - 10mL

Customer ID: CORE COMP 5

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 35C9-67
SPIKE VOLUME .300/5mL

$$\left[\frac{\left(\frac{5.3mL}{5.0mL}\right)(3.295e+00\ ppm)}{\left(\frac{.3mL}{5.3mL}\right)(60ppm)(101)}\right] \times 100\% = 101.82\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6R107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		

54-6603-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7072	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:

210.1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6R107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		

54-6603-081 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Nitrate

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7173	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

6.83² ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B107/WLW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 932.-7573	SEG.COMP#18	1-24-90	8:48	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 6C11H7

7.28² ppm / 7.22² = 100.8%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B107/WLW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7373	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	WB75L	0

Sample Size: ? Direct

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

7.51⁻¹ ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B107/WLW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7073	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:

3.14² ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B107/WLW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-8800-081 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Nitrate

Serial No	Sample Point	Date	Time Issued	Priority
F 907.-7273	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ?0.1mL - 10mL

Customer ID: Core Comp 5

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 3909-67
SPIKE VOLUME .300/5mL

$$\frac{\left(\frac{5.3mL}{50mL}\right)(3.19e03\,ppm)-(3.14e02\,ppm)\left(\frac{10.7\,g/L}{9.33\,g/L}\right)}{\frac{(.3mL)(48\,ppm)}{5.3mL}(101)} \times 100\% = 109.83\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
LOB107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7573	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? /100-10

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 6C11AL

7.222 ppm / 7.222 = 100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
LOB107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		

54-6800-081 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Phosphate

Serial No.	Sample Point	Date	Time Issued	Priority
F 932.-7574	SEG.COMP#18	1-24-90	8:48	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PO4	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11H1

7.45² ppm / 7.22² = 103.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7274	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PO4	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 0.1mL - 10mL

Customer ID: CORE COMP 5

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 3569-67
SPIKE VOLUME .500/5mL

$$\frac{\left(\frac{5.3mL}{5.0mL}\right)(2.994 \times 103 ppm)}{\left(\frac{.3mL}{5.3mL}\right)(492 ppm)(101)} \times 100\% = 112.83\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7574	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PO4	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11H1

7.51² / 7.22² ppm = 104.0% ppm 8

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7374	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PO4	LA-533-105	PPM	WB75L	0

Sample Size: ? Direct

Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

~~1.01 ppm~~ < 1.ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date: 2/20/90 | Time Completed: | Lab Unit Mgr:

54-8800-081 (R-10-83)

9 1 1 2 9 5 9 0 5 5 1

Ion Chromatographic Analysis of the Water Digestion - Phosphate

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7174	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PO4	LA-533-105	PPM	WB75L	0

Sample Size	Customer ID
? 100-10	000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

3.10^2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemical 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7074	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PO4	LA-533-105	PPM	WB75L	0

Sample Size	Customer ID
? 100-10	000005

Remarks, Calculations, Results:

$< 10^1$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemical 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		

54-6800-081 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Sulfate

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7375	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	WB75L	0

Sample Size: ? Direct

Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

~~<101 ppm~~ <1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 932.-7575	SEG.COMP#18	1-24-90	8:48	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11A2

92.3%

6.912 ppm / 7.49.0 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7175	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

4.73 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7575	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11A2

93.3%

6.988 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B107/NEW				Chemist 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date 2/20/90 | Time Completed | Lab Unit Mgr

54-6600-061 (R-10-83)

9 1 1 2 7 5 9 0 5 5 3

Ion Chromatographic Analysis of the Water Digestion - Sulfate

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7275	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 3569-67
SPIKE VOLUME .300/5ml

2.74³ − ~~101~~ = ~~2639~~ 2740 / 2756 = ~~98.8%~~ 99.4%

(over)

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B107/NEW				[signature] 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		[signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7075	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	WB75L	0

Sample Size: ? 100-10

Customer ID: 000005

Remarks, Calculations, Results:

<101 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6B107/NEW				[signature] 94171
Hrs .5	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/20/90		[signature]

54-6800-061 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Sulphate

F 907.-7275

$$\frac{\left(\frac{5.3\ ml}{5.0\ ml}\right) 2.743\ E03}{\frac{.3\ ml}{5.3\ ml}\left(482\ ppm\right)(111)} \times 100 = 105.5\ \%$$

Ammonia Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7328	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NH3	LA-634-102	M	WB75L	0

Sample Size: ? 1ml 0.0971 M HCl — Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

Blk: 34
Smpl: 31

<6.60 -3 m

~~<6.71 ppm~~ < 118.8 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date: 2-1-90 — Time Completed: — Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7528	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NH3	LA-634-102	% RECOVERY	WB75L	0

Sample Size: ? 250 λ 0.0971 M HCl — Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 4C11QG

96.4%

Std: 158
Blk: 34

4.82 -2 m / 5.00 -2

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date: 2-1-90 — Time Completed: — Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7128	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NH3	LA-634-102	M	WB75L	0

Sample Size: ? 1ml 0.0971 M HCl — Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

Smpl: 35
Blk: 34

<6.60 -3 m

~~<6.71 ppm~~ < 118.8 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date: 2-1-90 — Time Completed: — Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7028	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NH3	LA-634-102	M	WB75L	0

Sample Size: ? 1ml 0.0971 M HCl — Customer ID: 000005

Remarks, Calculations, Results:

Blk: 34
Smpl: 33

<6.60 -3 m

~~<6.71 ppm~~ < 118.8 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				R E Bennett
Mary Franz	Hrs	Hrs	Hrs	Hrs

Date: 2-1-90 — Time Completed: — Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Ammonia Analysis - Water Digestion

F 906.-7128

mdd = 7 mg/bm 8.811 =

7 mg/bm = 7/b 8811.0 =

81 X 9900. =

MW X $\overline{W}$ = 7/b

9 1 1 2 7 5 9 0 5 5 6

9 1 1 2 7 5 9 0 5 3 7

Ammonia Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7528	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH3	LA-634-102	% RECOVERY	WB75L	0

Sample Size: ? 250λ 0.0971 M HCl

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 4C110G

94.8%

STD: 156
Blk: 34

4.74^{-2} m / 5.00^{-2}

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C769 Mary Franz				R Bennett
	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-90		Cfr

54-8860-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7228	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH3	LA-634-102	% RECOVERY	WB75L	0

Sample Size: ? 1 ml 0.0971 M HCl

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE
250λ 4C110G

Blk: 34
Sampl: 156

4.74^{-2} / 5.00^{-2} 94.8%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C769 Mary Franz				R Bennett
	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-90		Cfr

54-8860-061 (R-10-83)

Carbonate Analysis on the Water Digestion

Serial No	Sample Point	Date	Time Issued	Priority
F 904.-7327	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CO3	LA-622-102	G/L	WB75L	0

Sample Size: ?200x
Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

5.4 µg

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cohen				
Date	Time Completed	Lab Unit Mgr		
2-6-90				

54-6600-081 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
F 903.-7527	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CO3	LA-622-102	% RECOVERY	WB75L	0

Sample Size: ~~?200x~~ 50x
Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 67C/LC

$2.020^{-1} / 2.00^{-1}$ 101.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cohen				
Date	Time Completed	Lab Unit Mgr		
2-6-90				

54-6600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7127	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CO3	LA-622-102	G/L	WB75L	0

Sample Size: ?200x
Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

28.5 ppm or 2.85^{-2} g/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cohen				
Date	Time Completed	Lab Unit Mgr		
2-6-90				

54-6600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7027	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CO3	LA-622-102	G/L	WB75L	0

Sample Size: ?200x
Customer ID: 000005

Remarks, Calculations, Results:

26.5 ppm or 2.65^{-2} g/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cohen				
Date	Time Completed	Lab Unit Mgr		
2-6-90				

54-6600-081 (R-10-83)

Carbonate Analysis on the Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7527	SEG.COMP#1B	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CO3	LA-622-102	% RECOVERY	WB75L	0

Sample Size: ? ~~200~~ 50L

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 69C11C

KT

2.042 / 2.00 = 102.1%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
2-6-90				

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7227	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
CO3	LA-622-102	% RECOVERY	WB75L	0

Sample Size: ? 200L

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE
SPIKE NO. 69C11C
SPIKE VOL. 100 uL

$$\frac{(175.8-5.4)-(10.7-5.4)}{160} \times 100 = 103.2\%$$

~~102.7%~~

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
2-6-90				

54-8800-081 (R-10-83)

Carbonate Analysis on the Water Digestion

$\frac{2400\ \mu g}{ml} \times (0.1\ ml) = 240\ \mu g \qquad \frac{240\ \mu g}{.3\ ml} = 800\ \mu g/ml$

$\frac{800\ \mu g}{ml} \times 0.2\ ml = 160\ \mu g$

$\frac{(175.8-5.4)-\left[(10.7-5.4)\left(\frac{10.7}{9.3}\right)\right]}{160} = \frac{1.64 \times 10^2}{160} = 1.0269$

$1.0269 \times 100 = 102.69\ \%$

R E [illegible]
D.K. [illegible]
8-24-90

F 907.-7227

0 9 5 0 6 5 [illegible] 1 1 6

Nitrite Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7379	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-645-001	~~M~~ ppm	WB75L	0

Sample Size: ? ~~100 X~~ 1 ml

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

<.054

<7.8-6 m

(<0.349 ppm)

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				RK Fuller 2-16-90
Tracy	Hrs	Hrs	Hrs	Hrs
Date: 2-6-90	Time Completed	Lab Unit Mgr		

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7579	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-645-001	% RECOVERY	WB75L	0

Sample Size: ? 100-10-50

Customer ID: 000005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 8C1147

99.0%

1.104

4.96-1 / 5.02-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				RK Fuller 2-16-90
Tracy	Hrs	Hrs	Hrs	Hrs
Date: 2-6-90	Time Completed	Lab Unit Mgr		

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7179	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-645-001	~~M~~ ppm	WB75L	0

Sample Size: ? 100 λ

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

3.22-3 m

(148.12 ppm)

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				RK Fuller 2-16-90
Tracy	Hrs	Hrs	Hrs	Hrs
Date: 2-6-90	Time Completed	Lab Unit Mgr		

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7079	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-645-001	~~M~~ ppm	WB75L	0

Sample Size: ? 100 λ

Customer ID: 000005

Remarks, Calculations, Results:

.667

1.47-3 m

(67.62 ppm)

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				RK Fuller 2-16-90
Tracy	Hrs	Hrs	Hrs	Hrs
Date: 2-6-90	Time Completed	Lab Unit Mgr		

54-6600-061 (R-10-83)

Nitrite Analysis - Water Digestion

$$3.22 \times 10^{-3} \frac{\text{moles } NO_2^-}{l} \times \frac{46 \text{ g } NO_2}{\text{mole}} \times \frac{1000 \text{ mg}}{g} = 148.12 \text{ ppm}$$

E 906.-7179

$$< 7.6 \times 10^{-6} \frac{\text{moles } NO_2}{l} \times \frac{46 \text{ g } NO_2}{\text{mole}} \times \frac{1000 \text{ mg}}{g} = < 0.349$$

E 904.-7379

$$1.47 \times 10^{-3} \frac{\text{moles } NO_2^-}{l} \times \frac{46 \text{ g } NO_2}{\text{mole } NO_2} \times \frac{1000 \text{ mg}}{g} = 67.62 \text{ ppm}$$

E 905.-7079

9 1 1 2 1 5 9 0 5 1 2

9 1 1 2) 5 9 0 5) 3

Nitrite Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7579	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NO2	LA-645-001	% RECOVERY	WB75L	0

Sample Size: ? 100-10-50

Customer ID: 000005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 8C11At

98.8%

1.102 4.959^{-1} / 5.02^{-1}

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				RK Fuller 2-16-90
Cynthia Franz	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-6-90		[signature]

54-6608-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7279	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NO2	LA-645-001	% RECOVERY	WB75L	0

Sample Size: ? 100λ

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE F905
8C11At: 100-10-50

1.699 - .667 = 1.032
96.1% ~~4.64~~ 4.904^{-1} / 5.02^{-1} 92.4%
1.100

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C269				RK Fuller 3-5-90
Cynthia Franz	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-6-90		[signature]

54-6600-081 (R-10-83)

Total Alpha Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7120	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 50λ

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

< 3.414^{-2} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90			DMS

54-8600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 201.-6520	SEGMENT-F	11-17-89	10:35	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-548-101	% RECOVERY	WB75L	0

Sample Size: ? 10 mL

Customer ID: 089046

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102B44

97.3%

9.75^{-3} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90			DMS

54-8600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 216.-6320	SEGMENT-U	11-17-89	10:38	18

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-548-101	uCI/L	WB75L	0

Sample Size: ?

Customer ID: 089046

Remarks, Calculations, Results:

REAGENT BLANK

9.96^{-7} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90			DMS

54-8600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 205.-6520	SEGMENT-J	11-17-89	10:36	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-548-101	% RECOVERY	WB75L	0

Sample Size: ? 10 mL

Customer ID: 089046

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102B49

100.8%

1.01^{-2} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				GW
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90			DMS

54-8600-081 (R-10-83)

Total Alpha Analysis - Water Digestion

14/2

452/10 - .2

500/10

Alpha Calculation by VR on 02-07-1990 at 06:20:12
Det #14 2 -inch mount Alpha eff. : .2111
Sample size : 10 mL Dilution : 1

Mount # 1

452 / 10 - 0.2 = 9.6022E-03 uCi/L alpha

Mount # 2

500 / 10 - 0.2 = 1.0626E-02 uCi/L alpha

F 205.-6520

14/2

2/125 - .2

1/125

Alpha Calculation by VR on 02-07-1990 at 03:24:56
Sample size : 1 mL Dilution : 1

Mount # 1

2 / 5 - 0.2 < 1.6464E-06 uCi/ea alpha

Mount # 2

1 / 5 - 0.2 < 9.9584E-07 uCi/ea alpha

F 216.-6320

14/2

466/10 - .2

452/10

Alpha Calculation by VR on 02-07-1990 at 03:03:56
Det #14 2 -inch mount Alpha eff. : .2111
Sample size : 10 mL Dilution : 1

Mount # 1

466 / 10 - 0.2 = 9.9609E-03 uCi/L alpha

Mount # 2

452 / 10 - 0.2 = 9.6022E-03 uCi/L alpha

F 201.-6520

14 2" 2-7-90 VR

2/10 - .2

10/10 -

Alpha Calculation by VR on 02-07-1990 at 04:18:08
Det #14 2 -inch mount Alpha eff. : .2111
Sample size : 1 mL Dilution : 20

Mount # 1

2 / 10 - 0.2 < 1.4083E-02 uCi/L alpha

Mount # 2

10 / 10 - 0.2 = 3.4141E-02 uCi/L alpha

F 906.-7120

9112159055

9 1 1 2 ? 5 9 0 5 ? 6

Total Alpha Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7025	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AT	LA-508-101	uCI/L	WB75L	0

Sample Size	Customer ID
? 50λ	000005

Remarks, Calculations, Results:

<3.414^{-2} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98/eff				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[illegible]	DMS

54-6800-081 (R-10-83)

Total Alpha Analysis - Water Digestion

14 2" 2-7-90 KR

$\frac{3}{10}$ - .2

$\frac{10}{10}$ -

Alpha Calculation by IM on 02-07-1990 at 08:37:21
Det #14 2 -inch mount Alpha eff. : .2111
Sample size : .05 mL Dilution : 1

Mount # 1

$\frac{3}{10}$ - 0.2 (2.0013E-02 uCi/L alpha

Mount # 2

$\frac{10}{10}$ - 0.2 = 3.4141E-02 uCi/L alpha

F 905.-7025

9 1 1 2 9 5 9 0 5 3 8

Total Beta Analysis - Water Digestion

~~1 & 2~~ VR 3-4

Serial No.	Sample Point	Date	Time Issued	Priority
F 201.-6525	SEGMENT-F	11-17-89	10:35	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-548-101	% RECOVERY	WB75L	0

Sample Size: ? 10mL

Customer ID: 089046

Remarks, Calculations, Results: [redacted]

LMCS CHECK SAMPLE
LMCS ID 102844

105.1%

1.45 -1 uci/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/RH				Gl
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-8800-081 (R-10-83)

9 & 10

Serial No.	Sample Point	Date	Time Issued	Priority
F 216.-6325	SEGMENT-U	11-17-89	10:38	18

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-548-101	uCI/L	WB75L	0

Sample Size: ?

Customer ID: 089046

Remarks, Calculations, Results: [redacted]

REAGENT BLANK

2.97 -5 uci/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/RH				Gl
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-8800-081 (R-10-83)

7-8

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7125	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 50λ

Customer ID: 000005

Remarks, Calculations, Results: ~~Count on any detector but 18 KT~~

DUPLICATE SAMPLE [redacted]

1.62 2 uci/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/RH				Gl
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-8800-081 (R-10-83)

3-4

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7020	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-508-101	uCI/L	WB75L	0

Sample Size: ? 50λ

Customer ID: 000005

Remarks, Calculations, Results: ~~Count on any detector but 18 KT~~ [redacted]

~~9.520 uci/l~~ [signature]

9.52 x 10 1 uci/L

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6BS98/RH				Gl
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[signature]	DMS

54-8800-081 (R-10-83)

14 2" 2-7-90 VR

28158 / 10 - 5

29723 / 10

Beta Calculation by DM on 02-07-1990 at 08:37:19
Bet #14 2 -inch mount Beta eff. : .2734
Sample size : .05 mL Dilution : 1

Mount # 1

28158 / 10 - 5.0 = 9.2621E+01 uCi/L beta

Mount # 2

29723 / 10 - 5.0 = 9.7778E+01 uCi/L beta

F 906.-7020

14 2" 2-7-90 VR DF 20

48983 / 10 - 5

49529 / 10

Beta Calculation by VR on 02-07-1990 at 06:18:06
Bet #14 2 -inch mount Beta eff. : .2734
Sample size : 1 mL Dilution : 20

Mount # 1

48983 / 10 - 5.0 = 1.6124E+02 uCi/L beta

Mount # 2

49529 / 10 - 5.0 = 1.6304E+02 uCi/L beta

F 906.-7125

14/2

115 / 45 - 5

115 / 45 - 5

Beta Calculation by VR on 02-07-1990 at 03:04:54
Bet #14 2 -inch mount Beta eff. : .2734
Sample size : 1 ea Dilution : 1

Mount # 1

115 / 5 - 5.0 = 2.9657E-05 uCi/ea beta

Mount # 2

115 / 5 - 5.0 = 2.9657E-05 uCi/ea beta

F 216.-6325

14/2

10ml

8784 / 10 - 5

8936 / 10

Beta Calculation by VR on 02-07-1990 at 03:03:54
Bet #14 2 -inch mount Beta eff. : .2734
Sample size : 10 mL Dilution : 1

Mount # 1

8784 / 10 - 5.0 = 1.4390E-01 uCi/L beta

Mount # 2

8936 / 10 - 5.0 = 1.4640E-01 uCi/L beta

F 201.-6525

9 1 1 2 9 5 9 0 5 7 0

Total Beta Analysis On The Water Digestion

~~3A4~~ 1-2

Serial No.	Sample Point	Date	Time Issued	Priority
F 205.-6525	SEGMENT-J	11-17-89	10:36	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
TB	LA-548-101	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 10ml	089046

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 102844

[redacted]

106.6%

1.47 $^{-1}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
68598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-6-90		[illegible]	DMS

84-8800-061 (R-10-83)

Total Beta Analysis On The Water Digestion

14/2

10 mL

$\frac{9102}{10} - 5$

$\frac{8902}{10} -$

Beta Calculation by VR on 02-07-1990 at 04:20:10
Det #14 2 -inch mount Beta eff. : .2734
Sample size : 10 mL Dilution : 1

Mount # 1

$\frac{9102}{10} - 5.0 = 1.4914E-01$ uCi/L beta

Mount # 2

$\frac{8902}{10} - 5.0 = 1.4584E-01$ uCi/L beta

F 205.-6525

GEA Analysis - Water Digestion

2907

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7330	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

Cs^{137} < 5.45 $^{-2}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725 SC				GW
Hrs Shirley Cervantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-90		[signature]	KJ

54-6800-061 (R-10-83)

1720

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7530	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	WB75L	0

Sample Size: ? ~~25λ~~ 500λ

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 89B44

Cs^{137} 3.69' uci/l / 3.8078' 96.9%

Co^{60} 2.25' uci/l / 2.2081' 101.9%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725 SC				GW
Hrs Shirley Cervantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-90		[signature]	KJ

54-6800-061 (R-10-83)

~~3023~~ 3024

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7130	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	WB75L	0

Sample Size: ? 100λ Li $^{.001}_{10}$

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

Cs^{137} 1.48 ^{2} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725 SC				GW
Hrs Shirley Cervantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-90		[signature]	KJ

54-6800-061 (R-10-83)

2908

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7030	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	WB75L	0

Sample Size: ? ~~500λ~~ 100λ Li $^{.001}_{10}$

Customer ID: 000005

Remarks, Calculations, Results:

Cs^{137} 1.30 ^{2} uci/l or

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725 SC				GW
Hrs Shirley Cervantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-90		[signature]	KJ

54-6800-061 (R-10-83)

9 1 1 2 0 5 9 0 5 7 3

GEA Analysis - Water Digestion

1722

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7530	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	WB75L	0

Sample Size: ? ~~25~~ 500λ Li .001 2

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 89844

Cs^{137} 3.62' / 3.8078' 95.07%

Co^{60} 2.28' / 2.2081' 103.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				
Hrs Shirley Cervantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-90		

54-6600-061 (R-10-83)

4035

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7230	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-546-121	% RECOVERY	WB75L	0

Sample Size: ? 100λ + 500λ spike Li .001 (89844)

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE F9B5

102.4%

(32.5 - 13.0)2 = 3.90' / 3.8078'

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				
Hrs Shirley Cervantes	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-90		

54-6600-061 (R-10-83)

9 1 1 2 0 5 9 0 5 7 4

ICP Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-8350	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	E21D1	1

Sample Size: ? .5mL-10mL

Customer ID:

Remarks, Calculations, Results: REAGENT BLANK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 07-09-90

Time Completed:

Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-8550	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	E21D1	1

Sample Size: ?

Customer ID: #5

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID_____
78C11-T Direct
87B38-B 1mL-10mL
77C11-R Direct

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]			[signature]	

Date: 07-09-90

Time Completed:

Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-8150	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	E21D1	1

Sample Size: ? .5mL-10mL

Customer ID: #5

Remarks, Calculations, Results: DUPLICATE SAMPLE

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 07-09-90

Time Completed:

Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-8050	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	E21D1	1

Sample Size: ? .5mL-10mL

Customer ID: #5

Remarks, Calculations, Results:

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 07-09-90

Time Completed:

Lab Unit Mgr: [signature]

54-6600-061 (R-10-83)

9 1 1 2 0 5 9 0 5 7 5

ICP Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-8250	SEG.COMP#17	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	E21DI	1

Sample Size	Customer ID
.5mL - 10mL	#5

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID
SPIKE VOLUME 1mL EACH

78C11-S
87B38-B
77C11-R

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Janice G White				

Date	Time Completed	Lab Unit Mgr
07-09-90		[signature]

54-9800-C81 (R-18-83)

9 1 1 2 7 5 9 0 5 7 6

Plutonium Analysis - Water Digestion

*2 2714 8hrs

Serial No.	Sample Point	Date	Time Issued	Priority
F 946.-6381	SEG.COMP#8	1-30-90	10:38	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 1ml + 50λ [redacted] Am spike 10B43-B

Customer ID: 000008

Remarks, Calculations, Results:
REAGENT BLANK
1200 con HNO_3

$<7.29^{-3}$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		[illegible]

54-6800-061 (R-10-83)

*4 4709 8hrs

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7581	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-100

Customer ID: [illegible]

Remarks, Calculations, Results:
LMCS CHECK SAMPLE 50λ 10B43 B
LMCS ID 16B43

"AEA-480 MIN" ATTACH PRINT OUT

109.5%

1.066^{2} / 9.7329^{1}

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		[illegible]

54-6800-061 (R-10-83)

3.4 4710

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7181	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	uCI/L	WB75L	0

Sample Size: ? [redacted] 1ML + 50λ [redacted] Pu spike 10B43-B

Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
[redacted] Con HNO_3 1200

"AEA-480 MIN" ATTACH PRINT OUT

$<6.14^{-3}$ uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		[illegible]

54-6800-061 (R-10-83)

128 .8065 8hrs

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7081	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	uCI/L	WB75L	0

Sample Size: ? [redacted] 1ML + 50λ [redacted] Pu spike 10B43-B

Customer ID: 000005

Remarks, Calculations, Results:
[redacted] Con HNO_3 -1200λ

"AEA-480 MIN" ATTACH PRINT OUT

8.02^{-3} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		[illegible]

54-6800-061 (R-10-83)

#7 3946 8hrs.

Serial No.	Sample Point	Date	Time Issued	Priority
F 950.-6581	SEG.COMP#12	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ?100-10-100 50λ

Customer ID: 000008

Remarks, Calculations, Results: [redacted] Pu spike 10843-B

LMCS CHECK SAMPLE
LMCS ID ~~100~~ 16645

"AEA-480 MIN" ATTACH PRINT OUT

1.0312 / 9.7329 105.9%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-6800-061 (R-10-83)

3.3 3954

Serial No.	Sample Point	Date	Time Issued	Priority
F 947.-6281	SEG.COMP#11	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
PU	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ?1ml + 100-10-100 Pu spike

Customer ID: 000008

Remarks, Calculations, Results: [redacted] Pu spike 10843-B

SPIKED SAMPLE
890λ HNO3 E294 F947

"AEA-480 MIN" ATTACH PRINT OUT

no spike recovery 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-8-90		

54-6800-061 (R-10-83)

Americium 241 Analysis - Water Digestion

3.3 3956

Serial No.	Sample Point	Date	Time Issued	Priority
F 946.-6382	SEG.COMP#8	1-30-90	10:38	19

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	uCI/L	WB75L	0

Sample Size: ? 1ml + 100x Am spike — Customer ID: 000008

Remarks, Calculations, Results: 9843
REAGENT BLANK
1200 Con HNO_3

"AEA-480 MIN" ATTACH PRINT OUT

$<1.50^{-2}$ uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 B598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		[illegible]

54-6600-081 (R-10-83)

3.2 2726

Serial No.	Sample Point	Date	Time Issued	Priority
F 897.-6582	SEG.COMP#7	1-24-90	8: 5	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-1000 — Customer ID:

Remarks, Calculations, Results: SPIKE 9843 100x
LMCS CHECK SAMPLE
LMCS ID 16843

"AEA-480 MIN" ATTACH PRINT OUT

1.592' / 1.5712'

101.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 B598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		[illegible]

54-6600-081 (R-10-83)

3.4 4719

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7182	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	uCI/L	WB75L	0

Sample Size: 1ML ? [redacted] + 100x Am spike — Customer ID: 000005

Remarks, Calculations, Results: 9843
DUPLICATE SAMPLE
[redacted] Con HNO_3 1200

"AEA-480 MIN" ATTACH PRINT OUT

$<1.13^{-2}$ uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 B598				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		[illegible]

54-6600-081 (R-10-83)

4.1 5589

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7082	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	uCI/L	WB75L	0

Sample Size: 1ML ? [redacted] + 100x Am spike — Customer ID: 000005

Remarks, Calculations, Results: 9843
[redacted] Con HNO_3 1200

"AEA-480 MIN" ATTACH PRINT OUT

$<1.15^{-2}$ uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 B598/RH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		[illegible]

54-6600-081 (R-10-83)

2724

Serial No	Sample Point	Date	Time Issued	Priority
F 950.-6582	SEG.COMP#12	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 100-10-1000 + 100λ spike 9343

Customer ID: 000008

Remarks, Calculations, Results:
LMES CHECK SAMPLE
LMCS ID 16843

"AEA-480 MIN"
ATTACH PRINT OUT

1.663'/1.5712' 105.8%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-12-90		

54-6600-081 (R-10-83)

3958

Serial No	Sample Point	Date	Time Issued	Priority
F 949.-6282	SEG.COMP#11	1-30-90	10:40	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AM	LA-503-156	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 100-10-1000 std + 100λ spike

Customer ID: 000008

Remarks, Calculations, Results:
SPIKED SAMPLE
890λ HNO3
no spike recovery

"AEA-480 MIN"
ATTACH PRINT OUT

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B58/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2/2/90		

54-6600-081 (R-10-83)

9 1 1 2 3 5 9 0 5 2 0

Carbon 14 Analysis - Water Digestion

2

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7388	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
C14	LA-348-104	uCI/L	WB75L	0

Sample Size: ? 20 mL

Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK

$\frac{(<25)(1000)}{2.22E6(20)} = <1.13E-2$ uCi/L XMP

$<5.6\times10^{-4}$ uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98	O.H. Milicia		S.H. Cathy	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: 7-16-90 | Time Completed: | Lab Unit Mgr: Paul M. Pool | Virginia Southern

54-6800-081 (R-10-83)

1

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7588	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
C14	LA-348-104	% RECOVERY	WB75L	0

Sample Size: ? 1 mL

Customer ID:

Remarks, Calculations, Results: 15 mL
LMCS CHECK SAMPLE
LMCS ID 31846

$\frac{(1707.579)(1000)}{2.22E6} = 7.69E-1 / 8.8916E-1 = 86.5\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98	O.H. Milicia		S.H. Cathy	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale			Virginia Southern	

Date: 7-16-90 | Time Completed: | Lab Unit Mgr: Paul M. Pool | Virginia Southern

54-6800-081 (R-10-83)

4

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7188	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
C14	LA-348-104	uCI/L	WB75L	0

Sample Size: ? 10 mL

Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

$\frac{(104.6160)(1000)}{(2.26E6)(10)} = 4.71E-3$ or $<1.13E-2$ uCi/L XMP

~~<1 ... blk~~ XMP

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98	O.H. Milicia		S.H. Cathy	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: 7-16-90 | Time Completed: | Lab Unit Mgr: Paul M. Pool | Virginia Southern

3

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7088	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
C14	LA-348-104	uCI/L	WB75L	0

Sample Size: ? 10 mL

Customer ID: 000005

Remarks, Calculations, Results:

$\frac{(107.0918)(1000)}{(2.22E6)(10)} = 4.8E-9$ or $<1.13E-2$ XMP

~~less than blk.~~ XMP

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98	O.H. Milicia		S.H. Cathy	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date: 7-16-90 | Time Completed: | Lab Unit Mgr: Paul M. Pool | Virginia Southern

54-6800-081 (R-10-83)

9 1 1 2 0 5 9 0 5 3 1

Carbon 14 Analysis - Water Digestion

6

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7588	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
C14	LA-348-104	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 1mL	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 31846

$\frac{(1933.410)(1000)}{2.22E6} = 8.71E-1$ uci/L / 8.8916E-1 = 98.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98	D. Hamilton		[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale			[signature]	

Date	Time Completed	Lab Unit Mgr	
7-16-90		[signature]	[signature]

54-6860-061 (R-10-83)

5

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7288	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
C14	LA-348-104	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 10mL + 1mL STD 31846	000005

Remarks, Calculations, Results:

F905 ZMP

~~$\frac{(1860.993)(1000)}{(2.22E6)} = 8.38E-1$ uci/L~~ ZMP / ~~8.8916E-1~~ ZMP = ~~94.2%~~ ZMP

$\frac{(1860.993 - 107.0918)(1000)}{2.22E6} = 7.90 \times 10^{-1}$ uci/L / 8.8916E-1 = 88.9%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6 BS98	D. Hamilton		[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
Ronald D. Hale				

Date	Time Completed	Lab Unit Mgr	
7-16-90		[signature]	[signature]

54-6860-061 (R-10-83)

9 1 1 2 ? 5 9 0 5 ? 2

Iodine 129 Analysis - Water Digestion

A4973

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7385	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	uCI/L	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

$\frac{(<.118^{-4})(1000)}{.05902} = <1.999^{-1}$ well

g. 2.1021 ~~2.1239~~ sc
+. 2.[illegible]3
n. .0018 / .0305

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/SC				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-23-90		[illegible]	DMS

54-6600-061 (R-10-83)

A 4971

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7585	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	% RECOVERY	WB75L	0

Sample Size: ? 1ml

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 124B44

104.8% 6.138^{-1} / 5.8524^{-1}

g. 2.1304
+. 2.1223
n. .0081 / .0305 = $.2657^{-1}$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/SC				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-23-90		[illegible]	DMS

54-6600-061 (R-10-83)

A4976

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7185	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	uCI/L	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

$\frac{(<.133^{-4})(1000)}{.1246} = <1.07^{-1}$ well

g. 2.1173
+. 2.1135
n. .0038 / .0305 .1246

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/SC				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-23-90		[illegible]	DMS

54-6600-061 (R-10-83)

A4975

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7085	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	uCI/L	WB75L	0

Sample Size: ? 1ml

Customer ID: 000005

Remarks, Calculations, Results:

$\frac{(<.126^{-4})(1000)}{\cancel{.0059}\ .19344} = <6.31^{-2}$ well

g. 2.1240
+. 2.1181
n. .0059 / .0305 = ~~.0059~~ .19344

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/SC				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-23-90		[illegible]	DMS

54-6600-061 (R-10-83)

Iodine 129 Analysis - Water Digestion

A4970

Serial No	Sample Point	Date	Time Issued	Priority
F 908.-7585	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	% RECOVERY	WB75L	0

Sample Size: ? ml

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 124844

$\frac{(.139^{-3})(1000)}{.223} = 6.235$

102.5% 106.5%

g. 2.1172
+. 2.1104
n. .0068 / .0305 = .223

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/dl				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-23-90			DMS

54-6800-081 (R-10-83)

A4978

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7285	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
I129	LA-378-103	% RECOVERY	WB75L	0

Sample Size: ? ml + 1 ml STD (124844)

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE

$\frac{(.999^{-4})(1000)}{.18083} = 5.54$

94.7%

g. 2.0986
+. 2.0931
n. .0055 / .18083

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/dl				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-23-90			DMS

54-6800-081 (R-10-83)

Neptunium 237 Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7383	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	uCI/L	WB75L	0

Sample Size: ? 250λ MT 500λ
Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK
<1.08 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-2-90		

84-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 1058.-7583	SEG.COMP#18	2-15-90	14: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	% RECOVERY		0

Sample Size: ? 250λ RH 100λ MT 500λ
Customer ID: 000012

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 148033
70.8% KI
90.77/128.11

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-2-90		

84-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7183	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	uCI/L	WB75L	0

Sample Size: ? 250λ MT 500λ
Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
<1.08 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-2-90		

84-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7083	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NP	LA-933-141	uCI/L	WB75L	0

Sample Size: ? 250λ MT 500λ
Customer ID: 000005

Remarks, Calculations, Results:
<1.08 uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/RH				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-2-90		

84-6800-081 (R-10-83)

9 1 1 2 1 5 9 0 5 1 5

Neptunium 237 Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 1077.-7583	SEG.COMP#13	2-16-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NP	LA-933-141	% RECOVERY	E21D1	0

Sample Size: ? ~~25~~ 100λ MT 500λ

Customer ID: 000013

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 148533

91.76
128.11

71.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/CH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-2-90		[illegible]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 1081.-7283	SEG.COMP#17	2-16-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
NP	LA-933-141	% RECOVERY	E21D1	0

Sample Size: ? 250λ + 100λ std 148533 MT 500λ

Customer ID: 000013

Remarks, Calculations, Results: F905
SPIKED SAMPLE

34.8%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6B598/CH				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
3-2-90		[illegible]

54-6800-061 (R-10-83)

Strontium 90 Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7386	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	uCI/L	WB75L	0

Sample Size: ? 1ml + 1ml Sr carrier
Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK
Time: 11:15
Date: 2-6-90

	A	B
	5.04-3	4.91-3
Gross	2.3149	2.6789
Tare	7.2183	7.5819
net	.00966	0.0970
	.966	.970

4.98-3 wei/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
fc916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lai				

Date	Time Completed	Lab Unit Mgr
2-6-90		

54-6600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7586	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 1ml Sr carrier
Customer ID: 97.3%

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 106844
Time: 11:15
Date: 2-6-90

	A	B
	1.313	1.385
Gross	7.6546	7.6542
Tare	7.5578	7.5570
	0.0968	0.0972
	.9680	.972

1.349 wei/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
fc916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lai				

Date	Time Completed	Lab Unit Mgr
2-6-90		

54-6600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7186	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	uCI/L	WB75L	0

Sample Size: ? 250 ml + 1ml Sr carrier
Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
Time: 11:20
Date: 2-6-90

	A	B
	6.117-1	6.279-1
Gross	7.7364	7.4233
Tare	7.6417	7.3763
	0.0947	0.0970
	.947	.970

6.198-1 wei/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
fc916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lai				

Date	Time Completed	Lab Unit Mgr
2-6-90		

54-6600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7086	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	uCI/L	WB75L	0

Sample Size: ? 250 ml + 1ml Sr carrier
Customer ID: 000005

Remarks, Calculations, Results:
Time: 11:20
Date: 2-6-90

	A	B
	7.022-1	7.159-1
Gross	7.6135	7.3330
Tare	7.5205	7.2375
	0.0930	0.0955
	.930	.955

7.09-1 wei/l

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
fc916				
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Lai				

Date	Time Completed	Lab Unit Mgr
2-6-90		

54-6600-081 (R-10-83)

Strontium 90 Analysis - Water Digestion

2" 2-7-90 VR 0025 ΔT 13.08 D.F. 4

1920 / 10 - 27

1846 / 10 -

Sr Calculation by VR on 02-07-1990 at 05:59:11
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 4 Method : 1

Mount # 1 Decay time = 13.08 hrs

1920 / 10 - 27.0 = 6.8372E-01 uCi/L strontium

Mount # 2 Decay time = 13.08 hrs

1846 / 10 - 27.0 = 6.5305E-01 uCi/L strontium

F 905-7086

10 2" 2-7-90 VR 0200 ΔT 14.67 D.F. 4

1688 / 10 - 27

1761 / 10 -

Sr Calculation by VR on 02-07-1990 at 05:59:53
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 4 Method : 1

Mount # 1 Decay time = 14.67 hrs

1688 / 10 - 27.0 = 5.7927E-01 uCi/L strontium

Mount # 2 Decay time = 14.67 hrs

1761 / 10 - 27.0 = 6.0909E-01 uCi/L strontium

F 906-7186

10/2 2-6-90 AJ 1920 ΔT 8.08 1mL

(A) 11956 / 10 - 26

(B) 12644 / 10

Sr Calculation by AJ on 02-06-1990 at 22:50:48
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 8.08 hrs

11956 / 10 - 26.0 = 1.2713E+00 uCi/L strontium

Mount # 2 Decay time = 8.08 hrs

12644 / 10 - 26.0 = 1.3459E+00 uCi/L strontium

F 903-7586

10/2 2-6-90 AJ 2150 ΔT 10.58 1mL

(A) 268 / 10 - 26

(B) 267 / 10 - 26

Sr Calculation by AJ on 02-06-1990 at 22:52:01
Det #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 10.58 hrs

268 / 10 - 26.0 < 4.8683E-03 uCi/L strontium

Mount # 2 Decay time = 10.58 hrs

267 / 10 - 26.0 < 4.7589E-03 uCi/L strontium

F 904-7386

9112905027

Strontium 90 Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7586	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	% RECOVERY	WB75L	0

Sample Size: ?1ml + 1ml Sr carrier

Customer ID: 100.5%

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 106844
11:30

Time: ~~1534~~
Date: ~~2-6-90~~ 2-6-90

	A		D
Gross	1.390	1.394 wei/l	1.398
	7.4881		7.4826
Tare	7.3944		7.3867
	0.0937		0.0959
	.937		.959

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916 ~~80725~~				gc
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Li				

Date	Time Completed	Lab Unit Mgr
2-6-90		

54-8800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7286	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SR	LA-220-101	% RECOVERY	WB75L	0

Sample Size: 106844 ?250ml + 1ml std + 1ml Sr carrier

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE
11:30
Time: ~~1534~~
Date: ~~2-6-90~~ 2-6-90

123%

	A		D
Gross	2.390		2.390
	7.8726		7.6981
Tare	7.7763		7.6039
	0.0963		0.0942
	.963		.942

2.390 wei/l - .709 = 1.70 / 1.38 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6c916 ~~80725~~				gc
Hrs	Hrs	Hrs	Hrs	Hrs
Sue Li				

Date	Time Completed	Lab Unit Mgr
2-6-90		

54-8800-081 (R-10-83)

Strontium 90 Analysis - Water Digestion

2 2" 2-7-90 0220

$\frac{6254}{10}$ - 9

$\frac{6390}{10}$ -

DT 14.83
DF. 4

Sr Calculation by VR on 02-07-1990 at 03:56:39
Bet #12 2 -inch mount Sr eff : .4233 Y eff : .4719

Sample size : 1 mL Dilution : 4 Method : 1

Mount # 1 Decay time = 14.83 hrs

$\frac{6254}{10}$ - 9.0 = 2.2516E+00 uCi/L strontium

Mount # 2 Decay time = 14.83 hrs

$\frac{6390}{10}$ - 9.0 = 2.3013E+00 uCi/L strontium

F 907.-7286

10 2" 2-7-90 VR 0240

$\frac{13076}{10}$ - 27

$\frac{13456}{10}$

DT 15.17

Sr Calculation by VR on 02-07-1990 at 05:57:56
Bet #10 2 -inch mount Sr eff : .3792 Y eff : .4215

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 15.17 hrs

$\frac{13076}{10}$ - 27.0 = 1.3021E+00 uCi/L strontium

Mount # 2 Decay time = 15.17 hrs

$\frac{13456}{10}$ - 27.0 = 1.3408E+00 uCi/L strontium

F 908.-7586

9 1 1 2 0 5 9 0 5 0 9

Technetium 99 Analysis - Water Digestion

9 & 10

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7284	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	% RECOVERY	WB75L	0

Sample Size: ? 1ml + 250λ std + 100λ Tc spike 148B39 — Customer ID: 000005

Remarks, Calculations, Results:
SPIKED SAMPLE

TC Spike 49B39

Q 53.1755

Q+S 3536.0

5.05^{-2} uci/l

$\frac{3536.0-53.1755}{5.8795^3} = \frac{53.1755}{.5924}$

$\frac{2463.19-26.7119}{5.8795^3} = \frac{26.7119}{.4144}$

$87.765-64.459 = \frac{23.304 \times 4 \times 1000}{222 \times 10^6}$

$4.199 \times 10^{-2} / 3.6166 = 1.16\%$ [illegible]

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725/A.C.				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-1-90		[illegible]	DMS

54-6600-061 (R-10-83)

11 & 12

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7584	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	% RECOVERY	WB75L	0

Sample Size: ? 250λ + 100λ Tc spike — Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 148B39

3.6534 / 3.6166 101.0%

3.4098 / 3.6166 94.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-1-90		[illegible]	DMS

54-6600-061 (R-10-83)

5 & 6

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7084	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	uCI/L	WB75L	0

Sample Size: ? 1ml + 100λ Tc 99 spike 49B39 — Customer ID: 000005

Remarks, Calculations, Results:

Q 26.7119

Q+S 2463.19

2.90^{-2} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-1-90		[illegible]	DMS

54-6600-061 (R-10-83)

7 & 8

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7184	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	uCI/L	WB75L	0

Sample Size: ? 1ml + 100λ Tc 99 spike 49B39 — Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

Q 71.0686

Q+S 2690.31

7.19^{-2} uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-1-90		[illegible]	DMS

54-6600-061 (R-10-83)

Technetium 99 Analysis - Water Digestion

182

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7584	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	% RECOVERY	WB75L	0

Sample Size: ? 250λ + 100λ Tc^{99} 49639

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 148639

D 812.289
D+S 3335.985

3.4097 / 3.6166 94.38 %

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-1-90		[illegible]	DMS

54-8800-001 (R-10-83)

354

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7384	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TC99	LA-438-101	uCI/L	WB75L	0

Sample Size: ? 1ml + 100λ Tc spiked 49639

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

D 9.0784 <20
D+S 32530.88

$< 2.11^{-2}$ uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80725				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
2-1-90		[illegible]	DMS

54-8800-001 (R-10-83)

9 1 1 2 0 5 9 0 5 9 2

Tritium Analysis - Water Digestion

2

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7387	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
H3	LA-218-113	uCI/L	WB75L	0

Sample Size: ? 1 ml

Customer ID: 00005

Remarks, Calculations, Results:

REAGENT BLANK

<1.13 -2

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65545				[illegible]
Hrs: MSlavarias	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/26/90		[illegible]	DMS

54-8860-061 (R-10-83)

1

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7587	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
H3	LA-218-113	% RECOVERY	WB75L	0

Sample Size: ? 1 ml

Customer ID: 00005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 190B144

99.3%

7.025 -1 / 7.0768 -1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65545				[illegible]
Hrs: MSlavarias	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/26/90		[illegible]	DMS

54-8860-061 (R-10-83)

4 & 5

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7187	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
H3	LA-218-113	uCI/L	WB75L	0

Sample Size: ? 1 ml

Customer ID: 00005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

~~2.78 -2~~ 2.95 -2 (JP)
uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65545				[illegible]
Hrs: MSlavarias	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/26/90		[illegible]	DMS

54-8860-061 (R-10-83)

3

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7087	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
H3	LA-218-113	uCI/L	WB75L	0

Sample Size: ? 1 ml

Customer ID: 00005

Remarks, Calculations, Results:

2.057 -2
uci/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65545				[illegible]
Hrs: MSlavarias	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
3/26/90		[illegible]	DMS

54-8860-061 (R-10-83)

9 1 1 2 9 5 9 0 5 9 3

Tritium Analysis - Water Digestion

7

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7587	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
H3	LA-218-113	% RECOVERY	WB75L	0

Sample Size: ?1 ml

Customer ID: 00005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 140844

99.8%

7.058-1 / 7.0758-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65545				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 3/26/90 | Time Completed: | Lab Unit Mgr: [illegible] | DMS

S4-6600-081 (R-16-83)

6

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7287	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
H3	LA-218-113	% RECOVERY	WB75L	0

Sample Size: ?2 mls + 2 mls 140844

Customer ID: 00005

Remarks, Calculations, Results:

SPIKED SAMPLE

98.3%

6.958-1 / 7.0758-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65545				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 3/26/90 | Time Completed: | Lab Unit Mgr: [illegible] | DMS

S4-6600-081 (R-16-83)

9 1 1 2 ? 5 9 0 5 ? 4

Arsenic Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7395	SEG.COMP#14	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	WB75L	0

Sample Size: ? 1 mL

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK

pk Hgt: 5.0 mm

$<5ng/1000 = <5.0^{-3}$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280				RK 4-10-90
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
4-9-90		[signature]	[signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7595	SEG.COMP#13	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	WB75L	0

Sample Size: ? 35x

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 58C11BU

pk Hgt: 76.5

94.6% DMS

$37.433/35 = 1.0695/1.13$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280				RK 4-10-90
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
4-9-90		[signature]	[signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7195	SEG.COMP#16	1-24-90	8:11	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	WB75L	0

Sample Size: ? 1 mL

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

pk Hgt: 4.5 mm

$<5ng/1000 = <5.00^{-3}$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280				RK 4-10-90
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
4-9-90		[signature]	[signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7095	SEG.COMP#15	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	WB75L	0

Sample Size: ? 1 mL

Customer ID: 000005

Remarks, Calculations, Results:

pk Hgt: 4.5 mm

$<5ng/1000 = <5.00^{-3}$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280				RK 4-10-90
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
4-9-90		[signature]	[signature]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7595	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	WB75L	0

Sample Size: ? 35x

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 58C11BU

pk Hgt: 79.5mm

98.8%
BMS

39.0474/35 = 1.116/1.13

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C280				TK 4-10-90
Hrs 25m	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
4-9-90		

54-8809-081 (R-10-89)

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7295	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	WB75L	0

Sample Size: ? 1 mL

Customer ID: 000005

Remarks, Calculations, Results:

SPIKED SAMPLE
58C11BU 35x

pk Hgt: 67.0 mm

81.7%

32.3197/35 = .9234/1.13

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C280				TK 4-10-90
Hrs 25m	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
4-9-90		

54-8809-081 (R-10-89)

Mercury Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7597	SEG.COMP#18	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	% RECOVERY	E21D1	0

Sample Size: ? .025 ML — Customer ID: 00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 5BC11CB
pk hgt = 69.0 mm
104.6%
~~35~~ 32.693 / 25ul = 1.308 ppm / 1.25

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C823	Melanie Myers	6C280		RK 6-29-90
Hrs 45	Hrs	Hrs	Hrs	Hrs

Date: 6/29/90 — Time Completed: — Lab Unit Mgr: [signature] Kathy Thomdike

54-5800-081 (R-10-83)

Water digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7197	SEG.COMP#17	1-24-90	8:11	20

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	PPM	E21D1	0

Sample Size: ? 1ML + .025ml LMCS 5BC11CB — Customer ID: 00005

Remarks, Calculations, Results: SR
~~DUPLICATE SAMPLE~~ — spike
pk hgt = 65.0 mm
98.2%
30.709 / 25ul = 1.228 ppm / 1.25

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C823	Melanie Myers	6C280		6-29-90 RK
Hrs 45	Hrs	Hrs	Hrs	Hrs

Date: 6-29-90 — Time Completed: — Lab Unit Mgr: [signature] Kathy Thomdike

54-5800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7397	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	PPM	E21D1	0

Sample Size: ? 1ML — Customer ID: 00005

Remarks, Calculations, Results:
REAGENT BLANK
pk. hgt 6.0 mm
1.439 ug / 1000ul = <1.44E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C823	Melanie Myers	6C280		RK 6-29-90
Hrs 45 min	Hrs	Hrs	Hrs	Hrs

Date: 6-29-90 — Time Completed: — Lab Unit Mgr: [signature] Kathy Thomdike

54-5800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7597	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	% RECOVERY	E21D1	0

Sample Size: ? .025ML — Customer ID: 00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 5BC11-CB
pk hgt = 66.0 mm
99.8%
31.204 / 25ul = ~~.8916~~ 1.248 ppm / 1.25 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Melanie Myers	6C280			RK 6-29-90
Hrs 6C823 45 min	Hrs	Hrs	Hrs	Hrs

Date: 6-29-90 — Time Completed: — Lab Unit Mgr: [signature] Kathy Thomdike

54-5800-081 (R-10-83)

9 1 1 2 ? 5 9 0 5 ? 7

Mercury Analysis - Water Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7197	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	PPM	E21D1	0

Sample Size	Customer ID
? 1ML	00005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

~~F905~~ mm

pk Hgt = 6.0 mm

1.4387 ug/1000 ul = <1.44 E^{-3} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
60823	[illegible]	6C280		RK [illegible] 6-29-90
Hrs 45	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
6-29-90		[illegible]

54-6600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7097	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	PPM	E21D1	0

Sample Size	Customer ID
? 1ML	00005

Remarks, Calculations, Results:

pK. hght = 3.0 mm

<9.87 ug/1000 ul = ~~9.87 E^{-3}~~ ppm

<1.44 X 10^{-3} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
60823	[illegible]	6C280		RK [illegible] 6-29-90
Hrs 45	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
6-29-90		[illegible]

54-6600-061 (R-10-83)

F 903-7597

0.0000 ***
4.0000 ***

10.0000 ***
23.0000 ***

20.0000 ***
42.0000 ***

40.0000 ***
84.5000 ***

[illegible] ***
a [illegible] ***
b [illegible] ***

9 1 1 2 3 5 9 0 5 2 8

Selenium Analysis - Water Digestion

Serial No.	Sample Point	Date		Priority
F 908.-7596	SEG.COMP#18	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	% RECOVERY	WB75L	1

Sample Size: ? 35x

Customer ID: 00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 58C11CA

pk Hgt: 81.5 mm

39.655ng / 35ul = 1.133 ppm / 1.20 = 94.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280	[signature]			RK Fuller
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date: 6-22-90

Time Completed:

Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date		Priority
F 907.-7296	SEG.COMP#17	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	% RECOVERY	WB75L	1

Sample Size: ? 100x

Customer ID: 00005

Remarks, Calculations, Results:
SPIKED SAMPLE
58C11CA
35x

pk Hgt: 65.5 mm

73.9%

31.0345 / 35ul = .8867 / 1.20

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280	[signature]			RK Fuller
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date: 6-22-90

Time Completed:

Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date		Priority
F 905.-7096	SEG.COMP#15	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	PPM	WB75L	1

Sample Size: ? 1mL

Customer ID: 00005

Remarks, Calculations, Results:

pk Hgt: 4.5 mm
<60mm

<10.0
~~28.071~~ TMP / 1000ul = ~~<2.81E~~ TMP ppm
<1.0X10^-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280	[signature]			RK Fuller
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date: 6-22-90

Time Completed:

Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date		Priority
F 906.-7196	SEG.COMP#16	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	PPM	WB75L	1

Sample Size: ? 1mL

Customer ID: 00005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

pk Hgt: 5.5 mm
<60mm

<10.0
~~28.071ng~~ TMP / 1000ul = ~~<2.81E~~ TMP -2 ppm
<1.0X10^-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C280	[signature]			RK Fuller
Hrs: 25m	Hrs	Hrs	Hrs	Hrs

Date: 6-22-90

Time Completed:

Lab Unit Mgr: [signature]

Selenium Analysis - Water Digestion

Serial No.	Sample Point	Date		Priority
F 903.-7596	SEG.COMP#13	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	% RECOVERY	WB75L	1

Sample Size	Customer ID
? 35x	00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 58C11CA

pk Hgt: 90.5 mm

44.504 / 35ul = 1.272ppm / 1.20 = 106.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C230	[signature]			RK Fuller
Hrs	Hrs	Hrs	Hrs	Hrs
25m			[signature]	

Date	Time Completed	Lab Unit Mgr
6-22-90		[signature] [signature]

54-6600-081 (R-10-83)

Serial No.	Sample Point	Date		Priority
F 904.-7396	SEG.COMP#14	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	PPM	WB75L	1

Sample Size	Customer ID
? 2mL	00005

Remarks, Calculations, Results:
REAGENT BLANK

pk Hgt: 2.0 mm
<60mm

<10ng ~~28.071~~ ng / 1000ul = ~~<2.81E-2~~ ppm
<1.0x10^-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C230	[signature]			RK Fuller
Hrs	Hrs	Hrs	Hrs	Hrs
25m				

Date	Time Completed	Lab Unit Mgr
6-22-90		[signature] [signature]

54-6600-081 (R-10-83)

9 1 1 2 0 5 9 0 6 0 0

Total Organic Carbon Analysis On The Water Digestion - Third Leach

Serial No.	Sample Point	Date	Time Issued	Priority
F 907.-7226	SEG.COMP#17	1-24-90	8:12	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	% RECOVERY	WB75L	1

Sample Size: ? 200uL+100uL .5m H_2SO_4-200uL

Customer ID: 00005

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 80C11
SPIKE VOLUME 200uL

$$\frac{(122.6ug - 5.2ug) - (5.9ug - 5.2ug)}{119.9ug} \times 100 = 97.3\%$$

(over)

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				R E Brandt
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
5-31-90		Karl N. Pool, Kathy Hornbeke

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 908.-7526	SEG.COMP#18	1-24-90	8:13	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	% RECOVERY	WB75L	1

Sample Size: ? 200uL-2mL-200uL

Customer ID: 00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 70C11D

2.942ug / 3.00ug 98.1%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				R E Brandt
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
5-31-90		Karl N. Pool, Kathy Hornbeke

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 905.-7026	SEG.COMP#15	1-24-90	8: 9	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	G/L	WB75L	1

Sample Size: ? 1mL+100uL .5m H_2SO_4-200uL

Customer ID: 00005

Remarks, Calculations, Results:

~~3.85E-3~~ XMP g/L $< 5.5 \times 10^{-3}$ g/L

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				R E Brandt
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
5-31-90		Karl N. Pool, Kathy Hornbeke

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 906.-7126	SEG.COMP#16	1-24-90	8:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	G/L	WB75L	1

Sample Size: ? 1mL+100uL .5m H_2SO_4-200uL

Customer ID: 00005

Remarks, Calculations, Results:
DUPLICATE SAMPLE

~~2.75E-3~~ XMP g/L $< 5.5 \times 10^{-3}$ g/L

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				R E Brandt
Hrs: Ed Cohn	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
5-31-90		Karl N. Pool, Kathy Hornbeke

54-6800-061 (R-10-83)

Total Organic Carbon Analysis On The Water Digestion - Third Leach

~~JH~~ 8-16-90 F 907.-7226

$$\frac{(122.4-5.2)-\left[(5.9-5.2)\left(\frac{10.06}{10.9}\right)\right]}{119.9} = 9.738\times10^{-1}$$

~~9.734×10^{-1}~~

$9.734\times10^{-1} \times 100 = 97.38\%$

Total Organic Carbon Analysis On The Water Digestion - Third Leach

Serial No.	Sample Point	Date	Time Issued	Priority
F 903.-7526	SEG.COMP#13	1-24-90	8: 7	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	% RECOVERY	WB75L	1

Sample Size: ? 200uL-2mL-200uL

Customer ID: 00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 70C11D

2.9645ug / 3.000ug 98.8%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Colin				
Date	Time Completed	Lab Unit Mgr		
5-31-90				

34-0800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 904.-7326	SEG.COMP#14	1-24-90	8: 8	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	~~%~~ ug	WB75L	1

Sample Size: ? 200uL

Customer ID: 00005

Remarks, Calculations, Results:
REAGENT BLANK

5.2ug 5.2 mP ug 7.4215X10^{-1} ug/min.

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Colin				
Date	Time Completed	Lab Unit Mgr		
5-31-90				

34-0800-081 (R-10-83)

ACID DIGESTION ANALYSIS

APPENDIX A

9 1 1 2 7 5 2 0 6 9 4

Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 912.-8100	SEG.COMP#22	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ACD-DGST	LA-505-159	~~G/L~~ g/mL sj	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE ANALYSIS
GRAMS SAMPLE .6600
VOLUME ON
COMPLETION 50ml

1.32^{-2} g/ml

WHC N 3154

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
69769				
Hrs	Hrs	Hrs	Hrs	Hrs
D. Southwick			Safones	

Date	Time Completed	Lab Unit Mgr
2/13/90		[signature]

54-5800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 911.-8000	SEG.COMP#21	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ACD-DGST	LA-505-159	~~G/L~~ g/mL sj	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

GRAMS SAMPLE .4843
VOLUME ON
COMPLETION 50ml

9.7^{-3} g/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
69769				
Hrs	Hrs	Hrs	Hrs	Hrs
D. Southwick				

Date	Time Completed	Lab Unit Mgr
2/13/90		[signature] Safones

54-5800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 991.-8200	SEG.COMP#23	2- 7-90	10:54	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ACD-DGST	LA-505-158	~~% RECOVERY~~ sj	WB75L	0

Sample Size: g/L

Customer ID: 000007

Remarks, Calculations, Results:

1.02x10^{1} g/L ~~1.02^{-3}~~ sj g/ml

SPIKED ANALYSIS
GRAMS SAMPLE
VOLUME ON
COMPLETION 50ml
VOLUME SPIKES 5 ml each
SPIKE ID 103C15D, 104C15B

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
69769				
Hrs	Hrs	Hrs	Hrs	Hrs
D. Southwick				

Date	Time Completed	Lab Unit Mgr
2/13/90		[signature] [signature]

54-5800-061 (R-10-83)

ICP Analysis - Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 482.-8250	SEGMENT-S	11-30-89	8:37	23

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	WB75L	0

Sample Size: ?
Customer ID: 089072

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID_____
SPIKE VOLUME_____

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs J White	Hrs	Hrs	Hrs	Hrs
Date 3-31-90	Time Completed	Lab Unit Mgr		

54-8600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 487.-8350	SEGMENT-X	11-30-89	8:38	18

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	WB75L	0

Sample Size: ?
Customer ID: 089072

Remarks, Calculations, Results:
REAGENT BLANK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs J White	Hrs	Hrs	Hrs	Hrs
Date 3-31-90	Time Completed	Lab Unit Mgr		

54-8600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 911.-8050	SEG.COMP#21	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	WB75L	0

Sample Size: ? 100-10 , 500-10
Customer ID: 000005

Remarks, Calculations, Results:

Rerun on out w/ 89072

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs J White	Hrs	Hrs	Hrs	Hrs
Date 3-31-90	Time Completed	Lab Unit Mgr		

54-8600-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 483.-8550	SEGMENT-T	11-30-89	8:37	23

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	WB75L	0

Sample Size: ?
Customer ID: 089072

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID_____
78C11F
82B38C
77C11F

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs J White	Hrs	Hrs	Hrs	Hrs
Date 3-31-90	Time Completed	Lab Unit Mgr		

54-8600-061 (R-10-83)

ICP Analysis - Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 771.-8550	SEGMENT-T	12-11-89	9:10	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	WB75L	0

Sample Size	Customer ID
?	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID_____

Reran set w/89072

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
JWhite				
Date	Time Completed	Lab Unit Mgr		
3-31-90		AP		

54-9803-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 912.-8150	SEG.COMP#22	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	WB75L	0

Sample Size	Customer ID
? 100-10 500-10	000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

Reran set w/89072

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65283				
Hrs	Hrs	Hrs	Hrs	Hrs
JWhite				
Date	Time Completed	Lab Unit Mgr		
3-31-90		AP		

54-9803-081 (R-10-83)

Arsenic Analysis - Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 911.-8095	SEG.COMP#21	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	WB75L	0

Sample Size: ? 2ml
Customer ID: 000005

Remarks, Calculations, Results:
pK HT-18, 9.4971ng, .0047ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-26-90
Hrs	Hrs	Hrs	Hrs	Hrs
J Hopkins				
Date	Time Completed	Lab Unit Mgr		
3-15-90			DMS	

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 910.-8395	SEG.COMP#20	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	WB75L	0

Sample Size: ? 2ml
Customer ID: 000005

Remarks, Calculations, Results:
REAGENT BLANK
pK HT 3, -0.3266ng, <0.0025ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-26-90
Hrs	Hrs	Hrs	Hrs	Hrs
J Hopkins				
Date	Time Completed	Lab Unit Mgr		
3-15-90			DMS	

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 992.-8095	SEG.COMP#24	2- 7-90	10:54	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	WB75L	0

Sample Size: 35l
Customer ID: 000007

Remarks, Calculations, Results:
pK HT 69, 42.81ng, 105.44%, 1.22ppm
LMCS CHECK SAMPLE
LMCS ID 58C11BP

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-26-90
Hrs	Hrs	Hrs	Hrs	Hrs
J Hopkins				
Date	Time Completed	Lab Unit Mgr		
3-15-90			DMS	

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 912.-9195	SEG.COMP#22	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	WB75L	0

Sample Size: ? 2ml
Customer ID: 000005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
pK HT-18.5, 9.8039ng, .0049ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-26-90
Hrs	Hrs	Hrs	Hrs	Hrs
J Hopkins				
Date	Time Completed	Lab Unit Mgr		
3-15-90			DMS	

54-6800-081 (R-10-83)

9 1 1 2 7 5 9 0 6 0 3

Arsenic Analysis - Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 914.-8595	SEG.COMP#24	1-24-90	8:15	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	WB75L	0

Sample Size	Customer ID
? 35l	

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 58C11BR

pK HT 65, 40.20ng, 99.14%, 45ppm DMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-26-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date	Time Completed	Lab Unit Mgr	
3-15-90			DMS

54-6800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 913.-8295	SEG.COMP#23	1-24-90	8:15	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	WB75L	0

Sample Size	Customer ID
?	000005

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 58C11BR
SPIKE VOLUME 35λ

pK Ht 53, 22.55ng, .6443ppm, 55.55%
Rerun spike - 100λ + 35λ 58C11BR, 34.75ng, 85.59% spike Recovery
.9927ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-26-90
Hrs	Hrs	Hrs	Hrs	Hrs
J. Hopkins				

Date	Time Completed	Lab Unit Mgr	
3-15-90			DMS

54-6800-081 (R-10-83)

9 1 1 2 ? 5 ? 0 6 0 9

Mercury Analysis - Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 910.-8397	SEG.COMP#20	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	PPM	WB75L	0

Sample Size: ?

Customer ID: 000005

Remarks, Calculations, Results:

REAGENT BLANK peak 6 0ng

Calculated in Curve Delete (pk#t 6 = -0.5733ng)

<.005 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs: J. Hopkins	Hrs	Hrs	Hrs	Hrs

Date: 2-20-90 | Time Completed | Lab Unit Mgr: [signature] | DMS

54-8600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 909.-8597	SEG.COMP#19	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	% RECOVERY	WB75L	0

Sample Size: ? 25A

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 58C11BN

101.0000 ***
26.5032 ***

101.56%

1076

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs: J. Hopkins	Hrs	Hrs	Hrs	Hrs

Date: 2-20-90 | Time Completed | Lab Unit Mgr: [signature]

54-8600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 913.-8297	SEG.COMP#23	1-24-90	8:15	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	% RECOVERY	WB75L	0

Sample Size: ? 3ml

Customer ID: 000005

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 58C11BN
SPIKE VOLUME 25A

$\frac{26.0418ng - 1.6366ng}{25A} =$

98.0000 ***
26.0418 ***

$\frac{.97621 ppm\ spike}{ppm\ LMCS\ 1.06} =$

×100 = 92.10% spike Recovery

92.10% Recovery on spike

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs: J. Hopkins	Hrs	Hrs	Hrs	Hrs

Date: 2-20-90 | Time Completed | Lab Unit Mgr: [signature]

54-8600-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 911.-8097	SEG.COMP#21	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
HG	LA-325-102	PPM	WB75L	0

Sample Size: ? ~~25A~~ 3ml ~~58C11BN~~

Customer ID: 000005

Remarks, Calculations, Results:

Vial 271

13.0000 ***
1.6366 ***

5.5×10^{-4} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				RK Fuller 3-5-90
Hrs: J. Hopkins	Hrs	Hrs	Hrs	Hrs

Date: 2-20-90 | Time Completed | Lab Unit Mgr: [signature]

54-8600-081 (R-10-83)

Mercury Analysis - Acid Digestion

Serial No.	Sample Point	Date	Time Issued	Priority
F 914.-8597	SEG.COMP#24	1-24-90	8:15	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
HG	LA-325-102	% RECOVERY	WB75L	0

Sample Size: ? 25d 58C11AM

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID_____

88.52%

85.0000 ***
25.4572 ***

.9383/1.06

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				F.K. 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J Hopkins				

Date	Time Completed	Lab Unit Mgr
2-20-90		

54-9800-081 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
F 912.-8197	SEG.COMP#22	1-24-90	8:14	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
HG	LA-325-102	PPM	WB75L	0

Sample Size: ? 3ml

Customer ID: 000005

Remarks, Calculations, Results:

DUPLICATE SAMPLE

11.5000 ***
1.2855 ***

4.0×10^{-4} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6A543				F.K. 3-5-90
Hrs	Hrs	Hrs	Hrs	Hrs
J Hopkins				

Date	Time Completed	Lab Unit Mgr
2-20-90		

54-9800-081 (R-10-83)

9 1 1 2 0 5 9 0 6 1 1

Selenium Analysis - Acid Digestion

RERUN

Serial No.	Sample Point	Date	Priority
F 910.-8396	SEG.COMP#20	1-24-90	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	PPM	WB75L	1

Sample Size: ? 1ml

Customer ID: 00005

Remarks, Calculations, Results:
REAGENT BLANK
peak Hgt = 2.5mm <10 ng
10/1000 = <1.0E-2 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Melanie Myers				RKFeller 7-27-90
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 7-20-90 | Time Completed: | Lab Unit Mgr: Karl N. Pool, Kathy Thomdike

54-8600-081 (R-10-83)

RERUN

Serial No.	Sample Point	Date	Priority
F 909.-8596	SEG.COMP#19	1-24-90	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	% RECOVERY	WB75L	1

Sample Size: ? .035ml

Customer ID: 00005

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 58011-CE
peak Hgt = 77.5mm
94.4%
41.47/35 = 1.18/1.25

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Melanie Myers				RKFeller 7-27-90
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 7-20-90 | Time Completed: | Lab Unit Mgr: Karl N. Pool, Kathy Thomdike

54-8600-081 (R-10-83)

RERUN

Serial No.	Sample Point	Date	Priority
F 912.-8196	SEG.COMP#22	1-24-90	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	PPM	WB75L	1

Sample Size: ? 1ml

Customer ID: 00005

Remarks, Calculations, Results:
DUPLICATE SAMPLE
peak Hgt = 10.5mm <10 ng
10/1000 = <1.0E-2 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Melanie Myers				RKFeller 7-27-90
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 7-20-90 | Time Completed: | Lab Unit Mgr: Karl N. Pool, Kathy Thomdike

54-8600-081 (R-10-83)

RERUN

Serial No.	Sample Point	Date	Priority
F 911.-8096	SEG.COMP#21	1-24-90	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SE	LA-365-131	PPM	WB75L	1

Sample Size: ? 1ml

Customer ID: 00005

Remarks, Calculations, Results:
~~DUPLICATE~~ MM
peak Hgt = 9mm <10 ng
10/1000 = <1.0E-2 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Melanie Myers				RKFeller 7-27-90
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 7-20-90 | Time Completed: | Lab Unit Mgr: Karl N. Pool, Kathy Thomdike

54-8600-081 (R-10-83)

9 1 1 2 3 5 9 0 6 1 2

Selenium Analysis - Acid Digestion

Serial No.	Sample Point	Date		Priority
F 914.-8596	SEG.COMP#24	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
SE	LA-365-131	% RECOVERY	WB75L	1

Sample Size	Customer ID
? .035 ml	00005

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 58C11-CE

88.8%

peak Hgt = 73mm

38.96/35 = 1.11/1.25 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Melanie Myers				RK Fuller 7-27-90
Hrs	Hrs	Hrs	Hrs	Hrs
6C823			Kathy Thornlike	

Date	Time Completed	Lab Unit Mgr.
7-20-90		Paul M. Pool Kathy Thornlike

54-8600-061 (R-10-83)

Serial No.	Sample Point	Date		Priority
F 913.-8296	SEG.COMP#23	1-24-90	RERUN	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
SE	LA-365-131	% RECOVERY	WB75L	1

Sample Size	Customer ID
? .050 ml + .035 ml LMCS	00005

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 58C11-CE
SPIKE VOLUME .035 ml

84.0%

peak Hgt = 69mm

36.73/35 = 1.05/1.25

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Melanie Myers				RK Fuller 7-27-90
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr.
7-20-90		Paul M. Pool Kathy Thornlike

54-8600-061 (R-10-83)